

# **Physical Therapists' and Fitness Professionals' Perceptions of Stretching in their Professional Practice**

Gordon Teasdale

Supervisor: Dr Kyra De Coninck

22 August 2024

**School of Natural Sciences**

**University of Kent**

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# Foreword

## The clinical Problem - We are Becoming Stiffer

Functional movement assessments are used to test for movement restrictions, soft tissue dysfunction and pain (Cook, 2010). When I perform the Selective Functional Movement Assessment (SFMA)<sup>1</sup> on my clients I commonly identify range of movement (ROM) restrictions. For example, my clients who present with chronic non-specific low back pain (CNSLBP) typically cannot perform the full SFMA crouch or squat. The squat is defined as sitting with the ankles dorsiflexed, the knees and hips fully flexed, and the upper torso resting on the knees (Kasuyama et al., 2009). This is supported by the literature. Ko et al. (2016) found that participants with chronic low back pain (CLBP) scored lower in the SFMA screen including the deep squat compared with healthy control participants. The lack of ability to perform the basic squat indicates a loss of ROM of the hips, knees and hips (Ko et al., 2016; Mullerpatan et al., 2019). Mullerpatan et al. (2019) observes that humans are designed to squat to carry out normal body functions.

In the 6 years that I have been practicing I have found the vast majority of my clients to be stiff and inflexible. I regularly conduct the SFMA assessment on all new clients as part of the physical assessment prior to treatment. Most of my clients are unable to perform the full squat element of the SFMA. As a result of this phenomenon, I have become interested in the notion that humans may have an optimal ROM and when this ROM is compromised by posture, incorrect biomechanics or injury, the body may experience symptoms of pain or weakness.

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<sup>1</sup> Selective functional movement assessment (SFMA) is an musculoskeletal assessment method to help diagnose movement dysfunction (Cook, 2010).

# Abstract

## Background

Despite the central role of mobility and flexibility in daily function and injury rehabilitation, the impact and clinical applications of stretching remain poorly understood. Existing research has largely concentrated on stretching's effects on athletic performance or injury outcomes, rather than its use and interpretation by practitioners. This thesis adopts phenomenological and self-reflexive methodologies to explore how the lived experiences of physical therapists and fitness professionals shape their perceptions and implementation of stretching. An Interpretative Phenomenological Analysis (IPA) was employed to identify and interpret themes arising from these lived experiences.

## Methodology

Eleven participants (9 female, 2 male), comprising 3 physiotherapists, 1 sports therapist, 1 osteopath, 3 yoga teachers, 2 Pilates instructors, and 1 exercise instructor, took part in semi-structured interviews. A pilot interview helped refine and validate the interview protocol. All interviews were conducted online, recorded, transcribed, verbatim and analysed using IPA. This involved identifying individual Personal Experiential Themes (PETs), which were then synthesised into broader Group Experiential Themes (GETs). A self-reflexive lens was applied to examine the author's own assumptions and experiences related to stretching.

## Results

Analysis yielded twelve PETs, which were distilled into four GETs: **professional identity, developing self-efficacy through experience, learning through education and experience**, and **engagement with research**. Professional identity emerged as fluid and multifactorial, shaped by both organisational context and individual circumstances. Organisationally employed participants tended to align their identity with their institutional role, whereas self-employed participants reported their identity was shaped more by market demands and client needs. Work experience, rather than formal education or Continuing Professional Development (CPD), was cited as a greater contributor to self-efficacy. Novice practitioners often

relied on external validation, whereas experienced and self-employed participants showed a stronger internal locus of control. Innovative, experiential problem-solving contributed to higher self-efficacy. Experienced participants leaned more on practice-based learning, while recent graduates relied more heavily on formal education. A general lack of engagement with current stretching research was noted, attributed primarily to time constraints. Participants focused on research topics aligned with their interests. Organisational practitioners benefited from structured CPD, while self-employed individuals often prioritised client work over professional development.

### Discussion

This study offers rich insights into how professional identity, self-efficacy, and engagement with research are shaped by experience and employment context. Differences between organisationally employed and self-employed practitioners were notable across identity formation, learning styles, and research engagement. These findings suggest the need for further phenomenological exploration of how broader professional and personal contexts influence practitioner development and perceptions of stretching. Future research should include a wider range of practitioner backgrounds to deepen understanding of these dynamics.

**Keywords:** Practitioner perceptions, stretching, rehabilitation, fitness professionals, physical therapists

# Chapter 1: Introduction

## 1.1 Background to This Research

This section outlines the lived experiences that have shaped my perceptions of stretching and led to my interest in researching this area. Presented in chronological order, these experiences have influenced my professional approach and formed the foundation for exploring the stretching perceptions of fellow physical therapists and fitness professionals.

As a professional cyclist in South Africa during the 1980s, stretching and flexibility were emphasised as integral components of my training. This early exposure influenced my later approach to rehabilitation, particularly following a significant injury in 2011. I underwent a right-side tibial tubercle osteotomy, which necessitated immobilising my leg in a brace for six weeks, thereby preventing knee flexion. This resulted in severe joint inflammation and restricted mobility. I could not flex my right knee beyond sixty degrees.

Although I diligently attended prescribed physiotherapy sessions and followed the recommended rehabilitation plan, I was discharged with persistent inflammation, swelling, and limited mobility. My knee flexion improved only marginally to around ninety degrees, and I continued to experience pain and heat in the joint. Notably, no stretching exercises were prescribed during this process.

At the time, I was supplementing my income as a bike mechanic, a physically demanding job that required frequent bending and crouching tasks, which I found increasingly difficult due to my limited range of motion (ROM). Recalling the importance of stretching from my cycling days, I intuitively began stretching my knee and legs, despite having no formal background in rehabilitation. Over the following weeks, I observed significant improvements such as decreased swelling, reduced pain, and gradually improved ROM. Within twelve months, I had regained full ROM in my right knee.

Later, I underwent the same surgical procedure on my left knee. Based on my previous experience, I chose not to attend physiotherapy and instead relied solely on the stretching routine I had developed. This time, I regained full ROM within eight months. This process of self-directed rehabilitation was a turning point. It deepened my appreciation for the role of stretching in recovery and mobility, shaping my evolving clinical perspective.

Motivated by these experiences, I began practicing yoga regularly. Yoga differed from other forms of exercise I had engaged in. The movements were deliberate, flowing through the full dynamic ROM of each body segment. I experienced improved overall mobility, enhanced stability, and a notable reduction in injuries. Within the yoga community, I observed similar outcomes. Many practitioners with previous injuries or musculoskeletal conditions reported substantial, lasting relief from symptoms after adopting yoga.

In 2014, I retrained as a sports therapist and established a private practice. As my practice expanded, I increasingly worked with professional athletes, which led me to recognise a gap in my understanding of performance optimisation and biomechanics. This realisation drove me to complete a master's degree in Applied Sport Science in 2016.

In practice, I encountered a wide range of clients, from individuals recovering from hip replacements to elite athletes. Many of whom were uncertain or hesitant about stretching. I observed a conceptual divide between sports therapy and sports science. Sports therapy tended to focus on stretching to increase ROM and joint angles, whereas sports science questioned the role of stretching in performance enhancement. The evidence in sports science was mixed and, at times, contradictory. Some studies support stretching's benefits for performance (e.g., Barnes & Kilding, 2015; Halbertsma et al., 1996, 1999; Magnusson et al., 1996a, 1996b; Williams, 1985; Wilson, 2010), while others argue it may inhibit performance (e.g., Barbosa et al., 2019; Nuzzo, 2020; Shrier, 2004). This inconsistency left many practitioners, including myself, without clear guidance on the appropriate application of stretching.

In response, I developed a holistic approach that integrates principles from both sports therapy and sports science. My method addresses clients' needs from two perspectives. Clinically, to support rehabilitation and recovery, and biomechanically, to identify contributing factors and prevent recurrence through tailored strength and conditioning strategies.

In 2019, I qualified as an Ashtanga and Yin yoga teacher, seeking to deepen my understanding of stretching through yoga and to explore its integration into my therapeutic work. This training enhanced my appreciation of stretching and mindfulness practices, and it further bridged the gap between clinical therapy and performance optimisation.

Overall, my lived experiences have fundamentally shaped my professional beliefs and practices regarding stretching. Through years of personal rehabilitation, academic study, and professional practice, I have found that stretching can play a critical yet often misunderstood role in injury recovery, performance, and long-term musculoskeletal health. However, many of my clients remain confused or misinformed about stretching, an observation that has become a driving force behind this research.

## **1.2 Knowledge Gaps**

There are several notable knowledge gaps in the current literature:

1. No studies have explored manual therapists' perceptions of stretching within their professional practice.
2. No research has examined differences in self-perceptions between organisationally employed and self-employed practitioners.
3. No studies have investigated how these self-perceptions influence practice across employment types.
4. There is a lack of research on the development of clinical reasoning among self-employed healthcare practitioners.

5. The drivers and development of research engagement among self-employed healthcare and fitness professionals remain unexplored.

Additionally, the field lacks:

- Clear, evidence-based recommendations regarding stretching in sports science.
- Systematic reviews or studies examining the long-term effects of chronic stretching on wellbeing in the general population.
- Research on the impact of long-term stretching across the lifespan from infancy to old age.
- Studies examining physical therapists' and fitness professionals' perceptions of stretching in clinical or training contexts.

This thesis arose from a desire to untangle prevailing myths, misconceptions, and fears surrounding stretching. As an active member of the practitioner community, I sought to understand how fellow professionals perceive and integrate stretching into their practice. This research presents a qualitative study focused on the perceptions of physical therapists and fitness professionals regarding stretching in their professional work.



# Chapter 2: Literature Review of Stretching and Perceptions Research

## 2.1 Introduction

The research study presented in this thesis explores physical therapists' and fitness professionals' perceptions of stretching in their professional practice. Consequently, this chapter consists of two parts: a review of the scientific literature on stretching, and a review of literature related to perceptions research.

**Part I** presents a literature review of current scientific research on stretching. The chapter begins by defining stretching as it is understood in the literature and introduces the various types of stretching—namely static, dynamic, and proprioceptive neuromuscular facilitation (PNF). The main body of the review outlines the search criteria used and examines the existing literature on stretching in relation to sports performance and injury rehabilitation.

**Part II** provides a critical review of research methods used to study perceptions. The purpose of this section is to establish the most appropriate methodology for investigating perceptions in the context of this study.

## 2.2 PART I: Literature Review of Stretching

### 2.2.1 Definitions of Stretching

Stretching is accepted to be the elongation of the musculotendon unit during static, passive, or dynamic movement (Taylor et al., 1990; Alter, 1996). There are many kinds of stretching techniques. Static stretching (SS) is also termed isometric stretching (Alter, 1988) and is a controlled stretching technique in which the muscle is slowly stretched just to the point of discomfort and held in the stretch for longer than 15 seconds (Shellock & Prentice, 1985; Alter, 1988; Taylor et al., 1990; Bandy & Irion, 1994). During dynamic stretching (DS) the muscles are active for the

duration of the movement, and joints are moved through their available ROM (Mann & Jones, 1999; Ward, 2004; Haff & Triplett, 2016). Reciprocal inhibition (RI) occurs during DS. RI is a process whereby the agonist<sup>2</sup> and synergist<sup>3</sup> muscles are contracted together, which in turn induces an inhibitory effect of the antagonist<sup>4</sup> muscle which facilitates it to be stretched (Ward, 2004). Proprioceptive Neuromuscular facilitation (PNF) stretching is used in rehabilitation to restore and strengthen muscle function (Hindle et al., 2012). PNF is an assisted stretching technique in which the physical therapist (PT) will move the joint or muscle to be treated to a point just before a restriction is felt. The PT will hold this position and ask the client to isometrically contract against the resistance to 10 seconds. The client is instructed to exhale and relax as the PT moves the limb to the next restriction. The process is repeated as required (Ward, 2004).

Stretching research has primarily been undertaken by either the sports science or medical community. During the last two decades there has been an increase in research on the effect of stretching in sports, which have fallen into one of three main groups, some suggest that stretching improves performance (Barnes and Kilding, 2015; Halbertsma et al., 1996; Halbertsma et al., 1999; Magnusson et al., 1996a, 1996b; Williams, 1985; Wilson, 2010), some argue that it inhibits performance (Barbosa et al., 2019; Nuzzo, 2020; Shrier, 2004), and some report that it has no effect at all (Baxter et al., 2016). The purpose of the literature review is to gain an understanding of the existing research and current debates around stretching and to identify any gaps in the literature.

### **2.3 Literature Search Strategy**

A comprehensive literature search was conducted using the University of Kent library online database and the following electronic databases: PubMed, Physiotherapy Evidence Database (PEDro), The Cochrane Library, the United States National Library of Medicine (MEDLINE), Embase, Cumulative Index to Nursing and Allied

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<sup>2</sup> An agonist muscle or prime mover muscle contracts to produce movement (Jarmey & Sharkey, 2015).

<sup>3</sup> Synergist muscles act to stabilise the joint during agonist muscle contraction (Jarmey & Sharkey, 2015).

<sup>4</sup> The antagonist muscles are positioned in the opposite side of the joint to the agonist. As the agonist contracts the antagonist relaxes due to reciprocal inhibition (Jarmey & Sharkey, 2015).

Health Literature (CINAHL), PsycINFO, and SPORTDiscus. Each database was searched independently between June and October 2022.

Keyword searches included the following terms:

*'stretching sports performance', 'stretching sports optimisation', 'stretching rehabilitation', 'stretching injury recovery', 'stretching health', and 'stretching wellbeing'.*

Boolean search terms and database filters were applied as shown in **Table 1**.

**Table 1** Boolean search terms

<b>Search Focus</b>	<b>Boolean Search Terms</b>
sports performance	"stretching" AND "sports" AND "performance" OR "optimisation"; "stretching" AND "athletic" AND "performance"
clinical rehabilitation	"stretching" AND "injury" OR "rehabilitation" OR "surgical" AND/OR "recovery"
stretching wellbeing	"stretching" AND "health" OR "wellbeing"

### 2.3.1 Inclusion Criteria

Only peer-reviewed studies published in English and involving human participants were included. The search covered the period from January 1960 to October 2022. Studies were included if they examined stretching interventions related to injury rehabilitation, prevention, sports performance, or wellbeing.

Eligible study designs included:

- Randomised controlled trials (RCTs)
- Cross-sectional studies
- Clinical trials
- Systematic reviews

- Meta-analyses
- Literature reviews
- Cohort studies

Participants of any age, sex, or training status were included. Studies involving healthy individuals and those with musculoskeletal issues (e.g., soft tissue strains, sprains, lower back pain, or recovery from surgery) were eligible. Only studies that assessed stretching interventions, including active, passive, dynamic, isometric, ballistic, and proprioceptive neuromuscular facilitation (PNF) were included. Studies that also involved co-interventions (e.g., strength training, endurance training, or multimodal sport participation) were considered if stretching was a key intervention.

### 2.3.2 Exclusion Criteria

The following exclusion criteria were applied:

- Non-English language studies
- Qualitative studies, case reports, pilot studies, non-peer-reviewed articles, essays, conference abstracts, and letters to the editor
- Studies involving participants with physiological disorders or diseases
- Studies involving secondary interventions (e.g., foam rolling, kinesiology taping, loaded stretching, vibration)
- Studies not focusing on injury rehabilitation, recovery, prevention, sports performance, or wellbeing

**Table 2** Inclusion and exclusion criteria

Rule	Inclusion Criteria	Exclusion Criteria
Study type	RCTs, cross-sectional studies, clinical trials, systematic reviews, meta-analyses, literature reviews, cohort studies	Qualitative studies, case reports, pilot studies, non-peer reviewed studies, essays, conference abstracts, letters to the editor

Participants	Participants of any age, sex and training status. Healthy participants including those with musculoskeletal problems such as soft tissue strains, sprains, lower back pain and surgical recovery	Participants with physiological disorders or diseases
Intervention	Stretching: Active, passive, dynamic, isometric, ballistic and PNF	Non stretching interventions. Studies with secondary intervention: foam rolling, kinesiology taping loaded stretching and vibration.
Study outcome	Injury rehabilitation, injury, recovery, injury prevention, sports performance, wellbeing	Studies with outcomes not focusing on injury, rehabilitation, recovery, prevention, sports performance or wellbeing

### 2.3.3 Selection Criteria

The selection process focused on studies examining the impact of stretching on sports performance and injury rehabilitation, with stretching being the primary intervention. Duplicate studies were removed. Studies involving participants with diseases (e.g., chronic obstructive pulmonary disease, amyotrophic lateral sclerosis, motor neuron disease) or focused on disease outcomes were excluded.

### 2.3.4 Data Collection

All identified studies were collected and reviewed in multiple stages by the author and a doctoral supervisor. After applying the inclusion and exclusion criteria, a final list of **68 studies** was selected for analysis.

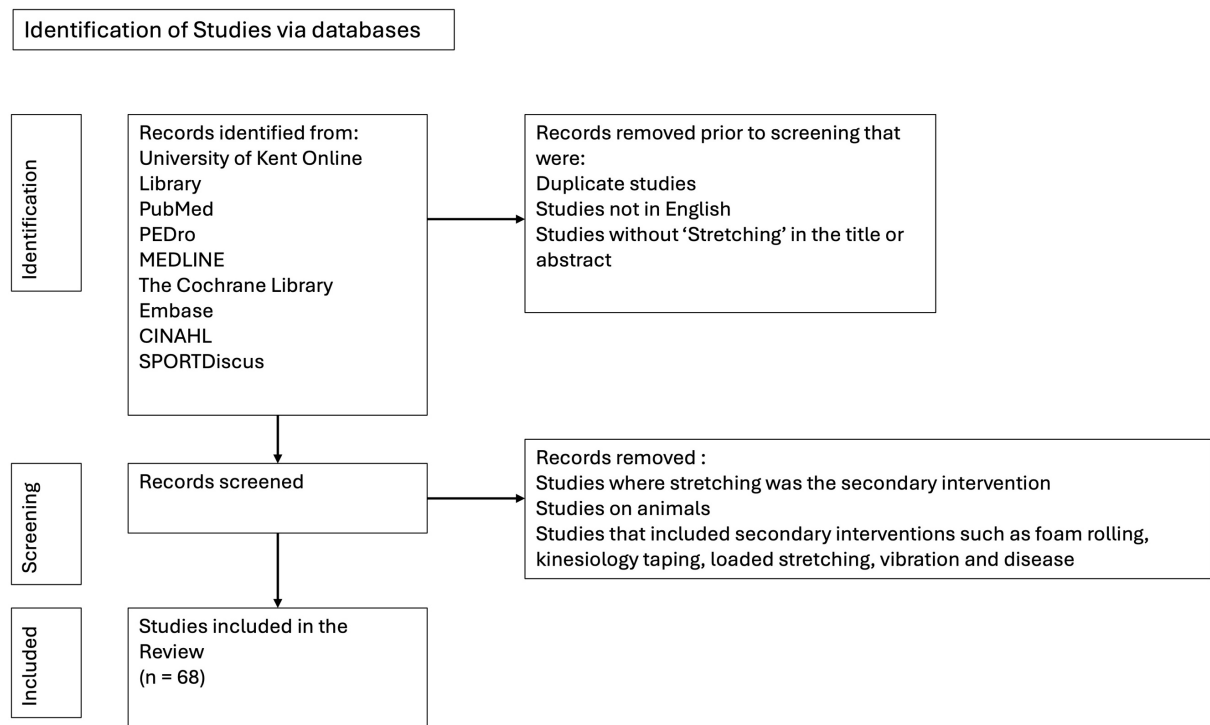


Figure 1 Flow chart of stretching study identification and screening

## 2.4 Stretching and Sports Performance

There is no clear consensus in the literature on the effect of stretching on sports performance. Scientific research has been published that both supports and argues against stretching to enhance sports performance. The basic rationale of the positive effect of stretching on performance is that stretching somehow improves the visco-elastic properties of both muscles and tendons allowing them to store more elastic energy (Barnes and Kilding, 2015; Halbertsma et al., 1996; Halbertsma et al., 1999; Magnusson et al., 1996a, 1996b; Williams, 1985; Wilson, 2010). Furthermore, the decrease in muscle stiffness precipitates a decrease in energy required to move the muscle (Shrier, 2004). Equally, the detrimental effect of stretching on performance is well reported in the literature. The theory behind the adverse effects of stretching on performance is that force production is reduced due to the muscle damage after stretching (Shrier, 2004). A review of stretching in the literature by Shrier (2004) found that strains as small as 20% of the resting fiber length causes muscle damage

and results in decreased force production. Barbosa et al. (2019) also found that regular static stretching produced meaningful reductions in muscle force production.

A research challenge for a fitness professional looking for guidance from the literature is that stretching research fails to provide consistent recommendations that apply to the population diversity of athletes of today. A review of stretching research by Behm et al. (2021) highlighted significant limitations within stretching literature, for example, lack of warm-up prior to stretching, testing performed immediately after stretching, little focus on psychological effects of stretching, and researcher and participant bias. There are examples in the literature of research findings focusing on specific population groups that cannot be replicated in the wider population. For example, in a review of the literature on the benefits of flexibility for sport Nuzzo (2020) found mixed results from chronic SS<sup>5</sup> on sports performance. The author referenced research by Kokkonen et al. (2007) that found SS led to performance improvements in endurance and muscle strength in primarily younger participants. The randomised control trial (RCT) by Kokkonen et al. (2007) found that a 10-week SS program significantly improved ( $P < 0.05$ ) knee flexion strength, standing jump and 20m sprint performance. However, the participants in the study were all recreationally active students and similar research could not replicate the findings among middle-aged female participants (Simao et al., 2011). Blazeovich et al. (2018) conducted a randomised, controlled crossover study of twenty male team sports athletes. Over several days the athletes completed a combination of SS and DS followed by a comprehensive series of tests including jumping, sprinting and flexibility. The authors concluded that SS and DS had no effect on athletic performance.

SS and DS are reported to effect sports performance in different ways. The conclusions from several recent studies support the notion that DS has a beneficial effect of muscular power, jumping and running performance compared to SS. Yamaguchi & Kojiro (2005) found that while SS has no effect, DS significantly improved quadriceps leg extension power in healthy male students. It must be noted that the study by Yamaguchi & Kojiro (2005) contained a homogenous sample of

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<sup>5</sup> Chronic stretching is defined as long-term regular consistent stretching (Stone et al., 2006).

eleven healthy male students. A study of post activation performance in twenty-six elite tennis players by Moreno-Pérez et al. (2021) concluded that DS was more effective than performing a single heavy load leg press. McMillan et al. (2006) examined the effect of no warmup (NWU), DS warmup (DWU), and SS warmup (SWU) on agility and power. The study concluded that the DWU group performed significantly better on all agility and power tests compared to the other groups. These results must be met with caution however, Yamaguchi & Kojiro (2005) only tested 8 participants, and the research was a repeated measures crossover design and fatigue due to the carry over effect may have affected the results. Although the McMillan et al. (2006) included a wider population sample for 30 male and female participants, all were physically fit military cadets.

A further confounding variable in research is when stretching is combined with other types of exercise. Dintiman (1964), Kokkonen et al. (2007) and Nuzzo (2020) all found that SS only significantly correlates to strength and performance gains when combined with strength training. Many studies recommend including DS as part of training to improve athletic performance (Fletcher & Anness, 2007; Little & Williams, 2006; Murphy et al., 2010; Shrier, 2004; Soligard et al., 2010). Shrier (2004) conducted a systematic review of the effect of stretching on performance concluded that regular DS over the longer-term benefits sports' performance.

SS remains popular as a warmup among coaches and endurance athletes, despite the lack of evidence, due to the belief that it improves performance and reduces injury (McMillan et al., 2006; Woods et al., 2007). Stretching and the benefit of flexibility is increasingly viewed with scepticism within the scientific community (Hutchinson, 2020). Nuzzo (2019) argues that despite the sit-and-reach test included in the American College of Sports Medicine health-related physical test, there is a lack of evidence to support the notion that flexibility is a requirement for fitness. Contrary to the popular view, evidence indicates that both acute<sup>6</sup> and chronic SS does not influence the risk of injury in long distance runners (Baxter et al., 2016; Yeung et al., 2011), rather a significant body of literature reports that SS prior to

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<sup>6</sup> Acute stretching is defined stretching as part of a warm-up or for short periods of time (Stone et al., 2006).



sport or exercise reduces running and jumping performance (Behm & Kibele, 2007; Margonato et al., 2008; Robbins et al., 2008; Taylor et al., 2009; Wilson et al., 2010; Young et al., 2006), as well as dynamometer measures of muscle strength (Babault et al., 2010; Brandenberg, 2006; Fowles et al., 2000; McHugh & Nesse, 2008; Nelson et al., 2001 & 2005; Power et al., 2004; Siatras et al., 2008).

It must be noted that much of the research has focused on individual stretching techniques practiced in isolation to eliminate co-founding variables. In contrast, my clients who are athletes tell me that they combine SS, DS and PNF stretching in a variety of ways with their training programs. One of the aims of this study is to understand the perceptions of stretching amongst sports professionals. No such study has been undertaken.

## **2.4.1      Stretching and Injury Rehabilitation**

There is compelling evidence in the literature to support the use of SS for injury rehabilitation. In a study of wound healing in humans, Kimura and Tsuji (2021) found that stretching played a positive role by providing tissue-scale tension in the fibroblast cells within the extra cellular matrix during the remodelling phase of wound healing. Stretching has been shown to induce changes on the viscoelastic properties of muscle-tendon units (Witvrouw et al., 2012). The theory underpinning stretching damaged soft tissue is that stretching realigns the damaged collagen along the stress lines, and in the absence of stretching the tissue is unable to remodel itself correctly, resulting to pain and reduced function (Evans, 1980; Malliaropoulos, 1999). Kubo et al. (2020) found that SS of a strained achilles reduced the passive torque<sup>7</sup> values of the gastrocnemius muscle (Kubo et al., 2002). The reduction of passive torque in the muscle-tendon unit ameliorates healing (Magnusson, 1998). The study substantiated the results of an earlier research by Magnusson (1998) who found that a single SS Decreased the passive torque of the gastrocnemius by 30%. Several other authors reported the benefit of SS for soft tissue injuries. Kornberg & Lew (1989) found that regularly performing a single hamstring SS resulted in fewer

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<sup>7</sup> Passive torque is defined as the resistance of the muscle to being stretches and is measured in newton meters (Nm) (Magnusson, 1998)

missed matches in Australian rugby players with a grade one hamstring strain. A grade one hamstring strain is defined as a minor tear, causing minimal inflammation, some pain on contraction, localised pain, and tenderness (Ward, 2004). It must be noted, however, that the sample sizes of both studies were small, the Kornberg & Lew (1989) study had 12 participants, and Kubo et al. (2002) study had 8. The positive effect of SS on injury tissue tears was corroborated with a larger sample size by Malliaropoulos et al. (2004) who researched the impact of SS on grade two hamstring strains. A grade two hamstring strain is defined as partial tissue tear which results in bearable to strong pain, muscle function loss and moderate to heavy swelling (Ward, 2004). The study sampled 80 Greek athletes of both genders with diagnosed grade two hamstring strains and found that SS performed four times daily significantly reduced rehabilitation time.

There is also some good evidence that SS reduces injury occurrence compared with DS. A well-executed study by Chen et al. (2015) established that SS reduced the effects of muscle damage after eccentric exercise. 36 males were randomly allocated into either a SS, DS or the no stretch control group. All participants undertook the same eccentric exercise daily for 5 days. Participants in the SS and DS groups performed the stretching protocols prior to the exercise. Physiological measures including plasma creatine kinase activity, passive hamstring stiffness (PHS), and myoglobin were recorded before and after stretching as well as after exercise. The presence of increased levels of myoglobin, plasma creatine kinase and PHS are indicators of muscle damage. The study reported that PHS was considerably less with SS (6.7%) compared with DS (5.6%) and the control (-5.7%). Myoglobin and plasma kinase indicators and was also markedly less in the SS group.

Stretching is recommended for muscle tears during early-stage rehabilitation by the 'BMA Guide for Sports Injuries' (Jones et al., 2010) as well as the 'Hands on Sports Therapy' textbook (Ward, 2004) despite the lack of general agreement in the literature on the benefits of stretching for injuries. In contrast to the research supporting the use of SS for injury rehabilitation, an analysis of the literature highlights the difficulties of research into injuries and healing rates. Mason et al. (2012) undertook a Cochrane review of the use of SS to reduce recovery times in

injured elite athletes. The authors found a lack of RCT's researching physiotherapy techniques and highlights the fact that the RCT's that have been used are single studies with small participant numbers and the studies have not been replicated. Small participant sizes are common (Kornber & Lew, 1989; Kubo et al., 2002) with stretching and injury studies possibly due to the difficulty in obtaining participants with similar musculotendinous damage. However, the contradictory views of the literature are illustrated by a later review by Lewis (2014) which challenged Mason et al. (2012) conclusions and reported that including a stretching program as part of a sport-specific warmup reduced the risk of injuries. The body of literature from both sports and clinical communities has proved inconclusive and does not provide a definitive answer as to whether stretching is recommended for sports performance or injury recovery and wellbeing.

## **2.4.2 Current Debates on Stretching**

Despite a large body of literature that has been published on stretching, no clear consensus on the effects of stretching exists among researchers, indeed, there is sentiment among some science communicators that stretching has no beneficial effect other than placebo, and may even be detrimental to muscles (Jarry, 2022). The challenge for physical therapists and fitness professionals is to make sense of the contrasting views emerging from the research to make treatment choices for their clients.

## **2.4.3 Research Aim**

My project investigated physical therapists' and fitness professionals' perceptions of stretching in their professional practice. The aim of my study was to investigate the lived experiences of physical therapists and fitness professionals that have shaped their perceptions of stretching. Stretching is utilised across a broad range of professions including sports therapists, massage therapists' osteopaths, physiotherapists, coaches, personal trainers, Pilates instructors and yoga teachers. I will collectively refer to sports therapists, osteopaths, physiotherapist as 'physical

therapists, and coaches, personal trainers, Pilates instructors and yoga teaches as 'fitness professionals'.

## 2.5 PART II: Literature Review of Perception Research

The purpose of this literature review is to identify the most appropriate methods for researching manual therapists' and fitness professionals' perceptions of stretching within their professional practice. This review is divided into two main sections. The first section explores the data collection methods employed in previous perception-based studies, while the second section examines the analytical tools and techniques used to interpret such data. Existing research on practitioner perceptions spans a range of professions, including physical therapists, fitness professionals, and psychologists. By analysing the methodologies and analytical approaches used in prior studies, this review aims to inform the design of a robust and contextually appropriate research framework for investigating perceptions related to stretching practices.

### 2.6 Literature Search Strategy

A comprehensive literature search was conducted between June and October 2022 using multiple electronic databases: the University of Kent Library Online Database, PubMed, Physiotherapy Evidence Database (PEDro), the Cochrane Library, the United States National Library of Medicine (MEDLINE), Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, and SPORTDiscus. Each database was searched independently. The search strategy employed Boolean operators and database-specific filters to refine results (see Table 3).

The following keywords were used:

*“sports therapist perceptions”, “physical therapist perceptions”, “physiotherapist perceptions”, “physiotherapists’ perceptions”, “coaching perceptions”, “yoga teacher perceptions”, and “Pilates instructor perceptions”.*

Boolean search terms and database filters were applied as shown in **Table 3**.

**Table 3** Boolean search terms

<b>Search Focus</b>	<b>Boolean Search Terms</b>
physical Therapist	“sports therapist” AND “perceptions”; “physical therapist” AND ‘perceptions”; “physiotherapist” AND “perceptions”;
fitness professional	“coaching” AND “perceptions”; “yoga teacher” AND “perceptions”; “Pilates teacher” OR “Pilates instructor” AND “perceptions”

### 2.6.1 Inclusion Criteria

A comprehensive literature search was conducted to identify relevant peer-reviewed studies published between January 1990 and October 2022. The search focused on research exploring practitioner perceptions within the fields of sports coaching, fitness, and healthcare. Language filters were applied to include only studies published in English. Titles of all relevant articles were screened for eligibility. Only studies involving human participants and specifically examining the perceptions of practitioners employed in sports, fitness, or healthcare settings were included, regardless of sex. Eligible studies comprised both systematic reviews and qualitative research.

### 2.6.2 Exclusion Criteria

Exclusion criteria included studies not published in English and those that did not focus on practitioners’ perceptions. Studies primarily examining the perceptions of athletes or patients were excluded, as were perception studies conducted outside the contexts of sports, fitness, and healthcare.

**Table 4** Inclusion and exclusion criteria

<b>Rule</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Study type	Systematic Reviews, qualitative research	Quantitative studies

Participants	Participants of any sex, practitioners in sports, fitness and healthcare	Athletes or patients. Participants who were not practitioners in sports, fitness or healthcare
Intervention	Semi-structured interviews, focus groups, email-questionnaires, email surveys	None
Study outcome	Practitioner perceptions	Studies with outcomes not focusing on practitioner perceptions

### 2.6.3 Selection Criteria

The study selection process identified research focused on practitioner perceptions within sports, fitness, and healthcare that met the predefined inclusion and exclusion criteria. Duplicate records, as well as studies examining the perceptions of athletes or patients, were removed.

### 2.6.4 Data Collection

Studies identified through the search were reviewed in multiple stages by the author and a doctoral supervisor. After applying the inclusion and exclusion criteria, a final list of **15 studies** was selected for analysis.

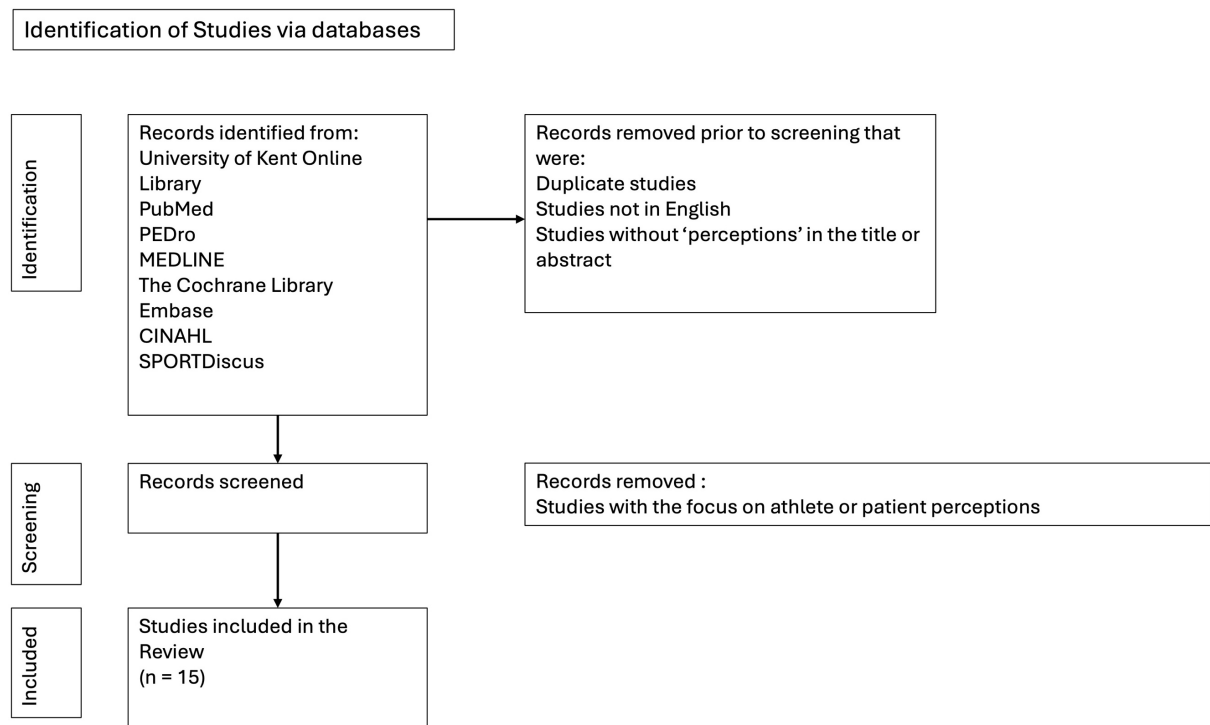


Figure 2 Flow chart of practitioner perceptions study identification and screening

The aforementioned databases contain fifteen studies using a combination of quantitative (Larson et al., 1996; Lawford et al., 2017; Muerier et al., 2017; Moore, 1998) and qualitative (Arvinen-Barrow et al., 2010; Cowell et al., 2018; Dean et al., 2005; Heaney et al., 2011; Hemmings and Povey, 2002; Inman and Thompson, 2019; Korakakais et al., 2019; Lafferty et al., 2008; Niven, 2007; Rushton et al., 2017; Tracey, 2008) methods to investigate practitioner perceptions.

## 2.7 A Review of Research Data Gathering Methods

### 2.7.1 Introduction

This section explores the data gathering methods used in the literature for previous perception research and examines the different methodological approaches for deductive and descriptive studies. The review also contrasts population sampling among the different approaches. Finally, the concept of 'rich' and 'thick' data in qualitative research is discussed in the context of the semi-structured interview data gathering methodology.

## 2.7.2 Email Questionnaire

The following studies in this review adapted existing questionnaires for use in their research; Hemming and Povey (2002) used the Physiotherapist and Sport Psychology Questionnaire (PSPQ) by Larson et al. (1996), Lafferty et al. (2008) used the Athletic Trainer and Sport Psychology Questionnaire (ATSPQ) Larson et al. (1996), and Larson adapted the ATSPQ from the work by Brewer et al. (1991) and Wiese et al. (1991).

Hemmings and Povey (2002) studied the perceptions of chartered physiotherapists on the psychological aspect of their practice. The Lafferty et al. (2008) study investigated the psychological aspect of chartered and non-club physiotherapy practice, while Larson (1996) studied athletic trainers' perceptions of the psychological tools used to treat injured athletes.

The study method using emailed questionnaires allows for a larger sampling of participants (Braun and Clark, 2006). For example, Hemmings and Povey (2002) sent out 179 PSPQ questionnaires by mail and received 90 completed questionnaires from participants. Lafferty et al. (2008) used the ATSPQ (Brewer et al., 1991 and Wiese et al. 1991) to survey 87 participants, and the Larson (1996) study received 482 completed ATSPQ (Brewer et al., 1991 and Wiese et al. 1991) questionnaires from athletic trainers.

Hemmings and Povey (2002), Larson et al. (1996), and Lafferty et al. (2008) used qualitative descriptive analysis (QDA) to analyse the data from the email questionnaires. The use of QDA as the analysis tool for email questionnaires is the most appropriate as descriptive research attempts to merely describe a phenomenon and does not apply theory or interpretation to the analysis of the phenomenon like interpretive research (Braun and Clarke, 2013). QDA involves categorising and summarising the data to identify themes (Braun and Clarke, 2013; Nassaji, 2017) which is suitable for purely descriptive research.



Qualitative descriptive analysis (QDA) is not an applicable data analysis methodology for inductive research (Braun and Clarke, 2013). Descriptive research focuses more on what rather than how or why a particular phenomenon has occurred (Nassaji, 2017), therefore QDA using email questionnaires would limit the ability of my research to investigate the reasoning behind my participants' perceptions of stretching.

This study is inductive in nature and will investigate the relevance of the lived experiences of physical therapists and fitness professionals that have shaped their perceptions of stretching. Qualitative descriptive research focuses on attributes of the study and is not concerned with the cultural context or the lived experience of the participants (Bradshaw et al., 2017). Lambert and Lambert (2012) explain that qualitative descriptive research is a categorical and less interpretive approach which does necessitate theoretical or hypothetical rendering of the data. Although QDA is a time and cost-effective method of enquiry of first-hand participant experiences of a phenomenon (Neergaard et al., 2009) it is not the appropriate method of data analysis for my research.

### **2.7.3 Focus Groups**

One study (Rushton et al., 2017) used focus groups to assess physiotherapists and patients' perceptions about lumbar discectomy rehabilitation across 2 UK sites; the Salford Royal Foundation Trust and the Queen Elizabeth Hospital Birmingham. The theoretical framework of the study was based on phenomenology. Phenomenology research aims to understand how individuals perceive themselves and the society around them (Robson and McCartan, 2016). The researchers conducted 5 focus groups with patients and physiotherapists. 2 focus groups were trial interventions and the data from the final 3 focus groups containing patients (n = 11) and physiotherapists (n = 15) was analysed using thematic analysis. Thematic Analysis (TA) is a research method used to identify, organise, analyse and report associations and themes within data (Braun and Clark, 2006).

The authors used the focus group design to maximise the understanding of their participant perceptions through the group interaction (Madriz, 2000). Rushton et al. (2017) observed that the focus group format enabled the lead researchers to observe the immediate interactions between the participants and evaluate their attitudes and experiences in context (Rushton et al., 2017).

The focus group method offers the opportunity to collect data from multiple sources at the same time and enables the direct observation of the individual within the group dynamic (Robson and McCartan, 2016). However, a significant disadvantage for my research is the limited number of questions that can be covered in a single group session. On average focus groups are only able to cover less than 10 major questions in 60 minutes (Robson and McCartan, 2016). Furthermore, the group format is not a conducive setting for a participant to share intimate details of an experience (Willig, 2013). For my research I would also like the ability to ask probing questions to better understand my participants perceptions.

The fixed nature of the questioning in focus groups precludes the ability to do ask probing questions of a participant (Robson and McCartan, 2016; Willig, 2013.) which is essential for my study.

#### **2.7.4 Mixed Method**

One study (Meurer et al., 2017) used a combination of a structured questionnaire followed by a telephone interview to sample Brazilian physiotherapists' perceptions of injury prevention in premier league football. The authors sent an email questionnaire containing to the principal physiotherapists of 20 premier league football clubs across Brazil and received 16 replies. In addition to the questionnaire the lead researcher interviewed 10 of the respondent physiotherapists both in person and via telephone. The purpose of the interviews was to ensure the data reliability of the responses in the questionnaire.

The responses to the questions were assigned relative and absolute values and analysed by SPSS.

Although this study added an additional level of validation of the data with follow on interviews, the study succeeds only in capturing descriptive data and not the depth of data required for inductive research (Lyons and Coyle, 2007). My research is more interpretive. I would like to understand the reasoning behind practitioners' perceptions of stretching.

The SSI was used as either the main data collection tool or part of a combination of tools in seven studies by authors Arvinen-Barrow et al. (2010), Cowell et al. (2018), Dean et al. (2005), Heaney et al. (2011), Inman and Thompson (2019), Niven (2007) and Tracey (2008).

### **2.7.5 Semi-structured Interview**

The face-to-face interview is generally considered to be a suitable tool for qualitative research to investigate insights of interviewees who have previously experienced or are currently experiencing the phenomenon (Collingridge and Gnatt, 2008; Wimpenny and Gass, 2000). The qualitative research interview is a conversation with the purpose of enabling and facilitating the participants to tell their story and lived experiences in depth and detail (Smith et al., 2022). Astedt-Kurki and Heikkinen (1994) and Barriball and White (1994) found that the semi-structured interview was an appropriate method to identify participant perceptions and views of both emotionally sensitive and complex issues.

The SSI as an interview methodology gleans subjective responses from the interviewee regarding a particular circumstance or event that they have experienced (McIntosh and Morse, 2015; DiCicco-Bloom and Crabtree, 2006). The SSI employs a detailed guide consisting of a series of predetermined questions with follow on sub-questions to further probe the interviewee (McIntosh and Morse, 2015). The SSI is led by questions in the interview guide which will guide rather than dictate the direction of the interview (Lyons and Coyle, 2007). Questions are broad and formulated to draw out unregulated responses and generate discussion (Morse and field, 1995, Richards and Morse, 2007). SSI's are conducted with open framed questions asked in a non-judgemental and broad manner (Smith, 1995). The

purpose of the interview is to gently probe the interviewee (Smith, 1995; Smith and Osborne, 2003). Each interviewee is asked the same questions in the same manner and order from the interview guide, although the questions are semi-structured which allows the interviewers the flexibility to deviate from the script (McIntosh and Morse, 2015). The strength of SSI is its ability to gather detailed data about an individual's perceptions and experiences (Braun and Clarke, 2013). The development of the final SSI interview guide involves trialling the interview questions by conducting pilot interviews (Kalia et al., 2016). The review by Kalia et al. (2016) found that incorporating a pilot interview to test the interview guide is essential to identify relevant content and to ascertain if questions needed to be reformulated.

Arvinen-Barrow et al. (2010) used the SSI to investigate UK chartered physiotherapists' perceptions of using psychological techniques with injured athletes. The SSI's were recorded and the average interview time was 52 minutes. The SSI format enabled the researchers to glean open and honest responses from the study participants. The authors commented that the physiotherapists were very open about sharing their experiences and lack of formal training in psychological techniques.

Cowel et al. (2018) investigated physiotherapists perceptions of the management of non-specific chronic lower back pain (NSCLBP). The lead researcher conducted the SSI in the participants practices clinics. Interview time was between 50 to 60 minutes and began with a broad question about the variety of patients that would typically present for treatment, and then focused in more detail on the management and treatment for NSCLBP conditions. A unique aspect of the study was the fact that the physiotherapists were observed treating two patients with NSCLBP by the lead researcher. This served to contextualise the perceptions of the participants and their experience when assessing and treating patients (Cowel et al., 2018).

Dean et al. (2005) examined physiotherapist and patient perceptions of adherence to rehabilitation exercises for lower back pain (LBP). The SSI's took an average of 42 minutes to complete and were recorded. If the participants made further comments after the SSI was completed the comments were noted down and summarised by the researcher (Dean et al., 2005). This is a good example of how face to face

interviews enable the researcher to capture all the data, including information that may have been lost if the researcher had not been present.

Heaney et al. (2011) investigated the perceptions of physiotherapists working in professional football toward psychological interventions in injury rehabilitation. The researchers used a combination of email questionnaire and SSI. 10 participants from the study were selected for the SSI. The study did not specify the interview times or whether the interviews were recorded. The authors stipulated that the purpose of the SSI was to gather further detail on the perceptions of the participants that was beyond the scope of the email questionnaire (Heaney et al., 2011). The ability to garner deeper levels of detail is a strength of the SSI methodology (Richards and Morse, 2007). An advantage of including the SSI in this study enabled the researchers to discuss in more detail the individual training requirements of physiotherapists working in professional football. For example, from the SSI responses the authors learned that psychological training was more appropriate at a postgraduate level and delivered in a workshop format.

Inman and Thompson (2019) studied Osteopaths' perceptions of NICE guidelines on LBP. The SSIs were recorded and each interview lasted 60 minutes. The interviews took 3 months to complete. The researchers noted that the SSI format allowed for further enquiry into the perceptions and beliefs of the participants (Inman and Thompson, 2019). Another advantage of the face-to-face format was that the lead researcher was able to offer verbal and body language prompts to inspire the participants to share their opinions honestly (Kvale, 2008).

Niven (2007) researched sports physiotherapists' perceptions of the adherence to exercise rehabilitation in individuals with sports injuries. All interviews were recorded and lasted an average of 60 minutes. The SSIs took 12 months to complete. Prior to each interview the lead researcher provided details of their background and experience to the participant. Niven (2007) noted that the researcher's interpretation of the data is relevant to the research in qualitative enquiry (Lincoln and Guba, 1985; Lyons and Coyle, 2007; Paisley and Reeves, 2001). The capacity of the SSI to place the researcher in context with the participant is pertinent to my approach to understanding the perceptions of stretching in the physical therapy and fitness

professional community. I will discuss this later in the section entitled 'Semi-structures Interview Data Analysis Methods' under the heading 'Interpretative Phenomenological Analysis.

Tracey (2008) explored health professionals' perceptions of their role in the psychological rehabilitation of their clients. Tracey (2008) interviews were guided by two central questions. 1) What is the health professional perspectives on the psychological role they play in their patients' injury recovery, and 2) what are the perceptions of health professionals of their influence on the psychological recovery of their injured patients. The author interviewed 17 physical therapists and an athletic coach. The semi-structured interview was based on a previous interview guide that the author had used in earlier research in the psychology of injury. The SSI's were recorded and were between 45 minutes and 60 minutes long. The SSI guide included questions on the beliefs of the participants, their evidence-based practice and the psychological effects of injury. These are similar areas of enquiry that I am interested in for my research on the perceptions of stretching.

The trailing of a pilot interview forms the foundation of a successful final SSI guide (Kalia et al., 2016).

### **2.7.5.1 Pilot Interview**

The studies in the review differed in approach to the pilot interview. Four of the studies opted to conduct a single pilot interview (Arvinen-Barrow et al., 2010; Cowell et al., 2018; Heaney, 2011; Niven, 2007). Dean et al. (2005) and Inman and Thompson. (2019) conducted several pilot interviews, and Tracey (2008) did not complete any and reutilised a previous interview guide. Increasing the number of pilot interviews increases the validity and consistency of the final interview guide (Turner, 2010).

Tracey (2008) was the only study that did not conduct a pilot interview, instead opting to reuse a guide used in previous research into the psychology of injury. By

reusing a previous guide, the author may have inadvertently omitted pertinent questions or directions of enquiry (Kalia et al., 2016).

A weakness of the Arvinen-Barrow et al. (2010), Cowell et al. (2018) and Niven (2007) studies is that only a single pilot interview was conducted before finalising the final semi-structured interview guide. The studies would have benefited from more pilot interviews to validate and refine the final interview guide (Turner, 2010). In qualitative research the researcher becomes the principal instrument in the data gathering process (Paisley and Reeves, 2001). The pilot interview is the opportunity for researchers to refine their interview skills, test questions and gain experience in the interview process (Majid et al., 2017). Pilot testing the interview with a sample of participants that match the criteria and interests of the final sample identified potential interview weaknesses and limitations (Kvale, 2008), and improves consistency (Krauss et al., 2009).

In contrast to the previous designs, Dean et al (2005) study included eight pilot interviews. Turner (2010) points out that using pilot test interviews with several participants helps to validate and refine interview questions as well as improve the overall robustness of the final interview draft (Krauss et al., 2009).

Based on the literature the SSI is the most applicable data gathering tool for my research as it provides the means to delve into the complex perceptions and behaviours of my participants (Astedt-Kurki and Heikkinen; 1994; Barriball and White; 1994). The literature has shown that the SSI is a proven method to gain subjective responses of participant perceptions (Arvinen-Barrow et al., 2010; Cowell et al., 2018; Dean et al., 2005 ; Heaney et al., 2011; Inman and Thompson, 2019; Niven, 2007; Tracey, 2008), and it allows for a broad and open format which is my intended approach (Morse and field, 1995, Richards and Morse, 2007).

### **2.7.5.2 Semi-structured Interview Population Sampling**

In contrast to Internet Survey (Korakakis et al., 2019; Lawford et al., 2017) and email questionnaire studies (Hemmings and Povey, 2002; Larson et al., 1996; Lafferty et

al., 2008) studies, SSI populations samples are relatively small. Qualitative research employing interviewing for data collection do so to enter the participants 'lifeworld' to understand their lived experiences, and as such, require smaller population sample sizes (Smith et al., 2022).

### **2.7.5.3 'Rich' and 'Thick' Data**

In qualitative research it is acknowledged that there is no specific recommendation on sample size to reach data saturation<sup>8</sup> (Fusch and Ness, 2015; Guest et al., 2006). Guest et al. (2006) suggests that as few as six interviews may be sufficient depending on the sample size of the population. Fusch and Ness (2015) emphasise the standard of the data rather than sample size. Dibley (2011) referred to qualitative data as being 'rich' and 'thick' where 'rich' indicates quality and 'thick' indicates quantity. The goal is to avoid rich data that is not thick, and thick data that is not rich. The qualitative researcher is striving for a balance of both (Fusch and Ness, 2015). Smith et al. (2022) writes that 'rich' data is generated when participants are able to tell their stories and speak freely about their lived experiences.

Small sample sizes are a feature of the SSI studies as fewer interviews are needed to generate sufficient data (Braun and Clarke, 2013). Furthermore, interviewing is time consuming, requiring careful preparation, permissions and scheduling (Robson and McCartan, 2016). Robson and McCartan (2016) suggest that the optimal SSI duration to be between thirty minutes to an hour. Interviews shorter than thirty minutes are unlikely to prove valuable and sessions extending beyond an hour begin to impose on the interviewees time (Robson and McCartan, 2016). Smaller sample sized typical of SSI research is reflected in the studies in the review; Arvinen-Barrow et al., 2010 (n = 7), Cowell et al., 2018 (n = 10), Nivel, 2007 (n = 9), Dean et al., 2005 (n = 8), Inman and Thompson, 2019 (n = 7), Tracey, 2008 (n = 17) and Heaney, 2011 (n = 10), compared to the email questionnaire research by Hemmings and Povey, 2002 (n = 90), Lafferty et al., 2008 (n = 87) and Larson et al., 1996 (n = 482). The SSI as a data capture method for the study of practitioner perceptions was

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<sup>8</sup> Data saturation is the point where no new data or information is discovered in the data analysis, and the collection of new data can stop (Faulkner and Trotter, 2017).



used by more studies in my review (n = 7) compared to PSPP (n = 1), online surveys (n = 2), email questionnaires (n = 3), focus groups (n = 1), and Mixed methods (n = 1).

Based on a review of the literature the most optimal data collection method for my research project is the SSI for the following reasons; the SSI format offers the opportunity to extract deep and meaningful data (Braun and Clarke, 2013), it is particularly suited to the study of participant perceptions (Astedt-Kurki and Heikkinen, 1994; Barriball and White, 1994; Collingridge and Gnatt, 2008), it has been used successfully to investigate practitioner perceptions by a number of researchers (Arvinen-Barrow et al., 2010; Cowell et al., 2018; Dean et al., 2005; Heaney et al., 2011; Inman and Thompson, 2019; Niven, 2007, Tracey, 2008), and as a doctoral student with a full time job the SSI is a time optimised data gathering method (Braun and Clarke, 2013).

The following section will discuss the most appropriate data analyses tool to use for my project. The studies in the literature review employed a variety of methods to analyse the data.

## **2.8 A Review of Semi-Structured Interview Data Analysis Methods**

### **2.8.1 Introduction**

The purpose of this section in the review is to analyse and compare the various qualitative analysis research methodologies used in previous perceptions studies to determine the most appropriate method for the study in this thesis. An important distinction between the SSI studies is the method used by the researchers to analyse the data. A variety of qualitative methodologies were followed. Interpretative phenomenological analysis (Arvinen-Barrow et al., 2010; Dean et al., 2005; Niven, 2007; Tracey, 2008), Thematic analysis (Cowell et al., 2018), constructivist grounded theory (Inman and Thompson, 2019) and content analysis (Heaney, 2011). In this

section each methodology is examined in relation to previous research to determine the pertinence to data analysis in this study.

## 2.8.2 Content Analysis

Heaney (2011) used Content analysis (CA) to analyse the data from his mixed methods study. Heaney (2011) opted for a mixed mode<sup>9</sup> data collection approach and was the only study to combine a semi-structured interview and an email survey in the research design. De Leeuw (2005) suggests that choosing a mix mode approach is a cost-effective way of compensating for the weakness of each individual mode. Heaney (2011) examined physiotherapists perceptions of sport psychology intervention in injured professional football players. The Hemmings and Povey (2002) Physiotherapist and Sport Psychology Questionnaire was sent to the principal physiotherapist of all professional football clubs in England and Wales. 39 completed questionnaires were returned. A sample of 10 of the thirty-nine participants took part in a semi-structured interview to enable the author to investigate participant perceptions further. By using the mixed methods approach Heaney (2011) was able to recruit a larger sample of the population compared with the semi-structured interview method alone.

At this stage of the development of my research project I can discount CA as a relevant method. CA is a research method which transforms qualitative data to quantitative numerical data by associating themes in the data with coding units which can then be statistically analysed (Stemler, 2015). CA provides a methodology for systematically describing phenomena (Schreier, 2012) and as such is not suitable for the inductive enquiry of my research. In CA qualitative data is reduced to constructs that relate to the research question (Elo and Kyngäs, 2008; Hsieh and Shannon, 2005). The research question is the sole determinant of the analysis (Elo and Kyngäs, 2008; Schreier, 2012). My research did not begin with a research question. A hypothesis may evolve from the work or not.

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<sup>9</sup> Mixed Mode data collection refers to research that use more than one tool to collect data (De Leeuw, 2005)

### **2.8.3 Thematic Analysis**

Cowell et al. (2018) used Thematic Analysis (TA) to investigate the perceptions of using the biopsychosocial framework to manage patients with non-specific chronic lower back pain (NSCLBP) in England.

The strength of TA is its flexibility to be able to answer almost any qualitative research question and may be used to analyse virtually all types of qualitative data. TA can apply a data driven approach analysing specific themes within the data or allow the researcher to explore broader theoretical ideas emerging from the data (Braun and Clarke, 2013). TA is used more commonly to identify themes and patterns in relation to a research question (Braun and Clark, 2006). Willig (2013) writes that the research question is crucial in order to establish the appropriate approach to TA.

Although most other forms of qualitative analyses are derived from TA (Willig, 2013), the initial requirement for a research question precludes the use of TA as the primary analysis method for my research.

### **2.8.4 Constructivist Grounded Theory Method**

Inman and Thompson (2019) used Constructivist Grounded theory (CGT) in their study of UK based osteopaths' perceptions of National Institute of Health and Care Excellence (NICE) guidelines on NSCLBP. The participants were interviewed over a period of 3 months. The researchers sought to develop key categories and themes and explore them in more focus during subsequent interviews. This approach seems an excellent interview method to draw out more in-depth data from the interviewee. The study included several pilot interviews to refine the final interview guide.

A more relevant approach to my research is CGT. CGT was developed by Charmaz (1990, 2006) and drew from the original developers of grounded theory (Glaser and Strauss, 1967). CGT aims to formulate a theory around important issues in the lives of the participants where no prior theory exists (Charmaz, 1990; 2006). In CGT the

researcher is neither trying to prove or disprove a hypothesis, instead the emphasis is on issues that are important and relevant to the participant (Morse, 2001). In CGT the researcher gathers data, analyses the data and based on the results constructs a new theory that is imprinted or grounded in the data (Charmaz, 2006).

At this initial stage of my research planning a disadvantage of CGT to my research project is that the ultimate aim is to produce a theory from the data. I do not know what direction the data will take at this stage. I am more interested in the lived experiences of my participants. A subsequent theory may or may not emerge from the data. However, I cannot completely rule out CGT as it may transpire from the analysis of the data that it is possible to construct a theory.

### **2.8.5 Interpretative Phenomenological Analysis**

Arvinen-Barrow et al. (2010); Dean et al. (2005); Niven (2007); and (Tracey 2008) used Interpretative phenomenological analysis (IPA) for their data analysis.

Arvinen-Barrow et al. (2010) sampled 4 female and 3 male physiotherapists in their study. IPA research is conducted using small sample sizes (Smith and Osborne, 2003) and the interview questions are framed in a general and broad manner in an attempt to capture the participants own perceptions and lived experiences of the phenomenon (Smith, 1995; and Smith and Osborn,2003). The Dean et al. (2005) study included 8 female physiotherapists and 9 male and female patients. The participants in the Niven (2007) research were 9 (6 female, 3 male) white UK based physiotherapists, and Tracey (2008) investigated the perceptions of 12 female and 6 male health professionals.

IPA is a research method focusing on detailed analysis of the personal lived experiences of participants (Lyons and Coyle, 2007; Smith and Osborn, 2015; Smith et al., 2022) and it explores how participants are reconciling their personal lived experiences within a wider social context (Lyons and Coyle, 2007; Smith et al., 2022). A fundamental focus for IPA is to understand how individuals make sense of impactful events in their lives (Smith and Osbron, 2003). IPA is similar to TA in that it

also captures emergent associations and themes in the data but accepts that the researcher is inexorably associated with the assumptions and preconceptions of the study (Robson and McCartan, 2016). This aspect of IPA theory is important in the study of this thesis as the researcher will be inexorably involved in the data gathering and analysis. IPA recognises the active role the researcher in the research in which the participants experience is influenced by the researchers own preconceptions thus introducing a double hermeneutic (Lyons and Coyle, 2007; Smith et al., 2022). A double hermeneutic describes a situation where the participant is trying to understand their own experience while the researcher attempts to understand how the participant is trying to make sense of their experience (Palmer, 1969; Lyons and Coyle, 2007; Smith et al., 2022). Instead of trying to remove researcher bias IPA highlights and integrates researcher experience into the findings (Robson and McCartan, 2016; Smith and Osborn, 2003; 2015; Smith et al., 2022). Furthermore, IPA is an idiographic research methodology which gathers knowledge from individual case studies. There is no single prescriptive method for IPA (Smith et al., 2022). Smith et al. (2022) writes that the essence of IPA lies in the analytical focus toward the participants attempts at making sense of their experiences.

IPA as a methodology perfectly matches the aims and the goals of my research and will provide the framework to enable me to explore the personal lived experiences of the participants in my study (Lyons and Coyle, 2007; Smith and Osborn, 2015). In addition, IPA will capture any possible themes or patterns that may emerge from the data (Robson and McCartan, 2016). An important aspect of IPA is that it places my own lived experience of stretching within my research (Lyons and Coyle, 2007; Smith et al., 2022). In the following section I will highlight the rationale for adopting a qualitative research methodology for this study.

A detailed rationale for the use of IPA for the study in this thesis is covered in section 3.3.

## **2.8.6 Research Aim**

The research aim is to study the physical therapists and fitness professionals' perceptions of stretching in their professional practice. This study was conducted from a phenomenological perspective to understand and make sense of the lived experiences of physical therapists and fitness professionals. In particular, their perceptions of stretching in their professional practice. The aim of the study was to develop a deeper understanding of the meanings of their perceptions from a holistic perspective. The findings of this study could help practitioners understand the factors that influence their professional practice, allowing for a deeper understanding of this complex phenomenon.

## **2.9 Best Practice in Lived Experience Research**

The aim of this section is to describe the methodological principals underpinning the study in this thesis. It begins by describing the best practice principals of lived experience research, and how this was applied to the study in this thesis. Further on, I rationalise the case for the use of IPA for the data analysis for this study.

An extensive literature review of perception research in healthcare has revealed that a qualitative methodological approach is used by the majority of perception studies in healthcare. The advantage of qualitative research is that it is able to study behaviour and the effects of behaviour in context (Yardley, 2017). Furthermore, qualitative research has the capacity to exhibit contextual sensitivity by recognising the participants unique experiences within a sociocultural setting (Yardley 2008; 2017). The study presented in this thesis examines the perceptions of physical therapists and fitness professions which requires an understanding of the lived experiences of the participant within their sociocultural context.

In the last twenty years a considerable amount of best practice guidelines for qualitative research has been published. These can essentially be collated into four key areas: contextual sensitivity; commitment and rigour; transparency and coherence; and impact and relevance (Cohen and Crabtree, 2008; Yardley, 2000, 2008, 2017).

### **2.9.1 Contextual Sensitivity**

The study of the lived experiences of an individual requires an in depth understanding of the personal and sociocultural context of the individual (Smith et al., 2022). This is enabled in qualitative research by the thorough examination of existing theory and knowledge produced by previous researchers who have used similar methods (Yardley, 2000, 2008).

To uphold sensitivity to context, I conducted an extensive literature review of perception research in healthcare, which included the various data collection, population sampling, and analysis methods used by researchers. Based on the literature review, I elected to use the semi-structured interview for data collection. The use of the semi-structured interview allowed me to be sensitive to the personal experiences of each participant by allowing me to be guided by the responses of the participant.

### **2.9.2 Commitment and Rigour**

Yardley (2008) refers to commitment in qualitative research as a process of extended engagement with the topic, and immersion in the data. Rigour refers to the integrity of the data collection and analysis (Yardley, 2008). Rigour of data collection, Yardley (2008) writes, should supply all the information that is required for a comprehensive analysis. My literature review revealed that IPA was the preferred method of data analysis for perception studies in healthcare. In phenomenological analysis, commitment and rigour may be applied by the extended reflective exploration of the data along with sophisticated interpretation to extract the deeper underlying themes and connections (Yardley, 2008).

### **2.9.3 Transparency and Coherence**

Transparency in qualitative research means that the theory and methods used to interpret the data is made clear to the reader (Yardley, 2008, 2017). Coherence,

Yardley (2008) writes, is the use of the appropriate methodology to answer the research question.

The research methodology for this study is outlined in section 2.5. The rationale for using the SSI is fully discussed in section 2.2.4 and the choice of IPA as the data analysis tool is outlined in section 2.3.4.

#### **2.9.4 Impact and Importance**

Impact and importance of qualitative research relates to its ability to add knowledge and change the actions and beliefs of others (Yardley 2008, 2017). The purpose of this study is to understand physical therapists and fitness professionals' perceptions of stretching in their professional practice. I conducted an extensive literature review on stretching (see section's 1.1 to 1.4) and found that the benefits of stretching are equivocal and change with ongoing research (Babault et al., 2021). Babault et al. (2021) states that stretching is a popular exercise modality and widely used in sports, injury rehabilitation and recreation. Stretching continues to be well studied (McHugh and Cosgrave, 2010) and based on ongoing research, regular updates are published in the literature (Babault et al., 2021). Within this context, this study will examine physical therapists and fitness professionals' lived experiences and perceptions of stretching in their professional practice. This study hopes to identify any gaps between the stretching literature outcomes and the applied practice of physical therapists and fitness professionals.

#### **2.10 Rationale for the Use of IPA**

Based on a review of the literature, the main body of perception research in healthcare has utilised qualitative methodologies. The aim this study is to understand the perceptions of stretching of physical therapists and fitness professionals based on their lived experience. For this purpose, the SSI was chosen for its ability to allow the participant to speak freely about their experiences, and for the interviewer to probe and adapt the questioning as meaningful themes and associations present themselves.



For the data analysis, IPA was used as it is considered a relevant and valid method to analyse lived experience research (Smith et al., 2022). IPA is grounded in three key principals: phenomenology, hermeneutics, and ideography (Pietkiewicz and Smith, 2014). Phenomenology is the study of reality as it is being experienced and lived by the individual (Pietkiewicz and Smith, 2014). It explores the personal reflections of the individuals lived experiences (Smith at al., 2022). The participants' lived experience will fundamentally influence their perceptions of stretching; therefore, the choice of IPA is the most relevant research approach for this study. The second major principal of IPA is hermeneutics, which is the interpretation and understanding of language through analysis of possible meanings and social uses (Smith et al., 2009). The interpretative element in IPA research seeks to make sense of the embedded meaning of the lived experience (Smith et al., 2009) and is particularly useful in the analysis of perception (Pietkiewicz and Smith, 2014). Hermeneutics also recognises the active role of the researcher in the analysis process (Lyons and Coyle, 2007; Smith et al., 2022). The third principal of IPA, ideography, relates to understanding the detail of the participants lived experience (Smith et al., 2022). This requires a systematic analysis of the detail of the experience, grouping of experiences into personal themes and shared group themes (Charlick et al., 2016).

# Chapter 3: Methodology

## 3.1 Introduction

The aim of this chapter is to describe the methodological procedures that were conducted for the study in this thesis. It begins by describing the exact procedures that were followed from the population sampling, research protocol, and data analysis. This section also includes an insight into my reflexivity and the hermeneutic circle which are central tenants of IPA research.

## 3.2 Participants

Participants for the research project were drawn from two main categories in the general population namely, physical therapists and fitness professionals. Within the category of physical therapists, participants included sports therapists, physiotherapists, osteopaths, chiropractors, and sports rehabilitators. Fitness professionals included coaches, personal trainers, Pilates instructors and yoga teaches. Participants needed to be working in clinical or fitness practice and be registered with one of the approved regulatory bodies. For physical therapists the professional regulatory bodies were The Society of Sports Therapists (SST), Sports Therapy Organisation (STO), Chartered Society of Physiotherapy (CSP), General Osteopathic Council (GOsC), General Chiropractic Council (GCC) Health and Care Professional Council (HCPC), and the British Association of Sport Rehabilitators and Trainers (BASRaT). For Fitness professionals they were (BASRaT), Register of Exercise Professionals (REP), Pilates Teacher Association (PTA), British Wheel of Yoga (BWY) and Yoga Alliance UK.

In this section I will introduce the research participants (see table 5). I have assigned random pseudonyms to maintain their anonymity. The individuals are listed in chronological order according to the dates of their interview.

Andrew is in his mid-thirties. He graduated in Sports and Exercise Science. He then went onto qualify in physiotherapy. Andrew has between ten- and twenty-years

practice experience. In the early part of his career, he worked as a physiotherapist in the UK and New Zealand. Upon moving back to the UK Andrew worked both in private practice as well as consulting for a professional football academy in the south of England. At the time of the interview Andrew had transitioned to become a full time academic.

Karen is in her mid-twenties. She is a doctoral student focusing on the effect of fascia on chronic lower back pain. Karen is also a full time Sports Therapy lecturer and holds qualifications in personal training, exercise referral instruction, group exercise instruction and triathlon coaching. She has between 10 and 20 years of practice experience.

Peter who is in his mid-fifties, originally from South Africa, trained as an Osteopath in his forties. Peter is also a qualified Pilates teacher. Along with his Osteopathic practice, Peter has established a Pilates studio. Peter has been in practice for between 10 and 20 years. He regularly combines osteopathy and Pilates when treating his clients. Along with teaching Pilates he employs a team of Pilates teachers to cover weekly classes at his studio.

Deborah, a secretary, is a part time Pilates instructor in her late forties. She was drawn to health and fitness when the realisation dawned on her that she was beginning to find some movement difficult and uncomfortable. Along with running and weight training, Deborah attending local Pilates classes and enjoyed it so much she decided to train to become a Pilates teacher. She teaches weekly mixed classes at her local Pilates studio. Deborah has less than 10 years of practice experience.

Anne retired from the NHS, having worked within the organisation as a physiotherapist and researcher her entire career. She is in her early sixties and has over 30 years of practice experience. During her career she often would work within a multidisciplinary team focusing on chronic pain. She also obtained her PhD in which she researched the effect of hydrotherapy on arthritis. After retirement Anne trained to be a Pilates teacher. She currently teaches Pilates classes several days a week. Her students are primarily comprised of retired individuals.

Natalie is in her early twenties and has recently qualified as a physiotherapist in August 2021. She is working full time in a London hospital in the elderly care ward. Natalie is newly qualified and has less than 10 years of practice experience.

Clare, who is originally from South Africa, is a practising counselling psychologist in her late forties who regularly practices yoga. Clare also trained as a Tap-dancing teacher in South Africa in the nineties. Her passion for yoga led to her completing her Ashtanga and Yin Yoga teacher training qualification in November 2019. Clare incorporates aspects of yoga in her psychological therapy sessions with clients and delivers yoga workshops that focus on the positive effect of yoga on the mind and body.

Zoe is a sports therapy lecturer with more than thirty years of experience in injury rehabilitation, bodywork, and massage. Zoe has worked with a wide spectrum of clients ranging from elite athletes to the general public.

Lena is a full time Pilates teacher in her mid-thirties. She has been practising Pilates for 20 years before she underwent Pilates teacher training. Lena teaches both 1 to 1 as well as group sessions in both reformer and mat Pilates. Lena has between 10 and 20 years of practice experience.

Sophia is a part time yoga teacher in her early fifties. She has always been physically active and holds a full-time information technology job. Sophia had always practiced yoga sporadically throughout her life. She began to practice more regularly in the last 7 years and recently completed her Yoga teacher training qualification. She has been teaching for under 10 years. Within the last two years Sophia attends regular cross-fit sessions.

Victoria, a Neuro Occupational Therapist (Neuro OT) in her late thirties teaches regular weekly yoga classes. She has been practising yoga since her late teens and been teaching for the last 10 years.

#### **Table 5** Participant Demographics

Pseudonym	Age Range	Sex	Ethnicity	Highest Qualification	Title	Experience Years
Andrew	35 - 44	Male	White British	Masters	Physiotherapist	10 - 20
Karen	25 - 34	Female	White British	Masters	Exercise Instructor	10 - 20
Peter	55 - 64	Male	White Other	Masters	Osteopath Pilates Instructor	10 - 20
Deborah	45 - 54	Female	White Other	Level 3 Diploma	Pilates Instructor	< 10
Anne	55 - 64	Female	White British	PhD	Physiotherapist Pilates Instructor	30 +
Natalie	< 25	Female	White British	Undergraduate Degree	Physiotherapist	< 10
Clare	45 - 54	Female	White Other	PhD	Psychologist Yoga Teacher	10 - 20
Zoe	45 - 54	Female	White Other	PhD	Sports Therapist	30 +
Lena	35 - 44	Female	White British	Undergraduate Degree	Pilates Instructor	10 - 20
Sophia	45 - 54	Female	White British	Undergraduate Degree	Yoga Teacher	< 10
Victoria	35 - 44	Female	White British	Undergraduate Degree	Yoga Teacher	< 10

### 3.2.1 Participant Recruitment

The participants were recruited via social media platforms such as Instagram, Twitter, and Facebook as well as local professional colleagues who work in health or fitness. In addition, an invitation letter (Appendix B) and participant information sheet (Appendix C) was sent to the relevant professional governing bodies in the UK to forward on to their members via their regular newsletter or email.

All participants, having read the invitation letter and information sheet, agreed to take part in the research and completed the consent form (Appendix D) and Demographics questionnaire (Appendix E).

### **3.3 Ethical Approval**

Ethical Approval for this study was obtained by the University of Kent before the recruitment of participants commenced (Appendix G).

### **3.4 Sample Size**

This study recruited eleven participants. Smith et al. (2022) recommends the sample size for doctorate level IPA research to be around ten. This recommended participant number provides greater weight to the research statements presented in the study and increases the chances of the study being published (Smith et al., 2022).

### **3.5 Inclusion Criteria**

Inclusion criteria for participants in the study was that they held a current membership of their relevant professional governing body and possessed the relevant qualifications to practice in the UK. The inclusion criteria for qualifications for physical therapists taking part in the research was a minimum Level 5 Diploma in Sports Therapy for sports therapists or an undergraduate degree in the relevant profession. Inclusion criteria for qualifications for fitness professionals was an appropriate teaching qualification which is recognised by the relevant professional governing body.

### **3.6 Exclusion Criteria**

Exclusion criteria are physical therapy practitioners that do not hold at least a Level 5 Diploma in Sports Therapy for sports therapists or a relevant undergraduate degree. Exclusion criteria for fitness professionals are practitioners that do not hold a teaching or coaching qualification which is recognised by relevant governing body of their profession.

### **3.7 Protocol**

The research protocol for the study will use the SSI to capture the qualitative data and IPA was used for the data analysis.

### **3.8 Pilot Study and Semi-structured Interviews**

A review study by Kalia et al. (2016) identified five development phases for the successful development of the semi-structured interview: firstly, determining the preconditions for using semi-structured interviews. I have determined the preconditions for the SSI in section 2.2.4.

Secondly, the recall and use of previous knowledge. I conducted comprehensive literature review of previous perception research using SSI as a data capture method in 2.2.4, the result of which justifies its use in this study.

Thirdly, preparing a pilot interview guide. The purpose of this phase is to create the final interview guide that will be appropriate for the data collection for this study (Kalia et al., 2016). The pilot interview guide was created using recommendations from previous researchers. In adherence with the recommendations of (Astedt and Heikkinen, 1994; Krauss et al., 2009; Cridland et al., 2015) the pilot guide consisted of a list of questions that helped to guide the participant toward the research topic. The phrasing of the questions was open rather than closed to encourage the participant to talk in depth in line with Smith et al. (2022). The pilot interview guide contained six questions. Smith et al. (2022) recommends an interview guide of between six to ten questions with associated prompts. This will occupy forty-five to ninety minutes of interview time, which is the recommended for IPA studies (Smith et al., 2022).

Fourthly undertaking pilot interviews of the preliminary interview guide. A pilot interview was conducted with the preliminary interview guide. The interview was video, and audio recorded using Microsoft Teams software. The video recording was then analysed. Following an analysis of the pilot interview recording, some of the

questions were modified to provide a better flow of the conversation, and some prompts were modified to better facilitate the participants reflections.

Fifthly, drafting the final semi-structured interview guide. Following the amendments to the pilot interview guide, a final semi-structured interview guide was created (see Appendix B).

### **3.9 Main Study**

The first part of this section chronicles the IPA stages that were followed for each participants transcript. This process was repeated eleven times during the data analysis phase of the study in this thesis. Thereafter, reflexivity and the hermeneutic circle, and their relevance to the IPA analysis process are explained. Finally, the section concludes with my personal reflections of the impact of my lived experiences as a researcher during this thesis study.

### **3.10 IPA Stages**

Using the final semi-structured interview guide the study participants were interviewed. The participant interviews were videoed, and audio recorded using Microsoft Teams software. The participant interviews were conducted on dates and times that were suitable for both the participants and me. I completed all the eleven participant interviews before I began the data analysis. The interview process took four months to complete. All the interview conversations were transcribed automatically using Microsoft Teams software.

There is no single prescriptive method for IPA (Smith et al., 2022). Smith et al. (2022) writes that the essence of IPA lies in the analytical focus toward the participants attempts at making sense of their experiences. Broadly, IPA follows a series of common steps as outlined by Smith et al. (2022).

Step One: The transcript was read in its entirety several times.



Step Two: Initial notes were made, by using a right-hand column to note initial thoughts and ideas, and meaningful themes in a left-hand column (see appendix K). This step involved examining the use and meaning of the language at a high level and noting anything of interest.

Step Three: The initial notes were summarised into concise experiential statements. These statements reflected the essence of the narrative piece with clarity and adequate abstraction allowing it to be conceptual.

Step Four: This step involves searching for connections across the experiential statements. The purpose of this step was to analyse the experiential statements and look for connections that may link them together.

Step Five: Organising and naming the personal experiential themes (PETs). The PETs were written in lower case bold for differentiation in the analysis. The focus of this step is organising the experiential statements into clusters of PETs that describes the participants experiences. The clusters of PETs that relate to each other were given headings in bold upper case.

Step Six: Continuing the analysis of other cases. This step replicates the previous steps one to five for the remaining ten participants.

Step Seven: Developing group experiential themes (GETs) from the personal experiential themes. The aim of this step was to identify similarities and themes across the PETs, across all the cases from the previous step. This was an iterative process and required going back to the participants transcripts. Some PETs were discarded as either being out of scope of this study or the meaning that it represented was found to be already present in the final PET list. Following this process, the final GETs were developed.

### **3.11 Acknowledging and Addressing The Methodological Limitations of IPA**

This section outlines the methodological limitations of Interpretative Phenomenological Analysis (IPA), and the strategies employed to address them during data analysis.

A primary limitation of IPA lies in the inherently subjective nature of its data analysis process. As an interpretative approach, IPA relies on the researcher's engagement with the data, which can be influenced by personal biases, preconceptions, and assumptions. IPA explicitly acknowledges the active role of the researcher in interpreting participants' experiences and the associated potential for bias (Braun & Clarke, 2013; Smith et al., 2022). To mitigate this, IPA employs the phenomenological technique of 'bracketing' (Carpenter, 2007; Chan et al., 2013), originally developed by Edmund Husserl (Giorgi, 2007). Bracketing involves the researcher consciously setting aside their own beliefs and assumptions during analysis, promoting reflexivity and ensuring that interpretations are grounded in the participants' accounts rather than the researcher's perspective.

A further limitation of IPA is its reliance on relatively small sample sizes, which restricts the generalisability of its findings (Oxley, 2016; Smith et al., 2022). However, small samples are a methodological feature of IPA, reflecting its idiographic commitment to in-depth analysis of an individual's lived experience. This detailed focus is time-consuming for the researcher but allows for rich, nuanced understanding of participants' lived experiences (Smith et al., 2022). While traditional qualitative research may provide the transferability of findings to broader contexts (Lincoln & Guba, 1985), IPA seeks to offer detailed context specific understanding. The goal is to provide thick descriptions of the individual's lived experiences, enabling readers to determine whether the findings resonate with their own or similar contexts (Braun & Clarke, 2013; Lincoln & Guba, 1985).

### **3.12 Reflexivity and The Hermeneutic Circle During the IPA Analysis**

In this section I discuss my reflections during the IPA analysis and reflect on the possible impact of my background and lived experiences on the study.

### 3.12.1 Reflexivity

Qualitative research requires considerable reflexivity (Maxwell, 2013). Orange (2016) writes that qualitative researchers must critically evaluate their position in the research to understand how their biases may influence the data. During the IPA analysis process, I made copious notes on my initial ideas, emerging themes, structure of the data (See Appendix M), and to keep track of how the experiential statements evolved. In addition to this, I found that the participant narrative analysis required a lot of self-reflection. I had to constantly be mindful that my own biases may influence the analysis. To counter my own bias, I engaged in self-reflection throughout the analysis to acknowledge my preconceptions and assumptions. I found that it was helpful to repeatedly watch the videos of the participant interviews to fully understand the context and to ensure that the analysis was based on the participants lived experiences. Reflecting on the analysis, I was surprised at how open the participants were during the interview and was pleased at the depth of the data that I had managed to capture. As a researcher, I found IPA analysis extremely difficult to begin with. I had previously used quantitative research methods during my master's degree and was unfamiliar with any qualitative research methodology prior to this study. At the beginning stages of the transcript analysis, I found myself reading the narrative text like a story. I read and reread the IPA analysis sections from Braun and Clarke (2013), Smith et al. (2009) and Smith et al. (2022) to understand the process of moving from descriptive to interpretive reading. Initially trying to read deeper into the meaning of the narrative took immense concentration and was mentally exhausting. If I wasn't concentrating, it was very easy for me to revert to superficial descriptive reading, and I would catch myself doing this. It was at this point that I would take a break. I had to constantly be very aware during the early stages of the analysis, of my tendency to focus on a particular script and attempt to find meaning instead of reading the part and 'part of the whole' as is recommended by Braun and Clarke (2013) and Smith et al. (2009 and 2022). Throughout the IPA analysis phase of this study, I found the guidance, corrections, and suggestions from my supervisor incredibly beneficial. Furthermore, the regular supervision sessions with my supervisor helped me to view my analysis from an independent perspective,

which was incredibly useful, and would often help to reset my analysis from the descriptive back to the conceptual.

### **3.12.2 The Hermeneutic Circle**

Smith et al. (2022) describes hermeneutics as the theory of interpretation of language. Hermeneutics acknowledges that the background, presuppositions and lived experiences of the interpreter influences the interpretation (Grondin, 2015). The hermeneutic circle forms the foundation of hermeneutic theory (Grondin, 2015) and accepts that to understand the whole of the meaning, we must understand its parts, and to understand the part, we must understand the whole. Hermeneutics is a major foundation of IPA (Braun and Clarke, 2013; Smith et al., 2009; Smith et al., 2022) and is a useful approach to translate manuscripts and texts (Robson and McCartan, 2016). With the emphasise on the use of language and context, hermeneutics has proved to be a useful methodology to understand human actions and lived experiences (Robson and McCartan, 2016).

### **3.12.3 Personal Reflexivity**

As a researcher I need to be aware of the influence of my lived experiences, views, and beliefs on this study. From childhood I have been involved in competitive sports including cycling and running and have practiced stretching in some form. During my military service in South Africa, I was attached to the South African Medical Service and trained as an army medic. I spent most of my national service in remote rural locations in the Southern African bush where had the opportunity to observe local indigenous people. On reflection this would later play a major role in my view of healthy human movement. The indigenous people, including the elderly members of the community would move with ease and crouch on the ground comfortably to rest or eat. Further, on reflection I recall that the posture of the indigenous communities was upright without the pronounced thoracic curve that is often observed in modern western populations. Remaining active in sport I developed a right-side knee injury when I was forty-five and had to undergo a tibial tubercle osteotomy procedure. Following the procedure my right leg had to be braced for five weeks which severely

limited my knee flexion. During my rehabilitation I visited both NHS and private physiotherapists and was given various exercise to strengthen the knee. Although this did help my knee recovery, I was left with severe mobility restrictions, continued discomfort, and inflammation in the knee joint. I couldn't flex my knee beyond ninety degrees at six months following the surgery and it was inhibiting my work as a Bike fitter at the time. I intuitively decided to try to stretch the knee, and it was only then that the discomfort and inflammation started to subside. With continued stretching I achieved full knee range at twelve months. On reflection the biggest surprise for me is not that stretching along with the prescribed exercises helped my knee, rather it was that none of the rehabilitation specialists mentioned or prescribed stretching for my knee. Shortly after this, I underwent the same surgery in my left knee, and following the same exercise and my own stretching achieved the same recovery. Only in the left knee I made a full recovery in six months. I trained as a sports therapist after I had completed my knee rehabilitation. As a result of my experiences, stretching is an important part of my physical therapy practice. During nearly every client assessment and treatment, I examine and test for mobility, flexibility, and strength of the joint or limb. I consider mobility and flexibility to be a fundamental characteristic of wellbeing, and a major contributor to athletic aptitude. In my lived clinical experience stiffness is correlated to pain and diminished functional movement.

As a researcher, I was mindful to try to separate my personal opinions and experiences of stretching as a physical therapist. On reflection, one of the ways that I tried to achieve this was by allowing the participants to talk freely about their practice, and what mattered to them. I made every effort to not concentrate my participant questioning on why they didn't use stretching, instead, I tried to focus on what the meaning was behind what they considered important in their practice.

Some of the reflections on the interviews was surprise at how little stretching was used as a treatment strategy among most participants, and the lack of training on stretching during their education. This research aims to contribute to understanding the lived experiences of physical therapists and fitness professionals, particularly regarding their perceptions of stretching.

# Chapter 4: Findings

## 4.1 Introduction

This chapter presents the group and their associated personal experiential themes that were identified through the IPA analysis of the interview data. The analysis of the themes aims to explore patterns and meanings present across all or some of participants that are relevant to their lived experience as physical therapists and fitness professionals.

The four group experiential themes (numbered) along with their associated personal experiential themes (bullet pointed) that were identified are:

1. PROFESSIONAL IDENTITY
  - Defining/Decisive Moments
  
2. DEVELOPING SELF-EFFICACY THROUGH EXPERIENCE
  - Bargaining and Negotiation
  - Challenging Orthodoxy
  - Creativity in Practice
  - Person Centered Care
  - Didactive Role of the Practitioner
  - Ownership of Practice. This is My Own Approach
  
3. LEARNING THROUGH EDUCATION AND EXPERIENCE
  - Tension Between Theory and Observed Reality
  - Experiences Around Education
  - Taking What is Needed From CPD
  
4. ENGAGEMENT WITH RESEARCH
  - Keeping Up With the Latest Research
  - When the Research is Inconclusive

- The detail of the PETs are outlined in Appendix N

## 4.2 GROUP EXPERIENTIAL THEMES (GET)

### 4.2.1 PROFESSIONAL IDENTITY

An important feature among the participants was how they perceived themselves. The participants in the study were not specifically asked about their identity or how they perceive themselves, however early in the interview process it was clear that all the participants had a view of who they were as a professional practitioner.

Participant narratives revealed the complexity of the formation of professional identity which is influenced by circumstances and lived experiences in their work roles as well as their personal life. For example, in the extract below Anne explains the circumstance that shifting her professional identity toward research:

*“... a lot of the people that I was seeing on the NHS, and that's what actually pushed me into research, was I had a lady, she must have been an early 20s, and I asked her to turn over. She was lying on her back. I asked her to turn onto her side, and she couldn't do it! She didn't have the movement skills to do that, and I thought this is desperate ... (Anne: Pg 42)”*

Deborah worked as a secretary and her career direction changed due to an experience while looking for something to do in her lunch hour:

*“...so, my whole life I haven't been very sporty at all. I moved to Southampton when I was 40 and I wanted something to do in my lunch hour and around the corner was a Pilates studio. I didn't know what Pilates was. I'd never done it before, but I signed up for it and just loved it (Deborah: Pg 3)”*

Deborah experiences of Pilates developed into a passion for the practice, and she decided to train to become a Pilate teacher:

*“... I think I might have been so enthusiastic that my teacher said to me, ‘Why don’t you train to be a Pilates teacher?’ And then I decided that would be a very good idea, so I did (Deborah: Pg 3)”*

Those participants who worked full time and practiced as a Pilates teacher or yoga teacher revealed multiple professional identities related to their role at work and their practitioner ‘self’. For example, although continuing to work as a secretary, Lena decided to train as a Pilates teacher.

*“... I was working full time in information technology and teaching Pilates in the evenings ... (Lena: Pg 2)”*

A further example of the co-existence of a workplace and practice professional identity is Victoria who works fulltime as a neuro occupational therapist and teaches yoga part time:

*“... I love teaching yoga, and I today I work as a neuro OT, but I do bring a lot of my yoga skills into the job that I do (Victoria: Pg 1 – 3)”*

Victoria’s lived experience and professional identity as a yoga teacher influences her professional identity as a neuro OT.

The conversations with the participants highlight the fluidity of professional identity as individuals change direction in their work roles. Anne, reflecting on her career in the NHS described how her role changed over time:

*“... now a lot of my career In the NHS was spent in research, so stretching wasn’t an issue, and it was only, I guess, the last decade that I kind of migrated back into clinical work ... (Anne: Pg 12 – 13)”*

Following a career in the NHS Anne’s professional identity continued to evolve. Now retired Anne feels that she is still supporting the NHS in her current role as a Pilates teacher:



*“... I feel my mission is to keep people out of the NHS because actually the NHS just isn't fit for purpose. A lot of the people that I was seeing in the chronic pain clinic, if they had the right treatment in the right way at the right time, they wouldn't have been there ... (Anne: Pg 45)”*

Lived experience played a role in the development of professional identity. For example, in her interview Lena identified herself as a Pilates teacher:

*“... so, I'm a Pilates instructor. I've been practicing Pilates for about 20 years as a client myself, and then teaching probably the last four. And I now specialize in doing one to one sessions with equipment in a studio in Frome. And I do group sessions on equipment in Bristol (Lena: Pg 1)”*

She explained that the reason she wanted to do the Pilates teaching course was to expand her own practice:

*“To just expand my knowledge and my personal practice and then I got the bug and enjoyed seeing other people improve and fell in love with actually teaching rather than just doing ... (Lena: Pg 2)”*

However, she found that while attending the course she ‘fell in love’ with teaching and decided to pursue a full-time career in teaching Pilates:

*“... It's been full time. Not that long. Only since about July last year. So previous to that I was working full time and teaching evenings and then in July last year, then I took it to full time (Lena: Pg 2)”*

Similarly, Sophia shared that her motivation for attending yoga teacher training was to develop and grow her personal practice:

*“So, I'm 52, I've always been physically active ... I mean physically active since my mid late 20s up until I was about 50. I was working predominantly office based and then I started doing yoga more regularly, probably about five or six years ago. I'd always done yoga, but not a lot of yoga, and I decided to*

*train as a yoga teacher just to further my own understanding and to learn something new ... (Sophia: Pg 1 – 2)”*

After her training Sophia started to teach yoga alongside her full-time job. Her journey from wanting to study yoga more in depth evolved to splitting her time to working part time and teaching yoga part time:

*“... so, I qualified in 2018. I started teaching just a couple of classes a week alongside my other career, and then when I was made redundant, I started teaching yoga more frequently, and that's what I do now. I teach 6 classes a week and occasionally teach privates ... (Sophia: Pg 2)”*

Sophia explains that her motivation at the start of her yoga teaching journey was a curiosity and an ambition to learn more about yoga:

*“A desire rather than a clear plan of knowing what I wanted to do with it. It was curiosity because I didn't know that much about it, and I was just keen to go back into a learning environment. I think as well, but in an area that I haven't been in before (Sophia: PG 3)”*

Victoria 's professional identity has been shaped by her lived experiences of yoga. Victoria loved yoga from the first time that she began with the practice in her late teens. Later as a Neuro OT Victoria would take inspiration and learning from her knowledge of yoga and apply it to her clinical work:

*“... and I started to learn more about the philosophy of yoga during that period, I was training to be an OT. So, it's at uni I did a study on the benefits of yoga in occupational therapy. I worked with Pete Gill on that. He supported me through that piece of work. And I think it's just snowballed for me, my love of yoga, and today I work as a neuro OT, but I do bring a lot of my yoga skills into the job that I do (Victoria: Pg 1 – 3)”*

After qualifying as a Neuro Occupational Therapist, Victoria went on to train as a yoga teacher:

*“... I came to the conclusion that I wanted to not just practice yoga as a personal practice, but I did want to become a teacher. So, I did my teacher training, my 300-hour teacher training with the British wheel of yoga ... (Victoria: Pg 1 – 3)”*

In the narratives there was a difference in how organisationally employed and self-employed participants identified themselves. Organisationally employed participants identified as ‘working for the organisation’:

*“... so, I graduated in August and then I started working for the NHS in October ... (Natalie: Pg 3)”*

*“... I have just come out of football, went back into the private sector again and then obviously just started my journey in academia. I am now working for the University of XX (Andrew: Pg 2)”*

*“so, I worked for the NHS for 40 years, and I worked in chronic pain management working with patients who have CRPS (Anne: Pg 3)”*

In contrast the self-employed participants identified with their professional title:

*“... so, I am a qualified osteopath and run my own clinic ... (Peter: Pg 6)”*

*“...so, I came into the exercise and health area working as a fitness instructor. I started off as a gym instructor, and then went on to do my personal training ... (Karen: Pg 6)”*

*“I wanted to not just practice yoga as a personal practice, I wanted to become a yoga teacher ... (Victoria: Pg 3)”*

The following PET themes are associated with IDENTITY, and they are ‘Defining/Decisive Moments’ and ‘Strategies For Overcoming Imposter Syndrome’ See Appendix N.

## 4.2.2 DEVELOPING SELF-EFFICACY THROUGH EXPERIENCE

All experienced participants discussed how their confidence in their decision-making and practice increased with experience. Participants expressed the development of their self-efficacy in their practice in several ways. For example, Anne came across confidently in her interview. She was relaxed, calm, sure of herself and seemed to be enjoying the interview process. In the extract below Anne highlights what she has taken from her Pilates training which is to focus on getting people moving. Her confidence is demonstrated here by the faith that she has in herself and that her focus is what is right for her students. This faith is the product of her training, education, working and lived experience that she has developed over time.

*“... I don't think I teach much Pilates to be honest. I just use the principles ... it can be a bit precious at times about exactly where you place the foot and exactly what you do, and I just see it as getting people moving (Anne: Pg 6)”*

Throughout the interview Anne expressed confidence in her therapeutic ability, for example:

*“I see in the clients that come to me, as they are walking in the door. I know if they've been, if they've had a desk job or a non-desk job ... (Anne: Pg 35)”*

Due to the length of time in practice and her experience, she is quickly able to develop an insight into a client's physical problems. An example of this is illustrated in the extract below where Anne explains how she can quickly adapt her Pilates classes to meet the particular needs of her students:

*“when I teach a Pilates class, I look at who's in the class and I think what are their particular needs? and then I design the class around that. And around the fact that I want to get every joint to move through as much range of movement as is available. And work every muscle and every joint really. And do it in a functional way. That's how I'm trying to organise things (Anne: Pg 48)”*

Developing self-efficacy through experience was also demonstrated by Andrew. His position on flexibility training for his athletes was gleaned from his lived experience working with professional athletes. Andrew displayed creative 'out of the box' thinking by developing his own innovative approach to facilitate optimal movement in his athletes:

*"... we would be doing some of the animal flow type movement patterning. ... animal flow is a concept like... trying to follow the primates and the animal world in their movement patterns and take it back to us. For example, crouching right down on your knees .... crouching down like you see a primate and just working on sort of patterns of kind of movement. ... working on getting the hips and shoulders and bits moving (Andrew: Pg 15)"*

Andrew's unique approach of primal movement patterning was based on his conviction that traditional stretching and exercises did not reduce hamstring strains among his academy football players.

Victoria, reflecting on her early days of Ashtanga yoga practice was appalled at the extreme way that she used to practice:

*"Well, I think looking back on, it's terrible, isn't it? Cause knowledge does make you kind of look back and think oh the things that I used to do ... He used to lay on my back while I was in forward fold and stretch me into a deeper posture, and all the binding. I've probably done some damage to my body I'm sure doing that practice. I look back now on some of the stuff that I used to do; I think pretty dangerous actually ... (Victoria: Pg 13)"*

Victoria's lived experience of yoga has given her the confidence to adapt her teaching methods to the needs of her students:

*"... I think that yoga can be risky without that knowledge and understanding of how the body moves and what could be potentially dangerous and risky. You do really run the risk of doing a lot of damage to your students if you don't adapt the practice ... (Victoria: Pg 13)"*

Lena demonstrates self-efficacy through the ability to adapt her teaching to meet the unique needs of individual clients. Lena confidently spoke of how she was able to achieve this:

*“... for those clients, I would encourage them to work smaller than they want to. Because I think it's about building up the stability around a joint. Somebody who's very stiff then I might push them to move a little bit further ... (Lena: Pg 23)”*

By contrast Natalie, who was recently graduated used words like ‘intimidating’ and ‘overwhelming’ when she spoke of her transition from student to practitioner. As a newly qualified practitioner she accentuated her focus of strictly working within the boundaries of her ‘scope of practice’ as if she was afraid that she may stray beyond them.

*“I think it's more about knowing your boundaries of your scope and not needing to kind of practice outside what you know is evidence based because you know that somebody else knows how to manage that (Natalie: PG 13 – 14)”*

### **4.2.3 LEARNING THROUGH EDUCATION AND EXPERIENCE**

LEARNING THROUGH EDUCATION AND EXPERIENCE was an important GET that became readily evident when the participants reflected on the factors that impacted their professional practice. Those participants that had more years in professional practice expressed the value of experiential learning, for example in the extract below Peter talks about his approach to stretching, and ascribes his views to his lived experience:

*“... a lot goes on with stretching. If I'm going to strengthen my quadriceps, glutes and abdominals then, my hamstrings are going to start to relax because they are more dominant muscles, like the psoas which is a dominant*

*muscle that holds its position and works with other muscles. A lot this is my own view based on patients and people I've worked with, and being very active in my own sport ... (Peter: Pg 10 - 11)"*

Peter also attributes his understanding of stretching to self-learning:

*"... Yeah, what I've studied on the stretching side was more about the different types, and how the physiology works on contraction and relaxing, and stretch receptors. Then I just apply it. I apply it a lot to my own life because I'm still very active in my own sport, and I think it's more of that type of research that I'm doing on my own (Peter: Pg 11)"*

In the extract above, Peter explains that his approach is born out of his experience in practicing his own sport as well as applying the techniques in his own life.

Andrew's experience of hamstring injuries amongst his academy football players is that they occur irrespective of preventative exercise:

*"... but invariably yes, those individuals that are sustaining the hamstring injuries are doing all the other prevention exercises that the rest are doing ... (Andrew: Pg 23)*

His perceptions of the value of flexibility to reduce hamstring injuries in his academy football players was shaped by his lived experience:

*"... I can have some of the players with some of the tightest hamstrings, and you look at them on either a sit and reach, or a straight leg raise, and you think, these are some of the tightest hamstrings I've ever seen, yet those players never sustained a hamstring injury in their life. And yet some of the more flexible ones who's range of movement, you would argue is within normative values and one that you wouldn't say were particularly tight, are the ones that are picking up the hamstring strains (Andrew: Pg 6)"*

Andrews view that flexibility did not reduce hamstring injury rates were based on his lived experiences of working with professional athletes over time:

*“... working with professional athletes I’ve tended to find that actually there isn’t a great correlation between flexibility and risk of injury ... (Andrew: Pg 6)”*

Annes initial knowledge of stretching did not come from education, instead it was from her experiences as a dancer and gymnast:

*“We certainly did not have any education on exercise physiology whatsoever. All that came afterwards. I think in terms of stretching, I obviously had a lot of that from dance and gymnastics. So, I think that's probably where my initial knowledge about stretching came from (Anne: Pg 9)’*

Later in the interview Anne added that she received no education on stretching during her physiotherapy training, and the major influences of her views of stretching was from her dance and gymnastic coaches:

*“... when I was doing my physio training, because there was no education on stretching, I think I continued what I'd learnt from my coaches ... (Anne: Pg 12)”*

Natalie found that with physiotherapy, she was learning far more during her placements than she did at university:

*“... with Physio I think a lot of what you learn is what you learn on placements or what you learn when you're actually graduate ... (Natalie: Pg 7)”*

Zoe provides a good example of how later hindsight and experience may inform practitioner practice:

*“I was probably thinking about it now. I probably would do things differently. I probably be a little bit more confident and work. And probably work deeper with those clients then I did at the time ... (Zoe: Pg 14)”*



#### 4.2.4 ENGAGEMENT WITH RESEARCH

A common GET across multiple participants was their engagement with stretching research. Attitudes and motivation around engaging with research literature differed between individuals. All the participants found that maintaining currency with stretching research was a challenge, with most of the participants recounting that they did not engage in any stretching research recently, for example: Andrew who professed that he had not kept up with the latest research on stretching:

*“... I have to say I haven't kept up to date with some of the latest research... (Andrew: Pg 3)”*

*“But the evidence, I have to say, I don't keep up to date with it (Andrew: Pg 4)”*

When asked if she kept up with stretching research, Lena replied:

*“... I don't know where I would start to be honest other than Googling. I don't know where I would go to other than Google or other instructors ... (Lena: Pg 33)”*

Sophia did not research regularly until she sustained a hamstring injury:

*“... so, when I had a really bad hamstring injury, I did try and look at research, but I think that quite often the studies are quite narrow in their remit ... (Sophia: Pg 32)”*

Sophia's experience was that the hamstring injury research was not relevant to her problem:

*“... quite often the studies are quite narrow in their remit, by nature of the fact they have to be a well-rounded research study to begin with, and the findings tend to be quite narrow, and then there's that danger that 'absence of proof doesn't mean proof of absence' ... (Sophia: Pg 32)”*

All the participants lacked the motivation to maintain currency with the latest stretching research as it was not the focus for their current practice:

*“.. I haven't read anything on stretching in sometime. It's all been very much focused on exercise interventions at the moment for me (Karen: Pg 16)”*

Natalie was not up to date with stretching research, but was aware of her colleagues general opinion on stretching:

*“... I personally haven't read a lot of research into it, but based on what people say and there's more benefits of dynamic stretching ... (Natalie: Pg 34)”*

Natalie, who was organisationally employed, attended regular informal sessions with colleagues to talk about a relevant research paper:

*“... every week we sit down as a team up in the hospital and go through a different research paper which is relevant to practice ... (Natalie: Pg 10)”*

For most of the participants, the lack of time was a limiting factor for them:

*“I mean, I think if I had the time, I would like to explore the research a little bit more and just sort of try and I guess for me I would need to understand the benefits myself. So having time to understand the benefits of stretching and then maybe put it into place and then maybe even incorporate that into my yoga practice a little bit more ... (Clare: PG 16)”*

It was the perception of all the participants that the messaging around stretching was unclear and imprecise, for example:

*“I know that it's often quite a conflicting area stretching as to whether. Is it good? Is it bad? What type of stretching should we be sort of using and when? (Andrew: Pg 3)”*

*“I would imagine if I started looking at different sources, different people will have different opinions, I think the perception of stretching has changed over the time ... (Clare: Pg 19)”*

# Chapter 5: Discussion

## 5.1 Introduction

The aim of the study in this thesis was to investigate physical therapists' and fitness professionals' perceptions of stretching in their professional practice.

Behm (2018) writes that humans have practiced stretching for thousands of years in the form of yoga (3000 BC), the martial arts (1000 BC), and the Egyptians and Greeks (2000 BC). Stretching has been extensively researched for over one hundred years, for example Marshall published a study in 1883 titled 'Nerve Stretching For the Relief or Cure of Pain' in the British Medical Journal. Even though an extensive body of literature on stretching has been published since the late modern period (mid 18<sup>th</sup> century) to today, there is still no clear consensus on the benefits of stretching to this day. Stretching research has primarily been conducted by either sports scientists or clinical researchers. Sports scientist research stretching to determine the effect on athletic performance (Barnes and Kilding, 2015; Halbertsma et al., 1996; Halbertsma et al., 1999; Magnusson et al., 1996a, 1996b; Shrier, 2004; Williams, 1985; Wilson, 2010). Clinical research focuses on the effect of stretching on tissue healing (Kimura and Tsuji, 2021; Witvrouw et al., 2012). The literature review of stretching in this thesis found opposing views of stretching in the literature. For example, Barnes and Kilding (2015), Halbertsma et al. (1996 and 1999), Magnusson et al. (1996a and 1996b), Williams (1985) and Wilson (2010) have all published studies correlated stretching to improved athletic performance. In contrast, Barbosa et al. (2019), Nuzzo (2020), and Shrier (2004) found that stretching inhibits performance. Furthermore, the literature review in this thesis highlighted the limitations and lack of diversity in stretching research. For example, studies on stretching and sports performance predominantly consisted of younger, male, athletic individuals (Kokkonen et al., 2007; Nuzzo, 2020). In addition, many stretching studies examined stretching in isolation, and did not consider other factors such as strength training or other activities alongside stretching.

This study investigated manual therapists and fitness professionals' perceptions of stretching amidst the landscape of differing messages around stretching in the literature and from science communicators in mainstream media. Eleven participants, five manual therapists and six fitness professionals, were interviewed and their narratives were analysed using IPA. The IPA analysis revealed several important themes influencing the stretching perceptions of the participants.

Investigating the lived experiences of manual therapists and fitness professionals contributes to understanding the different ways health professionals work, the skills and interests they specialise in, and the different pathways their career might take. In addition, it helps us to understand the different contexts of being self-employed versus organisationally employed, the impact this may have on professional identity, the factors influencing practitioner self-efficacy, the role of education and experience on one's professional development, and the ways in which practitioners engage with research.

The study in this thesis revealed four GET themes: Identity, developing self-efficacy through experience, learning through education and experience; and engagement with research.

## **5.2 PROFESSIONAL IDENTITY**

Professional identity is the individual's sense of themselves as a professional (Hill, 2023). Professional identity is important in healthcare as it develops a sense of self at work, identifies practice boundaries (Rasmussen et al., 2021), limits role confusion (Thompson et al., 2019) and internalises the norms and values of the profession (Spector, 2022).

### **5.2.1 Theoretical Framework**

A notable meta-analysis of 68 studies of professional identity in healthcare by Fitzgerald (2020) found that professional identity was based on the actions and behaviours of the professional; was context dependent; shaped by changes within

the workplace and was identified by knowledge and skills. It also internalised core values and beliefs, included entry into a community of practitioners, and helped the individual identify as being part of a profession. Interestingly, the study placed no emphasis on the influence of lived experience on professional identity. Although this study was completed as recently as 2020, it represented the classical thinking around professional identity until a later study was conducted in 2023. Cornett et al. (2023) conducted a scoping review of professional identity in health professions. The authors analysed 160 studies across 17 health professions and found that the description of professional identity was varied and multi-faceted, and that the concept of professional identity in healthcare was under theorised with a lack of theoretical frameworks. The scoping review was conducted using PRISMA (Page et al., 2021) guidelines, and identified five individual constructs of professional identity; lived experience, workplace, group identification, sense of self and learning and qualifications (Cornett et al., 2023).

The findings of this study align with those of Cornett et al. (2023), indicating that participants' lived experiences significantly influenced their professional identity. Three key points are shown. Firstly, the complexity of professional identity. Secondly, that professional identity changes over time, and thirdly, the differences between organisational-based and self-employed practitioners' sense of professional identity.

### **5.2.2 The Complexity of Professional Identity**

The analyses revealed that the participants' professional identity is complex and multifactorial and results from a lifetime of lived experiences. This is confirmed by key studies in the literature which state that health practitioners' perceptions of professional identity are influenced by a lifetime of multi-layered experiences (Fitzgerald, 2020., Nyström, 2009., Wilson, 2023). Early studies of professional identity in healthcare (Nyström, 2009) ascribed three factors to professional identity formation: education, working life, and other aspects of personal life. Lived experience was not considered as an important factor.

This study found that the important influences of professional identity amongst the participants was their personal lived experiences, education, level of experience, and position at work, and that lived experience was one of the major influences of professional identity. This finding differs from earlier literature (Fitzgerald, 2020, Nyström, 2009) but agrees with later studies (Cornett et al., 2023). Fitzgerald's (2020) meta-analysis found that 42 out of 68 articles analysed identified beliefs, values and ethics as major influences of professional identity. Lived experience was absent. However, a later scoping review by Cornett et al. (2023) found that lived experience was among the five influencers of professional identity.

Participants spoke of how their perceptions were influenced by where they were born and how they were raised, their education, life experiences, work experience, sports they participated in, books they read, educational courses they attended and personal interests to mention a few. These complex inter-relationships between an individual's lived experiences and their professional identity are a common theme in the literature (Kram et al., 2012; Nystrom, 2009). For instance, Nystrom (2009) describes professional identity as an ever-changing negotiated relationship between the private, personal, and professional identities of the individual. This study highlights the interrelationship and co-existence of multiple professional identities among some participants. For example, those engaged in full-time employment who also taught yoga or Pilates in their personal time actively negotiated the relationship between their primary occupational role and their practice-based professional identity. The concept of multiple co-existing professional identities is well supported in the literature (Eisenberg, 2001; Goldie, 2012). Drawing from social psychology, Goldie (2012) proposed a multi-dimensional model of professional identity formation, which acknowledges the presence of multiple identities. Rather than viewing professional identity as a static or singular construct, Goldie argued that it is dynamic, evolving across the lifespan and shaped by changing roles, experiences, and contexts.

In line with existing literature, this study found that participants' perceptions of stretching were shaped by both their lived experiences and their evolving professional identities. Professional identity emerged as a complex and dynamic construct, particularly for individuals who balance multiple roles, such as those

working full-time while also teaching yoga or Pilates part-time. These participants navigated co-existing professional identities that influenced their perspectives and practices.

Notably, participants' personal experiences with stretching significantly influenced whether they incorporated it into their professional practice. Those without direct, lived experience of stretching were less likely to utilise it in their work. This study underscores the substantial role that professional identity plays in shaping practitioners' choices of treatment approaches or exercise modalities, particularly among fitness professionals and manual therapists.

### **5.2.3 The Fluidity of Professional Identity**

The second key emerging theme was the participants' sense of their role changing over time. The narratives in this study reveal that professional identity is fluid and changes with new experiences and as their careers progress, which is in line with Wilson (2023), Fitzgerald (2020), and Nystrom (2009). Wilson (2023) states that professional identity is a constantly evolving phenomenon that is formed as individuals make sense of, and take on the skills, behaviours, and norms of their profession. The narrations of the participants reflected this evolution over time citing how their views and perceptions of themselves had changed as they developed more knowledge, experience, and confidence in their practice. The interviews also revealed that experiences in the personal, social, and professional realms of the participants influenced their professional identity, in accordance with Cross and Swart (2021).

The analysis revealed that professional identity is fluid and is constantly changing over time. Lived experiences in the personal, social, and professional lives of practitioners play a role in shaping professional identity. Practitioners gained more confidence in their professional identity in line with an increase in their practice experience, and as a result were more inclined to utilise innovative techniques in their practice.



## 5.2.4 Organisational Versus Self Employed Perceptions of Professional Identity

A third key theme was that professional identity was impacted by organisational employment versus self-employment.

The participant sample for this research was comprised of both organisational employed and self-employed individuals (employed full-time: n = 4, self-employed: n = 7).

This study found that there was a key difference in the perceptions of professional identity between organisational versus self-employed participants. In line with the literature (Fitzgerald, 2020; Nystrom, 2009; Wilson, 2023), this study found the perception of professional identity of participants employed in large organisations was influenced by their role in the organisation. This was in line with Fitzgerald (2020), who found that the professional identity of nurses was related to their roles within their organisation. This phenomenon is encouraged as the roles of clinical professionals within organisations should ideally align with organisational frameworks (Kerr and Macaskill, 2020; Thompson et al., 2019). During the interviews the organisationally employed participants did not particularly identify with their profession i.e. as physiotherapists in the NHS, rather they described their role in the organisation or department. For example:

*“I work at [name of hospital]; I am in geriatrics; I work at elderly care ...  
(Natalie: Pg3)”*

Roles within organisations are standardised with practitioners required to attend accredited learning programs (Thompson et al., 2019), this aligns practitioners into interdisciplinary groups. Each discipline, particularly in health care, is shaped by, and differentiates from other disciplines in patient care fundamentally influencing their professional identity to a group. Adams et al. (2006) coined the term of ‘group identity’ to describe individuals identifying with a profession.

In contrast, the perceptions of professional identity of the self-employed participants were more fluid and adapted according to changes in circumstances, such as market demand for their services, rather than the delineation of their role. This agreed with the literature which finds that the perception of professional identity among self-employed practitioners adapts to changes in circumstances such as demand for their services (Cross and Swart, 2021), and that the professional identity of individuals changes in line with their profession (Sotho, 2008). Sotho (2008) wrote an interesting paper examining the interrelationship between the professional identity of individuals and identity of their profession. The author found that individuals constantly adopt and change their professional identity in line with the tasks and demands of their profession. These findings are mirrored in this study which found that the professional identity of self-employed participants followed their practice interest.

It is well understood that the work environment fundamentally influences professional identity (Fitzgerald, 2020; Nystrom, 2009; Wilson, 2023), however there is no research that examines the unique differences between organisational and self-employment influences on professional identity. The career pathways and progression of self-employed participants differed from their organisationally employed counterparts. The research on professional identity among the self-employed is lacking. Analysis of the interviews revealed that the career pathways and progression of the self-employed participants were more fluid. They spoke of the need to adapt to changes in circumstances. Some self-employed participants recounted transitioning from one profession to retraining in another with some working two jobs, while others worked full time and taught yoga or Pilates part-time. The professional identity fluidity of self-employed practitioners is reflected in the literature. Cross and Swart (2021) coined the term 'professional fluidity' to describe the professional status of self-employed individuals as their professional identity changes to accommodate market demand (Cross and Swart, 2021). The narratives presented here indicate that the development of professional identity is different in organisationally employed participants compared to those that were self-employed. The professional identity of the organisationally employed participants shared common influences such as department aligned educational courses which served to reinforce a group professional identity. The professional identity of the self-employed participants appeared more fluid, often influenced by market demand for their

services, as well as personnel practice interests. Selection of continuing CPD was more aligned to ensure the continued competitiveness of their businesses. More studies on professional identity of the self-employed physical therapy and fitness practitioners are required.

### **5.3 DEVELOPING SELF-EFFICACY THROUGH EXPERIENCE**

Self-efficacy is a person's perception of their skill, knowledge and experience (Jones & Sheppard, 2011), and their belief in their ability to complete a task or achieve a goal (Bandura & Watts, 1996; Boekaerts, 1991). Self-efficacy is important in healthcare and sports coaching because it plays a role in how we feel about ourselves (Jones & Sheppard, 2011) and relates to how capable an individual feels about completing a task (Bandura, 1997; Boekaerts, 1991).

#### **5.3.1 Theoretical Framework**

In the study in this thesis, the participant narratives are represented by two psychological theoretical frameworks that are interlinked. The first is the theory of self-efficacy by Albert Bandura (1977) and the second is the theory of locus of control by Julian Rotter (1950 - 1966).

##### **5.3.1.1 The Theory of Self-Efficacy**

In 1977, Psychologist Albert Bandura developed a theory of how an individual's self-efficacy develops and is influenced. Bandura (1977) posited that an individual's self-efficacy is influenced by mastery experiences, vicarious experiences, social persuasion and emotional states. Mastery experiences are new lived experiences that are gained after successfully completing a task (Bautista, 2011). Vicarious experiences are experiences gained from observing others (Bandura, 1977). Social persuasion describes the influence of persuasion such as verbal encouragement on an individual's self-efficacy (Bandura, 1977). Emotional states relate the notion that positive states such as pride and joy enhance self-confidence while fear and anxiety diminish self-efficacy (Bandura, 1977).

### 5.3.1.2 The Theory of Locus of Control

The narratives of the participants revealed the influence of locus of control on their self-efficacy. Locus of control is a psychological concept developed by Julian Rotter in 1966 and refers to an individual's belief that their fate is either controlled by themselves or by others. Julian Rotter (1918 – 1987) referred to this concept as the 'Locus of Control of Reinforcement'. He believed that human behaviour was largely influenced by reinforcement in the form of rewards and punishments and that individual behaviours were influenced by rewards and punishments. He stated that through contingencies, individuals develop perceptions about their causes and actions.

The participants' narratives revealed that the second theme, developing self-efficacy through experience was discussed in the context of their lived experience, locus of control and mastery experiences. The discourse analysis suggests an intermingling of the theories of self-efficacy and the theory of locus of control to untangle to deeper meaning within the participant narratives.

These sub-themes are congruent with the literature (Ineson et al., 2013; Liu et al., 2022). In a study of three hundred and twenty-six international business students, Ineson et al (2013) found that their self-efficacy was positively influenced by their conviction of their own abilities, previous lived experience and internal locus of control. From the analyses it appeared that the participants in this study who were unfamiliar with stretching techniques or had no previous lived experience with stretching tended to not employ stretching regularly within their practice. For example, Natalie explained that strengthening was a bigger focus compared with stretching during her physiotherapy training.

*"I don't think it is a massive focus over the physiotherapy course. I don't think it's one of the main things that we're taught. There was like a much bigger focus on strengthening (Natalie: Pg 8)"*

As a result, she did not use stretching in her placement.

*“I work in elderly care, and I don't use it (Natalie: Pg7)”*

The common major factors influencing self-efficacy among the participants was their lived experience, locus of control and mastery experiences. Figure 3 below represents the intermingling of the psychological theories of Self-Efficacy (Bandura, 1977) and Locus of Control (Rotter, 1950 – 1966) within the participant's discourse.



Figure 3: The Factors Influencing Self-Efficacy

### 5.3.2 Lived Experience

Lived experience, appeared to positively influence the participants perceptions of self-efficacy. This conforms with the literature. Kannuthurai et al. (2021) found that several factors influenced clinicians' confidence in diagnosing lupus in patients with colour, however only prior experience was positively associated with confidence. Participants who had had a longer career appeared to display increased self-efficacy compared to the newly qualified. Participants in this study spoke more positively about their work experiences, when they were able to spend more time in front of their patients or clients. This is in agreement with the literature, where a positive

relationship between the time spent working and self-efficacy is found (Liu et al., 2022; Thiel et al., 2019; Villalon and Martin, 2019).

Interestingly the study in this thesis found that experience, for some of the participants, appeared to influence self-efficacy more than education, professional development and learned skills. For example, Peter's confidently held perceptions of stretching were based on his lived experience of stretching.

*"...A lot this is my own view based on patients and people I've worked with, and being very active in my own sport... (Peter: Pg 10-11)"*

This contradicted some of the literature which found that education and newly learned skills played a greater role in self-efficacy than work experience (Kim et al., 2020; Ineson et al., 2013; Stone et al., 2020). Kim et al. (2020) conducted a cross-sectional descriptive study of Korean nurses' knowledge, attitudes, confidence and educational needs in palliative care for non-cancer patients. The authors found that prior training in palliative hospice end of life care was a significant modifiable factor that positively influenced nurses' confidence.

The study in this thesis agrees with the literature (Ineson et al., 2013; Liu et al., 2022) and finds that the professional identity of manual therapists and fitness professionals was influenced by their lived experiences, and that conversely, their lived experiences influenced their professional practice.

What was interesting in this study was that experience in the role appeared to contribute significantly more to self-efficacy for the participants compared to levels of education, professional development or learned skills. This challenges some of the literature, which conversely finds that education and newly learned skills are a more significant mediator of self-efficacy than work experience (Kim et al., 2020; Ineson et al., 2013; Stone et al., 2020),

### **5.3.3 Participant Locus of Control**

The second factor, locus of control, was a major influencer on participant self-efficacy. Locus of control is a psychological concept which describes whether individuals perceive their behaviours to be influenced by their own internal or other external forces or control (Kesavayuth et al., 2020). Self-efficacy, together with locus of control contributes to individuals lived experiences (Au, 2015).

This study found subtle differences in the locus of control mediating factors. In accordance with the literature (Dory et al., 2009), this study found that the locus of control of newly qualified participants was more positively mediated by external factors such as positive feedback from peers. Natalie shared that she felt quite 'intimidated' as a newly qualified physiotherapist.

*"... I think as a newly qualified person, it is quite intimidating to go into a field where everything that you do is based on research, and it can be quite overwhelming. But with the right support, it's just so manageable (Natalie: Pg 10)"*

This is supported by the literature. Dory et al. (2009) investigated the mediating factors of self-efficacy among twenty-eight trainee general practitioners in Belgium and France. The authors found that the trainees had low self-efficacy beliefs at the start of their training, and that sharing lived experiences among peers and supervisors positively contributed to the development of their self-efficacy beliefs.

In contrast, self-employed participants were more positively mediated by internal factors such as self-learning and conviction in their own abilities, corroborating the research (Laguna, 2013). Laguna (2013) examined self-efficacy among three hundred and thirty-two successful entrepreneurs. The author found that self-employed entrepreneurs were mediated by internal locus of control factors, chiefly among them were competence and self-confidence.

The findings of the study in this thesis found that the newly graduated participants revealed that their locus of control was more positively mediated by external factors such as positive feedback from peers or clients or successful completion of a training course which is reflected in the literature (Dory et al., 2009), whilst the self-employed

practitioners spoke more of internal factors influencing them, such as self-learning and business success as positively influencing them, corroborating the research (Laguna, 2013).

### **5.3.4 Mastery Experiences**

The third factor, mastery experiences improved the participants perception of self-efficacy. The more the participants did something, the better they believed that they were at doing it. This agreed with the literature which found that task mastery was a significant predictor (Hier and Mahoney, 2018) and contributor (Kleppang et al., 2023) to self-efficacy. The literature defines mastery experiences as situations where the individual is able to successfully overcome a difficult situation or complete a challenging task (Kleppang et al., 2023) and reinforces a positive or negative perception of self-efficacy (Wilson et al., 2018). An investigation into the contributing factors in the self-efficacy on writing of one hundred and seventeen students by Hier and Mahoney (2018), found that students reported increased self-efficacy after taking part in a writing intervention. Similarly, Kleppang et al. (2023) conducted a cross-sectional study of the association between mastery of tasks, social support and self-efficacy of nine thousand two hundred and twenty-one adolescents aged between thirteen and sixteen. The authors found that the task mastery was the strongest contributor to the variance in self-efficacy among the participants. The literature which offers powerful evidence that task repetition is significantly correlated to increased experience and confidence (Angute et al., 2023; Barr and Grafeo, 2016; Quail et al., 2016). The findings of this thesis concur with the literature, for example, among the fitness professional practitioners, the common theme was their lack of confidence at teaching immediately after completing their fitness qualification. Confidence among the fitness professional participants was gained after at least a year's teaching experience.

The study in this thesis found that the perception of self-efficacy among the manual therapist participants related to task mastery, however, they perceived higher levels of self-efficacy following successfully treating a challenging client case which required creative or 'outside of the box' thinking. For example, Andrew employed



animal flow primal movements in the training regime of academy football players to reduce hamstring injuries. Andrew demonstrates self-efficacy in his conviction that traditional stretching and exercise are ineffective at reducing hamstring strains among his athletes.

Those participants that were recently graduated with limited practice experience, and perceived themselves as less confident, spoke of how they turned to the more experienced individuals around them for guidance and support, while the experienced participants, who were more confident, talked of utilising creative and innovative techniques with confidence in their practice

However, among some of the physical therapist participants, the influence of task mastery was more nuanced. This study found that the perception of self-efficacy among the manual therapist participants related to task mastery, however, some of the participants perceived higher levels of self-efficacy following successfully treating a challenging client case which required creative or 'outside of the box' thinking. For example, Peter expressed confidence in his practice abilities and clinical reasoning after adapting a technique to rehabilitate calf strains in footballers to successfully treating hamstring strains in his clients. The manual therapist participants tended to only practice what they knew and mainly used the techniques that they were comfortable with. Of the four manual therapists in the study, only one used stretching regularly in their professional practice.

This study highlights that both experience and mastery of tasks can positively influence self-efficacy of the participants. The study corroborates that the challenge for all participants was the lack of opportunities to practice. An interesting finding was that the perception of self-efficacy among some of the participants was positively influenced by successfully completing a task by creative or 'out of the box' thinking. The physical therapists and fitness professionals in this study tended to limit their practice to what they knew and did not tend to incorporate techniques that they were unfamiliar with.

## 5.4 LEARNING THROUGH EDUCATION AND EXPERIENCE

Experiential learning is learning by doing (Kolb, 2018) or through hands on practical experience (Fry et al., 2015). Experiential learning is particularly important in healthcare (Hill, 2017) and among fitness professionals. For example, among sports coaches, knowledge acquisition was found to be mostly by experiential learning (Irwin et al., 2010).

### 5.4.1 Theoretical Framework

The psychologist David Kolb developed the Experiential Learning Theory in 1984. Kolb's (1984) Experiential Learning Theory postulates that learning is a four-stage cyclical process involving lived experiences, reflective observation, abstract conceptualisation and active experimentation. Learning begins with a particular lived experience which leads to the individual reflecting on the experience. The following stage is learning from the experience followed by the individual experimenting and trying out what they have just learned.

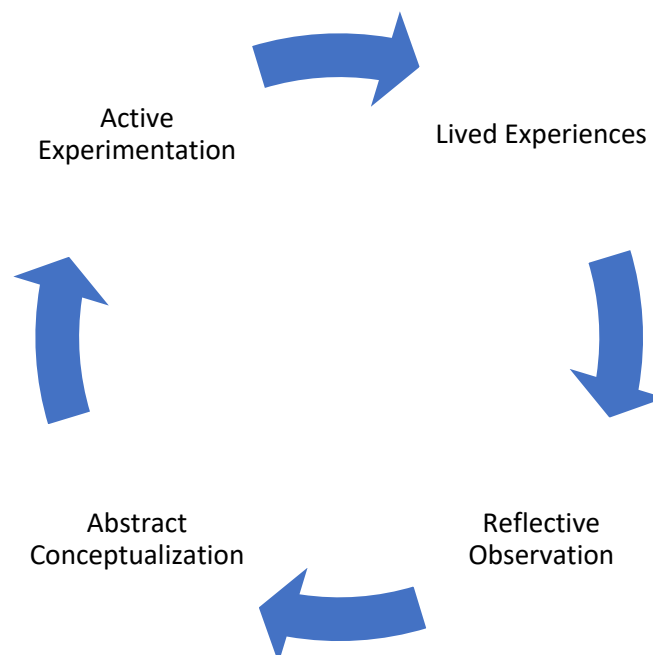


Figure 4: Kolb's Four Step Experiential Learning Cycle (Kolb, 2014)

Learning was a key recurring theme that directly impacted participants' professional practice. These learning experiences incorporated various ways of learning such as direct learning through qualification training courses, CPD, self-education, tertiary education, and experiential learning.

Participants were not actually asked to compare their learning experiences or to highlight which type of learning they valued most. However, all participants spontaneously included reflections on their learning experiences, without being explicitly asked about this. When the participants talked about their perceptions of stretching, experiential learning played an important role in their ongoing skill development.

A key study by Hill (2017), demonstrates the advantage of experiential learning over traditional class-based learning. The author studied 15 student educators preparing for their Advanced History Taking and Physical Examination with Clinical Reasoning exam. Prior to the study the students would practice organ placement on each other without any visual aids. The author found that there was a disparity between the student's theoretical knowledge and their clinical skills acquisition. The author designed a new course using Kolb's (1984) Experiential Learning Framework as a guide. For the study the students wore blank white T-shirts and worked in pairs. Using fabric pens the students practiced organ replacement under the supervision and received feedback from their fellow students. Following the study, all the students passed the exam on their first attempt. This highlights the importance of experiential learning in the learning process.

The participant narratives reflect Kolb's learning cycle, and perfectly describe negotiating this cycle during the clinical reasoning and fitness coaching process. In the example below Peter talks through his approach to stretching. His learning cycle is driven by his lived experience which he then rationalizes through reflection, develops an idea and then tests the concept:

*“... a lot goes on with stretching. If I'm going to strengthen my quadriceps, glutes and abdominals then, my hamstrings are going to start to relax because they are more dominant muscles, like the psoas which is a dominant*

*muscle that holds its position and works with other muscles. A lot this is my own view based on patients and people I've worked with, and being very active in my own sport ... (Peter: Pg 10 - 11)"*

An essential skill for manual therapists is clinical reasoning. A similar skill is required for fitness professionals when they teach classes or work with their clients. They are required to deliver training programs or classes targeted to the abilities of their clients, and these would need to be adapted for any injuries or incapacity issues should they occur. The participant narratives are interwoven with examples of experiential learning. This type of learning relies heavily on the integration of lived experiences and self-reflection (Kolb, 1984;2014;2018), which are major contributors to developing clinical reasoning and fitness teaching skills.

There was a difference in the adoption of lived experience in the narratives between the newly qualified and more experienced participants. The newly qualified participants explained they tended to do things exactly how they were taught and were conscious of doing things by the book, whereas the more experienced participants reflected on how they adapted their practice more. For example, Natalie, a newly qualified practitioner quotes her lecturer when asked about her perceptions of stretching and lower back pain, instead of sharing her own experiences. This was the theme throughout the interview with her.

*"... In the back pain module and general lower back pain, our lecture had some interesting views about the kind of more psychosocial impacts of back pain, and had the view that nothing, no exercises were really going to change anything, unless you add strength which might help. Stretching, he said, was just pointless. Stretching just wasn't. It wasn't doing anything (Natalie: Pg 6)"*

Natalie had no lived experience of the effect of stretching on lower back pain. Her beliefs were in line with her lecturers', which was that back pain was psychosocial that only strengthening the back may be useful. For the more experienced participants of this study, it appeared that experiential learning played a greater role than education on influencing problem solving in their professional practice, in contrast the newly qualified participants tended to rely more on their education.

There was a difference in the adoption of lived experience in the narratives between the newly qualified and the more experienced participants. The newly qualified participants tended to adopt an evidence-based practice or 'do things by the book' approach, whereas the more experienced participants adopted a practice-based evidence approach and would adapt their practice if required. Experiential learning is well studied in organisational settings (Kolb, 1984; 2014; 2018., Rush and Tramontin, 2024), however to the knowledge of this author there are no studies of experiential learning of healthcare practitioners that are self-employed.

## **5.5 ENGAGEMENT WITH RESEARCH**

The fourth theme, engagement with research revealed that participants' engagement with research was affected primarily by a bounded research focus, and the participants spoke of barriers to their engagement with research. Nine of the eleven participants in this study explained they engaged with research regularly as part of their CPD.

An important study into professional and organization learning in healthcare in the United Kingdom was conducted by Clarke (2000). Clarke (2000) conducted an analysis of professional and organizational learning within three NHS study regions in the United Kingdom. Data was collected from 29 interviews and two focus groups. The data was qualitatively analysed and grouped into processes and categories using qualitative data analysis software. The data analysis enabled the mapping of the effect of practice developments on practitioners and within an organization. The analysis of the data revealed three processes and eight categories that were instrumental in the development of health care practice. The processes were, using and creating knowledge, understanding and practice of patient care, and achieving development. The associated eight categories were vision, reconceptualising patient care, cognitive skill and development, working with boundaries, movement of information working with and creating context and knowing the process of change. The interrelationship between the three processes and eight categories are illustrated in Figure 5:

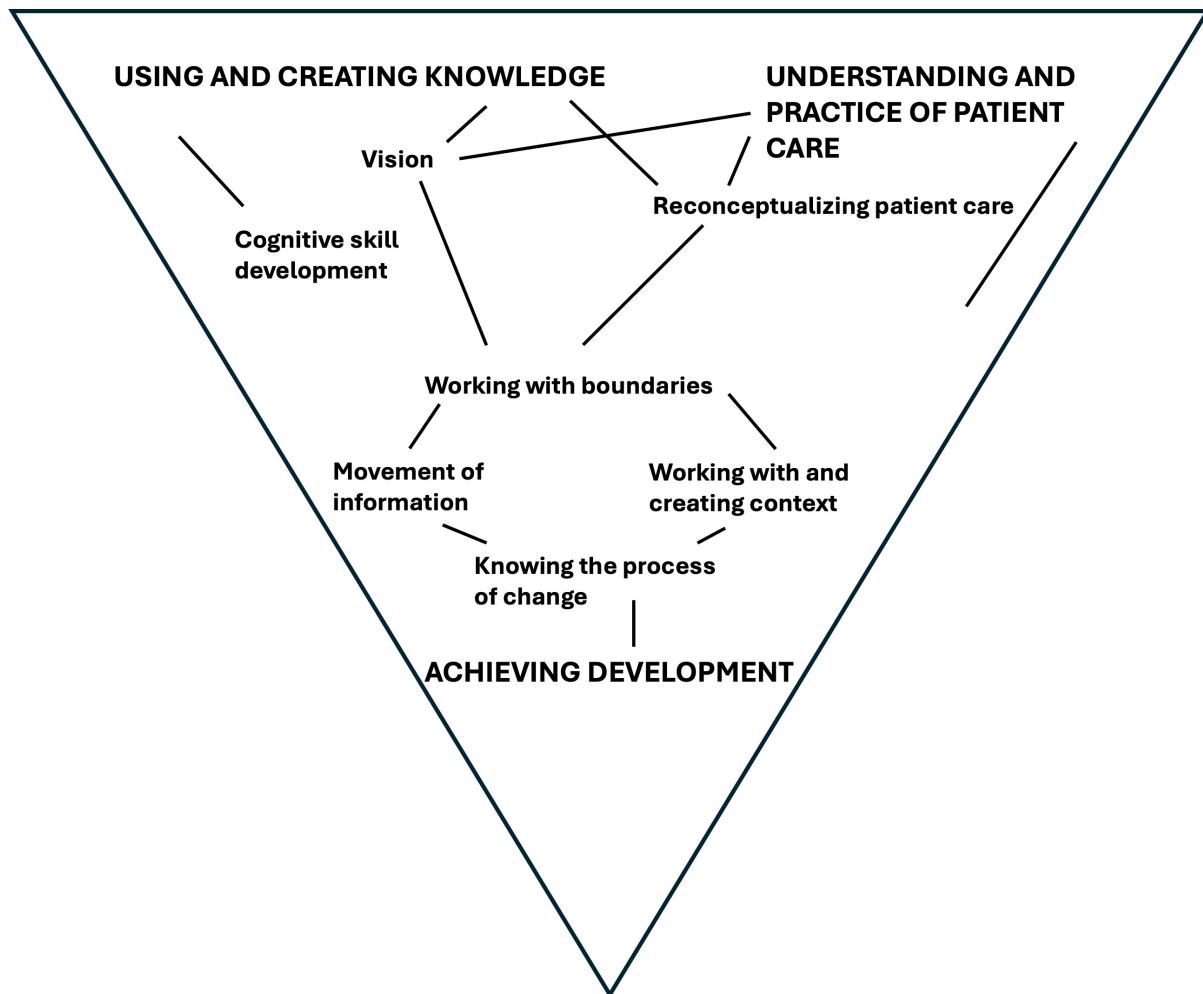


Figure 5: Model of developing healthcare practice (Clarke, 2000)

The study results revealed that most practitioners that were interviewed concentrated their thinking on existing methods and patterns of care (Clarke, 2000). Clarke (2000) found that the focused thinking on existing structures and resource levels limited the practitioner’s ability to see potential and develop. The study found that a minority of practitioners challenged existing patterns of care, were able to adopt a holistic view and see potential in challenging situations (Clarke, 2000).

The findings of this thesis mirror Clarke’s (2000) study. The majority of the participants concentrated their engagement with research on existing methods of care and areas of interest.

### 5.5.1 The Practice Dilemma – Bounded Research Focus

All the participants professed to not being current with the latest stretching research and that keeping up with the latest stretching research was a challenge. Most of the participant narratives indicate that stretching does not appear to feature in their professional practice and subsequently did not feature in their research engagement. From the cohort of eleven participants in this study, only one regularly investigated stretching research and used stretching within their practice. From the participants narratives it was clear that their research engagement tended to be focused on their individual area of interest, which the literature corroborates and finds that frontline practitioners tend to focus their research engagement according to their goals, interests, and clinical perspectives, and will only tend to engage in study activities that improve their relevant practice (Brown et al., 2003; Daniels et al., 2020). Even though research engagement focused on the practitioner's area of interest seems to be self-evident at first, it introduces a dilemma, whereby the practitioner becomes expert in focused areas, while remaining uninformed of alternative and perhaps superior approaches. This phenomenon is described in the literature by Clarke (2000) who writes that expert professionals engage in a cycle of learning that maintains existing patterns of care rather than reconceptualising care delivery. Clark (2000) describes two levels of thinking among expert professionals in healthcare, those that concentrate their thinking on existing methods of care, and those that challenge their focus on existing habitual methods and adapt their services to meet their client's needs. Among the participants of this study, all the newly qualified (n = 4), and three of the more experienced participants from a total of seven tended to concentrate on existing methods of care. The four remaining experienced participants talked of reading more widely in the literature and were more inclined to adapt or change their practice according to new knowledge which agrees with Clark (2000).

The dilemma that presents itself for practitioners is that limiting the focus of research to specific areas of interest, reduces the exposure to new approaches and limits opportunities to introduce new and innovative techniques and practices.

### **5.5.2 Barriers To Research Engagement**

In this study, most of the self-employed participants stated 'lack of time' as the primary factor limiting the frequency of their research engagement. Lack of time as a barrier to research engagement for practitioners is acknowledged in the literature (Bona et al., 2017; Donya et al., 2011; Mercer et al., 2006). There was a difference to the barriers to research engagement between the organizationally employed and the self-employed participants. The participants working in organisational settings were able to attend regular CPD sessions organised by their employer or were able to attend informal discussions over a relevant research paper with colleagues. From the narratives of the self-employed participants, it would seem that priority is placed on booking paying clients over taking time out to do research. A review of the literature on professional research engagement highlights a notable lack of studies examining the research engagement of self-employed practitioners.

The findings of this thesis further reveal that stretching is not a prominent focus of research among the participants, suggesting that this area remains underexplored in both practice and the research activities of self-employed professionals. These findings underscore the need for further investigation into the factors influencing research engagement among self-employed practitioners, particularly in relation to stretching and other aspects of clinical practice.



## **5.6 Self-reflexive analysis of my approach to stretching**

### **5.1 Introduction**

The process of carrying out this thesis was enlightening and helped me to understand the major impact of lived experiences on my own practices as a therapist, as well as its impact on manual therapists' and fitness professionals' perceptions. When commencing the interviews for this thesis, I had no idea what themes would later emerge through these conversations. Nor, how participants' lived experiences influenced their perceptions of stretching as well as their professional practices and identity. The phenomenological research method and approach also resulted in a deeper understanding of my perceptions of my own professional practice. It made me realise that my perceptions of stretching are shaped by a multitude of lived experiences, and how those experiences have affected and will continue to affect my professional practice and identity.

### **5.2 Self-Reflection of my Approach to Stretching**

A recent systematic review on the effect of long-term static stretching in healthy individuals across the lifespan found that long-term static stretching improves muscle strength and power and benefits non-active individuals (Arntz et al., 2023). In addition, the authors concluded that long term static stretching enhanced flexibility, especially among older populations. The review by Arntz et al. (2023) concurs with my clinical experience of introducing stretching to clients. Across all age groups, most clients recount positive experiences after stretching, including improved strength, flexibility and overall wellbeing. Prior to the publication of this review, I could not find any research that examined the effect of long-term stretching on wellbeing across the lifespan in the general population. The systematic review conducted by Arntz et al. (2023) differed from most stretching research by examining stretching across a lifetime in healthy individuals of all ages. This better represents the effect of stretching, in the average population, outside of the laboratory

conditions and confirms my lived experience of the positive effects of including stretching in manual therapy and fitness professional practice.

In my clinical practice and sports science practice I have observed a positive impact on the health and wellbeing of individuals who are introduced to stretching. Many of my clients' report feeling less pain, reduced stiffness and greater mobility following stretching. The disparity between the stretching literature and my lived experiences of stretching led to a desire to understand if my approach to stretching was unique, and to the desire to understand fellow manual therapists and fitness professionals' perceptions of stretching in their professional practice.

The findings of the study in this thesis have highlighted the factors in my lived experiences that have influenced my perception of stretching; professional identity, experience, self-efficacy, education and my engagement with research.

### **5.3 Self-Reflection of My Professional Identity**

Professional identity is shaped through processes of socialisation, including an individual's lived experiences, cultural background, and social interactions (Rosario & Wollen, 2024). Engaging in the IPA study presented in this thesis has deepened my awareness of how my own socialisation has profoundly influenced my professional identity and clinical practice.

The findings of this research revealed that participants' perceptions of their professional identity were complex and multifactorial, a conclusion that aligns with existing literature (Fitzgerald, 2020; Nyström, 2009; Wilson, 2023). This resonates with my own lived experience. My professional identity has been significantly shaped by a range of factors, including my upbringing in rural South Africa, my active engagement in sport, and my service in the military. These experiences have collectively influenced how I view movement, functionality, and client care.

Growing up in a rural setting, much of my childhood was spent outdoors, playing, exploring, and moving freely. While school-based sports participation was

compulsory, I quickly developed a genuine passion for athletic activity. Later, during military service in remote bushland, I had the opportunity to observe the natural, functional movement patterns of indigenous African communities. These observations made a lasting impression and continue to shape my approach to both clinical and sports science practice. Today, I assess and work with clients through a lens informed by these foundational experiences, with a strong emphasis on functional movement and mobility.

This thesis process has also brought into focus the role of self-socialisation, the internalisation of values, behaviours, and identities over time in the formation of my professional identity. For example, my background as an athlete gave me the confidence to experiment with stretching as a rehabilitation method when conventional interventions failed to improve my knee flexion and inflammation. This personal experience not only enhanced my appreciation for stretching as a therapeutic tool but also reinforced the importance of self-directed learning and experiential knowledge in shaping professional practice.

The first stretch that I started to do was the bench assisted psoas stretch (Figure 6).



Figure 6 Bench Assisted Psoas Stretch

As ROM improved in the knee, I progressed to the runners stretch (Figure 7).



Figure 7 Runners Stretch

## 5.4 Professional Identity and Implicit Bias

I was so encouraged by the positive progress that stretching made to my recovery that I began practising yoga regularly and eventually trained as an Ashtanga yoga teacher. This personal experience significantly shaped my perception of flexibility

and mobility, not only for myself but also in how I approach these concepts with clients. Reflecting on this through the process of conducting this thesis, I have become more aware that these positive experiences may represent a source of implicit bias within my professional identity.

Sukhera et al. (2018) investigated the discrepancy between the 'idealised self' and the 'actual self' among 21 paediatric doctors and nurses in Canada. Participants engaged in semi-structured interviews and completed an Implicit Association Test (IAT), an online tool designed to detect subconscious biases toward specific concepts. Using a constructivist grounded theory approach, the authors identified a significant divergence between participants' perceptions of their ideal professional identity and their actual self-identity. The majority of participants exhibited implicit biases as indicated by the IAT results, which they frequently rationalised by referring to their personal experiences. Many participants also reported that the test outcomes conflicted with their conscious self-perception.

This has prompted me to reflect more critically on the potential influence of implicit bias within my own professional identity, particularly in relation to my views on stretching. I suspect that implicit bias may be especially pronounced among self-employed practitioners, who often operate without external supervision, departmental guidance, or structured professional development opportunities. To the best of my knowledge, no existing studies have specifically investigated implicit bias among self-employed manual therapists or fitness professionals. Sukhera et al. (2018) suggest that implicit bias is an inherent and unavoidable aspect of professional identity formation. However, they emphasise the importance of continuous, informed self-reflection as a strategy for recognising and managing such biases within clinical and professional practice.

## **5.5 Self-Reflection on Developing Self-Efficacy Through Experience**

In the years immediately following my graduation as a sports therapist, the primary focus of my practice was injury rehabilitation. Many of the injuries I encountered

were ones I was treating for the first time, necessitating extensive self-directed learning, revisiting my educational materials, and consulting the latest research literature. As I gained practical experience and developed a stronger internal locus of control, I became increasingly aware of my clients' overall 'state of being', beyond the specific injuries that had brought them to seek treatment. This personal progression aligns with the findings of this present study, which highlight the role of professional experience in broadening clinical perspective. Confidence in my clinical reasoning and the ability to adapt my approach only emerged after several years of practice. Over time, I began working with a growing number of professional athletes, which introduced the additional challenge of supporting their athletic performance, rather than solely addressing rehabilitation needs. My curiosity about the underlying causes of injuries and strategies for their prevention also deepened. The knowledge I acquired during my master's degree in Applied Sport Science, completed in 2016, further enhanced my confidence to adopt a holistic, biomechanical approach to client assessment and treatment.

For example, my client in Figure 8 is a CrossFit athlete and the lowest that he can squat is illustrated in Figure 8. The athlete also suffered from numerous minor strains of the lower back, hamstring and calf regularly throughout his training. This mobility restriction severely inhibits his ability to perform the deep squat in CrossFit.





Figure 8 Sub Optimal Squat

In line with the narratives of the self-employed participants in this study, my self-efficacy also increased with experience and was largely internally mediated, for example through self-directed learning.

One advantage of being a self-employed practitioner is the opportunity for broad client exposure. My client base is highly varied, encompassing individuals ranging from adolescents to the elderly, and from professional athletes to sedentary individuals. The majority of clients I treat, regardless of age or activity level, present with stiffness and a limited functional range of movement, and only a very small minority engage in regular stretching. In the early stages of my practice, I was struck by this apparent contradiction: many clients lacked functional mobility yet did not incorporate stretching into their routines. I also observed that poor posture was common among my clients, typically characterised by a stooped back with the head and shoulders rounded forward. Below is an example of an adolescent male (Figure 9).





Figure 9 Example of Stooped Head and Shoulders Forward Posture in an Adolescent Male

Figure 10 below is another example of the same posture in a middle-aged man.

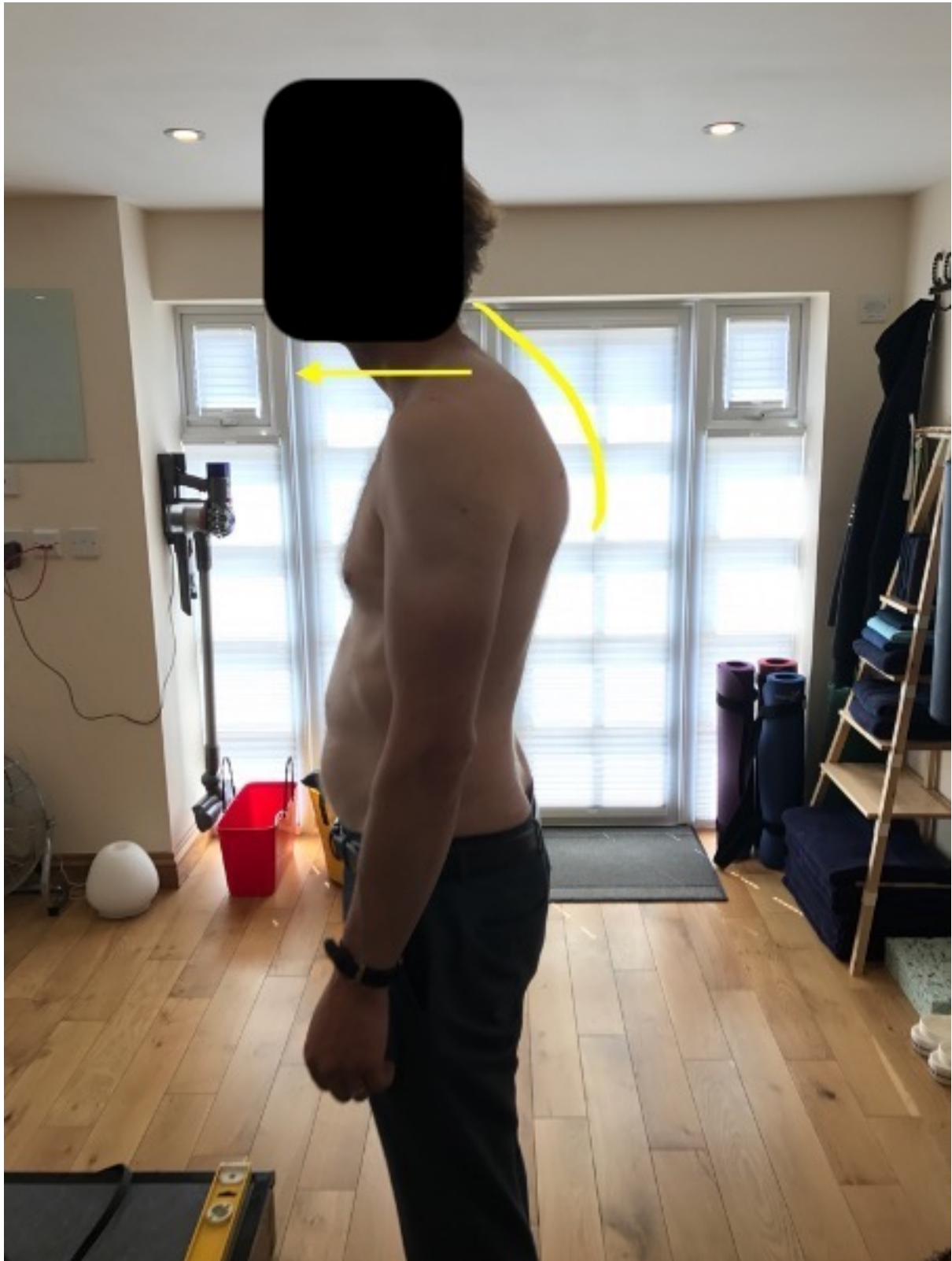


Figure 10 Example of Stooped Head and Shoulders Forward Posture in a Middle Ages male

The self-efficacy I have developed through professional experience has enabled me to adopt a more holistic approach to treatment. For example, when assessing clients, I not only take a detailed medical history but also observe their posture and biomechanics. In my experience, stiffness and poor posture are closely related, with each contributing to the other. When I question clients about their stretching habits, a common response is, 'I don't stretch as often as I should.' Additionally, many clients exhibit signs of Kinesiophobia following an injury. Kinesiophobia is defined as an irrational fear of movement (Luque-Suarez et al., 2019) and is associated with increased pain intensity in individuals suffering from chronic pain (Bordeleau et al., 2022). Luque-Suarez et al. (2019), in their systematic review, explored the relationship between Kinesiophobia and pain, disability, and quality of life in people with chronic musculoskeletal pain. Their findings provided strong evidence of a positive correlation between higher levels of Kinesiophobia and both greater pain intensity and disability, as well as moderate evidence of an association with reduced quality of life.

The development of my self-efficacy as a practitioner has played a crucial role in the growth and success of my practice. Practical experience, self-directed learning, and the completion of additional qualifications have all contributed significantly to this development.

## **5.6 Self-Reflection of Learning Through Education And Experience**

For the participants in this study, experiential learning played a more significant role than formal education in the development of problem-solving and clinical reasoning skills. This reflects my own experience in practice and is supported by the literature (Hill, 2017). Although I graduated from sports therapy and sports science programmes with a solid theoretical knowledge base, I recall feeling unprepared and mildly anxious when confronted with complex cases in the early stages of my career. Traditionally, clinical reasoning is developed during supervised student placements within institutional settings (Schmidt & Mamede, 2015). However, as a self-employed practitioner, I was required to develop these skills independently, learning through

practice without direct supervision. At times, this process felt like trial and error as I gradually learned to identify effective and ineffective approaches through repeated experience.

A further disadvantage of self-employment is the absence of peer feedback, which has been shown to play an invaluable role in developing clinical reasoning skills (Rush & Tramontin, 2024). A review of the literature reveals a lack of research on the development of clinical reasoning skills among self-employed healthcare professionals. One exception is the study by Rocco et al. (2022), which examined the effectiveness of a structured education programme aimed at improving the preparedness of 717 self-employed nurses in Italy. The results demonstrated that structured education significantly enhanced participants' knowledge and readiness for freelance work, including aspects such as financial management, logistics, and patient care. However, the study also highlighted a gap in research regarding the development of clinical reasoning in self-employed healthcare practitioners.

## **5.7 Self-Reflection of Engagement With Research**

Similar to the participants in this study, I have observed in myself a tendency to engage in a bounded research focus, concentrating primarily on areas of personal interest. As a self-employed practitioner, I also prioritise client bookings over research activities, reflecting the experiences reported by the study participants. Engaging with this thesis has made me more aware of the inclination among practitioners to rely on established patterns of care, a tendency that can inadvertently limit the evolution of professional practice (Clarke, 2000). This research has highlighted the importance of continuously challenging such habitual approaches, as it is easy to become complacent within familiar routines. To guard against this, I have introduced the use of a practice journal, setting aside time at the end of each day to write brief summaries of the cases encountered, particularly those that were challenging or complex. In so doing, I am able to reflect on the decisions I made, consider alternative approaches, and identify areas for further learning and development. This reflective practice has become a valuable

tool in promoting ongoing critical thinking and preventing stagnation in my clinical reasoning and decision-making.

## Chapter 6: Conclusion

The aim of this thesis was a deep exploration of practices and beliefs around stretching, both my own and those of my professional community. This research originated due to the lack of a clear consensus on the gold standard practices of stretching in the literature. The IPA study presented in this thesis portrays valuable insight into the lived experience of physical therapists and fitness professionals beyond stretching. The key findings in this thesis include insights into factors impacting professional identity, developing self-efficacy through experience, learning through education and experience, and engagement with research. Professional identity was influenced by multifactorial factors over the participants' lifetime, key among them were lived experience and employment status. Interestingly, this study found differences in professional identity between the organisationally employed and self-employed participants. Whilst the identity of organisationally employed participants was primarily influenced by the goals and demands of their role in the organisation, the identity of the self-employed participants was more fluid and was influenced by their circumstances and the demand for their services. Participants' self-efficacy was closely aligned with their lived and work experience. Experience in the role contributed more to the participants' self-efficacy than education or CPD. This study found that the locus of control of newly qualified participants was primarily influenced by external mediating factors and self-employed participants were motivated by internal factors. The self-employed participants in the study in this thesis experienced higher levels of self-efficacy after employing 'out of the box thinking' and completing a challenging task. It was noted that experiential learning among the more experienced participants played a greater role than education on problem solving, whilst newly qualified participants tended to rely on education. There was a difference in the adoption of lived experience in the narratives between the newly qualified and more experienced participants. The newly qualified participants tended to practice evidence-based practice and 'do things by the book' whereas the more experienced participants employed practice-based evidence and were more innovative and able to adapt their practice as required. Participants stated unanimously that they felt they were not up to date with the latest research on stretching and that lack of time was their main reason. In addition, participants

tended to have a bounded research focus and concentrated their research on areas that interested them. Employed participants benefited from regular CPD whilst client bookings took precedent over research for the self-employed participants.

The findings in this study contributes to the understanding of the lived experience of practitioners using stretching in their treatment and management of injuries. It includes recommendations for practitioners, and its implications for clinical practice. Creativity and remaining open to changing your clinical practice are key in helping clients in a client-centred way. It is noted that practitioners, particularly those in self-employment, believe that they can be more creative in their practice, without the restrictions placed on organisationally employed practitioners. Practitioners who are not subject to compulsory supervision requirements as part of their regulatory and professional bodies may benefit from supervision, peer supervision and/or consultancy to avoid self-serving bias and to maintain evidence-based practice. This would be especially advantageous to newly qualified practitioners.

It is acknowledged that practitioners have their specific areas of interest and specialism and that this can influence their choice and engagement in CPD. It is essential therefore for practitioners to be cognisant of the tendency for a bounded research focus and allocate time to research outside of their areas of interest. Participants described experiencing higher levels of self-efficacy, after successfully treating a challenging client case.

## **6.1 Limitations of the research**

The idiographic nature of Interpretative Phenomenological Analysis (IPA) necessitates a focused, in-depth exploration of individual participants' lived experiences; as such, the findings cannot be generalised to a wider population (Willig, 2013; Braun & Clarke, 2013). Oxley (2016) highlights that IPA research is purposefully designed for small sample sizes to enable detailed analysis of the 'part,' which may, in turn, contribute to a deeper understanding of the 'whole.' In a broader qualitative research context, Braun and Clarke (2013) discuss the concept of 'transferability' which is the extent to which the results of a qualitative study may be

applicable to other populations or settings (Lincoln & Guba, 1985). According to Lincoln and Guba (1985), ensuring transferability relies primarily on providing a thorough description of the study's participants, circumstances, and context. These details have been fully outlined in 'Chapter 3: Methodology' of this thesis.

A potential limitation of this study is the possibility of self-selection bias, as participants who chose to respond to the initial invitation letter may have held particularly strong views or interests related to the research topic. This could have introduced a degree of confirmation bias into the findings.

## **6.2 Strengths and implications**

This study uniquely explores the perceptions of stretching among manual therapists and fitness professionals within their professional practice, offering an in-depth insight into the lived experiences that have shaped these perceptions. The findings highlight distinct differences in the factors influencing perceptions of stretching between organisationally employed and self-employed practitioners.

## **6.3 Recommendations for Further Research**

Future longitudinal research could provide valuable insights into how practitioners' perceptions evolve over time, the extent to which personal interests shape clinical practice, and the impact of continuing professional development (CPD) engagement. Comparative studies examining practitioners within the same profession but across different employment contexts may also be beneficial. Additionally, the role of creativity in clinical practice which is an attribute that appears to develop with experience presents an intriguing area for further exploration.

This study has also highlighted significant gaps in the literature regarding self-employed healthcare professionals, specifically in the following areas:

1) Differences in professional identity between organisationally employed and self-employed practitioners.



II) The nature and development of professional identity among self-employed healthcare practitioners.

III) The processes and outcomes of experiential learning in self-employed healthcare professionals.

IV) The development of clinical reasoning skills in self-employed healthcare professionals.

V) The factors influencing research engagement and participation among self-employed healthcare and fitness professionals.

# Chapter 7: Professional Doctorate Portfolio: Reflections on My Stretching Approach and Its Influence on My Community.

## 7.1 Introduction

As a full-time Sports Therapist in practice since June 2014 much of my work is focused on restoring movement back into joints and tissues that have been subjected to some form of trauma or injury. When the body sustains an injury there is often an accompanying loss of function and range of motion (ROM) at the injury site (Houglum, 1992; Myers, 2014). One of the primary goals of the rehabilitation phase after an injury is the restoration of ROM and flexibility (Houglum, 1992; Jones et al., 2010). Along with injuries, I also treat clients who are suffering from chronic pain, restricted movement, and postural dysfunction. In the period that I have been practising I have identified a clinical problem with most of my clients, namely restricted movement. Many of my clients complain of feeling stiff and immobile. These observations are not restricted to my adult clients; indeed, I have assessed teenagers suffering from stiffness and reduced ROM in the hips, knees, and shoulders.

The dissemination and impact of my approach to stretching on my professional community has been two-fold, firstly through customised one-to-one sessions with clients who are also practitioners, secondly through scheduled workshops and talks I have delivered over the last ten years. My Sports Therapy practice offers several pathways of engagement with practitioners. The first business that I set up was a Retül<sup>10</sup> bike fit studio in 2011. After I qualified as a graduate Sports Therapist, I added the physical therapy clinic to my existing business in 2014. In 2017 after the completion of a master's degree in Applied Sport Science, I combined sport performance analysis with Sports Therapy. Following the completion of Ashtanga

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<sup>10</sup> Retül Bike fit is a dynamic process that uses 3D motion capture technology to capture a cyclist's movements in real time.

Yoga teacher training in 2019, I added yoga as a modality to my professional practice. I am particularly passionate about human movement and the loss of mobility among the general population. For example, the implication of squatting ability on health and wellbeing. This is one of the reasons behind my interest and approach to stretching. Although these approaches are derived from very different fields, they all contribute to and share a common connection with movement and wellbeing.

## **7.2 Indirect and informal impact on my professional community**

Due to the multi-disciplinary nature of my professional background, I have a broad spectrum of manual therapy and fitness professional practitioners as clients. These one-to-one treatment sessions of health practitioners in my clinic have been an informal yet effective opportunity to share and discuss my multi-disciplinary approach to stretching with fellow practitioners. My experience working with sports therapy clients who are in pain has informed my belief that immobility and pain are interrelated. In most cases, clients report a positive effect on wellbeing and a reduction in pain when movement is introduced to a joint or body region that is injured and in pain. I have observed the importance of biomechanics, posture and alignment when working with athletes to improve their performance. For example, I assess hamstring and back flexibility in professional cyclists during a Retül bike fit (see Figure 11) to optimally configure their riding position.



Figure 11 Professional cyclist undergoing a Retül Bik Fit

The cyclist's mobility and flexibility play an important role in determining their aerodynamical efficiency on the bike (see Figure 12), as well as their ability to deliver power to the pedals. The cyclist in Figure 12 requires active flexibility in his hamstrings and lower back to adopt the tucked time trial position for an extended period.



Figure 12 A professional cyclist adopts an aerodynamic time trial position during a Retül bike fit.

Working with athletes has also made me recognise the importance of both strength and flexibility for optimum performance and wellbeing. My views have been informed by my lived experience and emerging innovative research which suggests that muscles do not act in isolation but in synergy as part of a body-wide fascial network (Myers, 2001; Schleip and Baker, 2015, Bordini and Marelli, 2017), regulating tension and flexibility in the musculoskeletal system through the principals of



tensegrity (Levin, 1981, 1997, 2002; Levin and Ellis, 2006). A tensegrity structure is distinguished by a series of discontinuous compressional struts (bones) arranged within a matrix of continuous tensional elements (the fascial connective tissue network). An increase in tension in one of the members increases the tension across the whole structure (Fuller, 1975). Tensegrity systems are self-stabilising by continuously balancing the compressive and tensional and forces across the whole system (Fuller, 1975; Ingber, 1998) see Figure 13, an example of a tensegrity model.

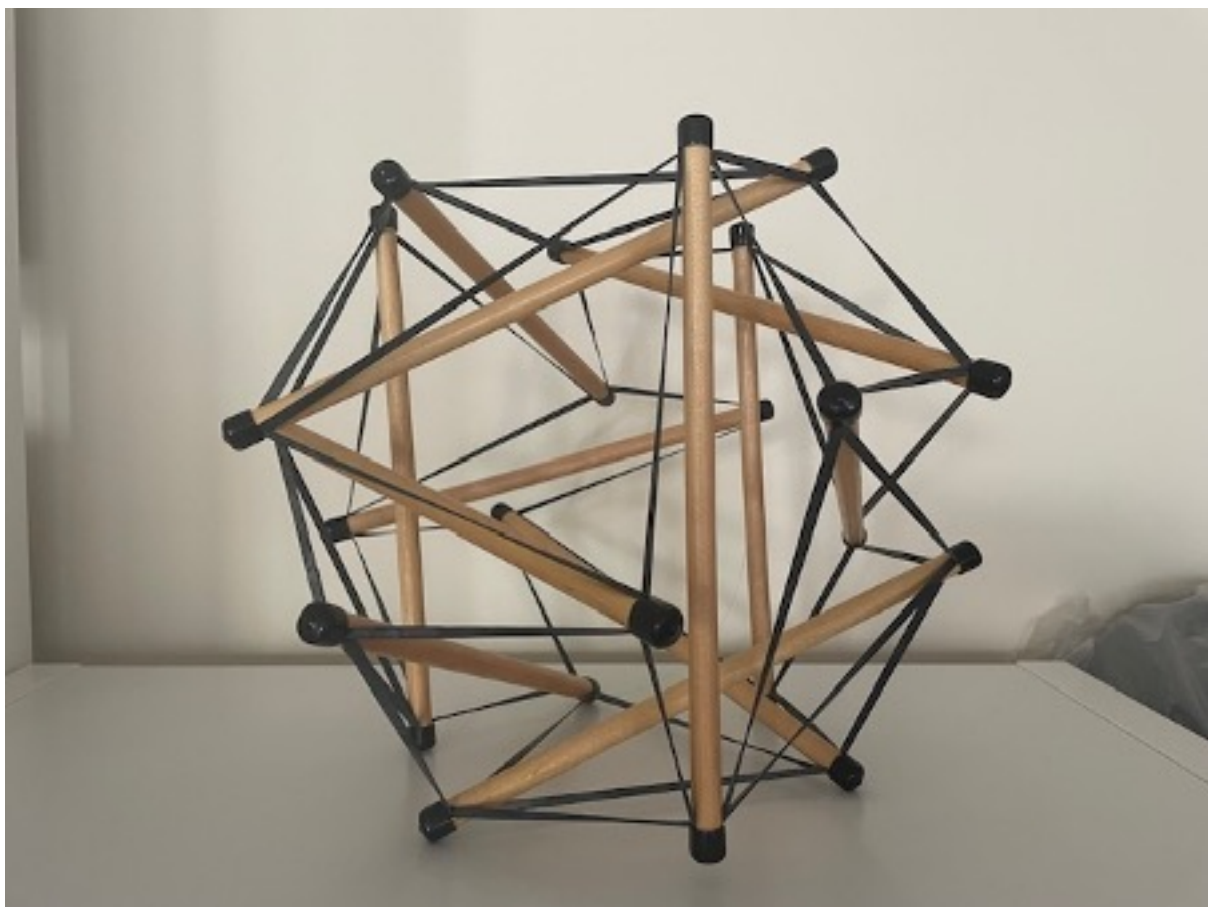


Figure 13 Tensegrity model

An expanding body of research supports the notion that the tensegrity state exists in biological systems in the form of 'biotensegrity' (Levin, 1981, 1997, 2002; Levin & Ellis, 2006; Dischiavi et al., 2018; Kohlstadt & Cintron, 2018; Crowle & Harley, 2019). This innovative framework challenges the traditional biomechanical view of human movement as isolated muscular contractions. For example, the paper by Dischiavi et al. (2017) encourages scientists to view the body as an interconnected system whole rather than individual parts in isolation. Their paper hypothesizes that

human movement is better understood as a body-wide interconnected system, rather than a group of unconnected pulleys and levers. Central to biotensegrity is the network of connective tissues surrounding and connecting muscles, called myofascial chains. Biotensegrity is the concept where the bones of the skeletal system are held together in balanced tension by the viscoelastic myofascial and muscular tissues of the body (Dischiavi et al., 2017). Body-wide muscular and myofascial connections across the entire musculoskeletal system move and adjust during movement (Dischiavi et al., 2017). Figure 14 is a biotensegrity model of the human pelvis which I use during my talks and presentations to demonstrate biotensegrity concepts.



Figure 14 Biotensegrity model demonstrating biotensegrity of the pelvis

I chose to train to become an Ashtanga yoga teacher because the practice emphasises both strength and flexibility across the whole body. These multi-disciplinary experiences in my professional background have informed my approach to stretching which is a combination of active and static stretching together with

strength exercise to achieve functional movement in the body. On reflection, I believe my impact on my clients who are also physical practitioners themselves is the value of functional movement and stretching on wellbeing. The feedback I receive from practitioner-clients is that stretching has made a positive impact and that consequently they regularly incorporate stretching to their own physical activity routine as well as with clients in their own professional practice. In this sense, the impact of my approach on my professional community has been indirect and informal, through practitioner-clients who incorporate my approach into their own clinical practice.

### **7.3 Formal and direct impact on my professional community**

I have directly contributed to the professional development of my practitioner community via talks, presentations and workshops since the establishment of my physical therapy clinic in 2014. I would estimate that over the ten years that I have been in clinical practice, I have provided professional development training to between 250 to 300 manual therapists and fitness professionals.

In 2015, I had been practicing for a year and it had already become apparent that many of my CrossFit clients lacked the mobility to perform even the most basic CrossFit exercises, for example the squat (Figure 3). CrossFit is a fitness program that centres around various high-intensity workouts that emphasise functional movement (CrossFit, 2024). Most of my CrossFit clients reported that they never stretched. CrossFit work outs are composed of multimodal exercises that require strength, power, aerobic efficiency and flexibility to perform safely (Martínez-Gómez et al., 2019). I soon realised that there was potentially a knowledge gap amongst the CrossFit instructors and other fitness professionals and delivered a series of presentations with an emphasis on stretching. One of the first presentations I delivered was on 'Functional Fitness' (Figure 15). The presentation was delivered to a group of thirty CrossFit instructors and their clients from the South-West England.



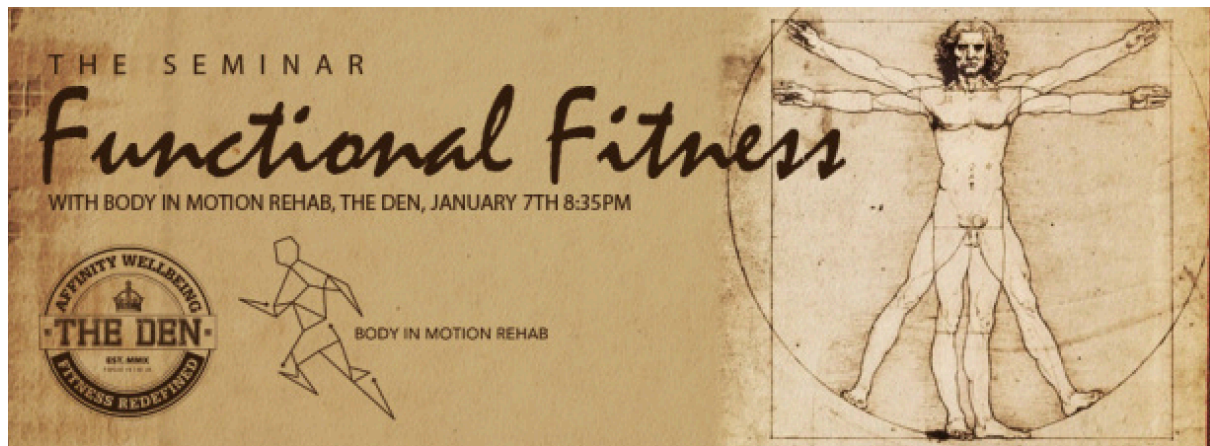


Figure 15 The Functional Fitness presentation marketing banner



Figure 16 Delivering The Functional Fitness Presentation at the Den in Frome 2015

In the presentation, I talked of the importance of functional flexibility for Cross Fit and the benefits of stretching to improve mobility and functional movement in fitness practices. I demonstrated several safe and effective ways to stretch (Figures 16 and 17).



Figure 17 Demonstrating an Assisted Hamstring Stretch A

Figure 18 demonstrates my approach to stretching the hamstring. Stretching the hamstring in a supine position keeps the spine supported and aligned and focuses the stretch on the hamstrings. I recommend combining both active and passive stretching. A study of hamstring stretching on pelvic mobility in patients with lower back pain by Jung et al., (2021) found that combining both active and passive stretching at the same time improved pelvic mobility and assisted in pain recovery. I also advocate holding the passive stretch for five slow breaths through the nose. A review of the literature by Stecco et al. (2021) found that deep fascia, and not muscles and tendons is the limiting factor in flexibility and that passive stretching can increase the stretch tolerance of fascia.



Figure 18 Demonstrating an Assisted Hamstring Stretch B

Feedback and comments from the participants in the post- presentation evaluation were positive.

“Our team and members really enjoyed your presentation, and we learned a lot from it. Thanks a lot ... we will be including stretching in our sessions from now on ... (Owner of the Den, Frome)”

Many of the attendees told me afterwards that stretching would no longer be an ‘after thought’. I have delivered many presentations on Tensegrity, fascia and stretching since and on reflection I believe that my impact on fellow practitioners is to view the body in a different way and elevate the value of stretching and functional movement.

Similar to my Cross Fit clients, many of my running clients tend to have reduced flexibility and range of motion and would regularly return with the same injuries. This led me to deliver a talk on the concept of biotensegrity and stretching to the Frome running club and other local running clubs in 2016 (Figure 19). The audience consisted of around seven coaches and thirteen recreational runners. Using the



biotensegrity framework I encourage the coaches and runners to consider the body as an interconnected whole rather than in isolation. According to biotensegrity principals any constriction or weakness in the viscoelastic muscle or fascial matrix will affect the entire system (Dischiavi et al., 2017). I therefore recommend adding strength training alongside running programs for example. A systematic review of the effects of adding strength training in trained runners showed a significant beneficial effect and reduced their rate of perceived exertion (Balsalobre-Fernández et al., 2016). This is particularly important when considering training programs for example. I also used the opportunity to stress to the coaches of the club the importance of static and dynamic stretching before running. Faelli et al. (2021) found that a combination of static and dynamic stretching during warm-up reduced the perception of effort and improved running performance in recreational runners.

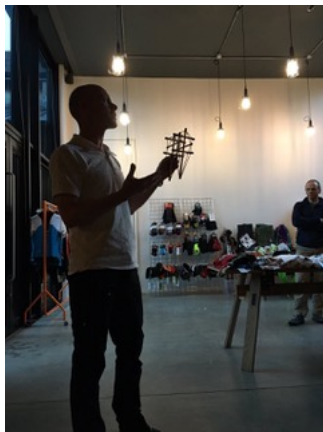


Figure 19 Using my biotensegrity model of the hip to demonstrate biotensegrity in humans

I created a series of static stretches targeted at endurance runners and shared them with the coaches and members (Appendix M).

I delivered another presentation 'Born to Run' to the Fitness Professionals at the Den in 2017 (Figure 20)



Figure 20 The Born to Run Marketing Banner

The presentation covered the evolutionally development of early humans and the importance of persistence hunting for survival. Persistence hunting is endurance running in pursuit of animals for food still seen in certain populations today like the San people of Northern Namibia. In the presentation, I compared persistence hunters to modern humans and stressed the importance of mobility, core strength and stretching for endurance running (Figure 21).



Figure 21 Delivering the Born to Run Presentation at the Den in Frome 2017

After the presentation I taught and demonstrated stretching techniques to the audience through active participation (Figure 22 and 23)



Figure 22 The Active Participation of the participants at the Born to Run sessions





Figure 23 Demonstrating a hip stretch at the Born to Run talk and workshop

In 2019 I delivered a presentation on 'The Anatomy of a Yoga Pose' (Figure 24) to the Bristol School of Yoga. Among the twenty attendees to the event were several yoga teachers, osteopaths, and physiotherapists. I chose the Ashtanga handstand yoga pose for the presentation and discussed the anatomical structures in the human body that are targeted by the pose.



Gordon Teasdale

## Adho Mukha Vrksasana

Figure 24 The Anatomy of a Yoga Pose Presentation

The presentation focused on the parts of the body that were required to be flexible, for example the wrists, as well as the muscles that needed to be strong, for example the shoulder girdle (Figure 25).

### Shoulder Girdle

- ❖ Hands press down (Wrist extension), forearms pronated (pronators teres and quadratus)
- ❖ Shoulders externally rotated (Infraspinatus & Teres minor)
- ❖ External rotation of the shoulders and pronation of elbows creates coiling force that stabilized the arms
- ❖ Triceps engage to straighten the elbows



Figure 25 The Shoulder Girdle Anatomy of a Handstand



I utilised an anatomical modelling application to help the audience understand the interrelationships between the muscles during the actions of the pose (Figure 26).



## Hip Extension

- ❖ Quadratus lumborum, gluteus maximus and minus activate before extension
- ❖ Glute maximus extends the hip
- ❖ The action of the glutes is external rotation, stabilizing the femur in its socket
- ❖ Quadratus lumborum and erector spinae active to extend the back into the pose

Figure 26 Interrelationships Between Muscles During the Handstand

The purpose of the presentation was to highlight the complex interrelationships between the muscles and fascia of the body, and the combination of strength and mobility that was required to perform the Ashtanga handstand. I used my biotensegrity models to introduce the concept of biotensegrity as a more holistic way to view the body. I decided to include biotensegrity and fascia in my talk as this was not covered in the yoga teacher training syllabus.

The feedback and comments from the participants after the presentation was very encouraging. They particularly found the biotensegrity and fascia elements interesting. Although some of the practitioners had heard of fascia, they were unaware of its role in the body, and none of the practitioners had heard of 'biotensegrity'.

During the Covid 19 lockdowns in 2020, I delivered an online multi-disciplinary workshop set over four weekends for twelve yoga teachers. Eleven attended all four sessions and one completed three. These workshops were in partnership with a

registered psychologist Dr Helen Nicholas and focused on the interface between yoga practices and Cognitive Behavioural Therapy for anxiety - (Figure 27).



## **ONLINE YOGA - COGNITIVE BEHAVIOURAL THERAPY FOR ANXIETY WORKSHOP**

With

**Dr Helen Nicholas** of [www.hcnpsychology.co.uk](http://www.hcnpsychology.co.uk) (Practitioner Psychologist, Ashtanga and Yin yoga teacher), and

**Gordon Teasdale** of [www.bodyinmotionrehab.co.uk](http://www.bodyinmotionrehab.co.uk) (Sports Therapist, Ashtanga and Yin yoga teacher)

The workshop has been adapted to suit an online audience and is spread over four weeks. They will run on Saturday 9th, 16th, 23rd and 30th May 2020 at 11:00 - 12:15.

Each session will include:

- A component of the CBT model with a specific focus on anxiety
- A fifty-minute asana yoga practice for all levels
- Mindfulness exercises in savasana / relaxation

To book your place contact [yogayamauk@gmail.com](mailto:yogayamauk@gmail.com) (early bird £48 until 4th May or £60 thereafter)

Figure 27 The Flyer for the Online Yoga – Cognitive Behavioural Therapy for anxiety - Yoga Workshop

The evidence-based online workshop was an opportunity for yoga teachers to learn how anxiety is stored in the body (somatic trauma), how to identify somatic trauma in yoga students and how to use specific yoga poses to help the body manage somatic trauma. Set over four sessions, participants were introduced to the Cognitive Behavioural Therapy (CBT) model, which includes four components – cognitions/ thoughts, behaviours, emotions and physical sensations. Sessions outlined each component and brought in yoga poses specifically targeted at areas of the body. Options in a pose were given that considered the different body types and abilities of the participants.

Sessions focused on:

- The CBT model and the physiological response to anxiety
- How the body stores emotions and the vital role of the psoas
- The behavioural aspects of anxiety and self-defeating responses. Power poses and human performance were taught
- The Cognitive aspects of anxiety and Myofascial release for anxiety (Yin poses)

A pilot study of yoga for anxiety was conducted by Khalsa et al. (2015) where it was found that yoga had the potential to be an effective treatment pathway for generalised anxiety disorder. This author also conducted a review of one hundred and fifty studies and found that yoga was effective in reducing anxiety across a number of mental health disorders (Khalsa et al., 2004).

At the end of the workshop series, the attendees were sent a Survey Monkey questionnaire link to provide anonymous feedback (Figure 28 and 29)

Participation status	1. What did you find most enjoyable / interesting about the workshop?
participated and completed	
participated and completed	Loved it - two presentees theory and practice links
participated and completed	Something new - great mix of yoga (altho tad tough for a complete novice at first) & coping strategy. My sleep improved greatly due to physical & mental mix.
participated and completed	I liked the CBT element. I also liked the length of session and baalnce of talking/theory v practical and relaxation. I liked the natural and relaxed way the course was delivered and little joke that you made to each other made it more human and broke it up so it was fun and felt more personable
participated and completed	my first online yoga class. I liked how intimate it felt with everyone despite all in separate places - wasn't sure how that would be. I liked having 2 instructors - that can see 2 ways with the movements as well as making feel more natural than just one person talking at you. 2 people works well for this format.

Figure 28 Attendee feedback received via Survey Monkey

The Survey Monkey feedback was also an opportunity to receive ideas for future workshops from the attendees (Figure 24). For example, yoga for runners and yoga for people who sit too much.

2. What would you have liked to see more of / less of in the workshop?	3. What future workshops would you like us to run
Doing more workshops together	Yoga for runners, couples and one day sling yoga
more workshops.	yoga for couples, yin yoga sessions
Maybe some more beginners yoga allowing for disabilities with similar anxiety coping strategy. Being disabled and being able to try something different was fab.	Oops - see previous.
Just maybe more of you, sometimes the camera angles made it slightly tricky to see what was going on. Perhaps you could have 2 cameras, one showing a close up of your faces and then just play around with the angles so we can see more of the shapes you are making.	Yoga for runners? Or people who sit down a lot, stress related (similar to anxiety I guess but not everyone classes themselves as anxious) Anything really, I think the CBT gives it a different slant as well as Gordon's knowledge on the body in motion. Whatever you do will be brilliant I'm sure, just keep injecting your knowledge and personality into it because that's what people will love!; Not necessarily for me but I wonder if a complete beginners yoga might serve you well to recruit new people, as I found this one fairly advanced, which was fine for me (and I'm sure you pitched it as people who were well versed/experience with yoga) but a beginner would struggle with the pace and strength required.
a bit more meditation, or settling in. When go to a class you already getting in the space in your head. At home I found myself rushing in from finishing jobs in another room and then took a little while to calm down / get in the space so not everything discussed at the start of sessions sunk in.	more calm and anxiety controlling.

Figure 29 Attendee feedback on future ideas for workshops

In addition, we received direct feedback from some of the attendees by email, for example:

“Just wanted to say that was really good and really informative. The yoga sequence was actually quite hard, but good. Loved the science behind it all. Really interested in the psoas muscle as I particularly suffer with this. So really looking forward to next week .... Ps loves the yin at the end!”

In 2021, I delivered a series of workshops to fellow manual therapists and yoga teachers on ‘The Science and Practice of Stretching’ (Figure 30). I delivered the workshops at my business premises which could only accommodate seven attendees. I delivered this workshop three times to twenty practitioners in total.



Figure 30 The Science and Practice of Stretching Flyer

The presentation was an opportunity to share the science, latest evidence, best practice and lived experience of stretching with fellow manual therapists and yoga teachers (Figure 31).





Figure 31 Presenting the Science and Practice of Stretching to Fellow Manual Therapists and Yoga Teachers.

During this presentation, I presented evidence on stretching as well as introducing my preferred approach of viewing the body through the lens of biotensegrity and fascial chains. I made ample use of my tensegrity models (Figure 13 and 14), anatomy models as well as a Mindray diagnostic ultrasound machine (Figure 32) to show the attendees how superficial fascia moves when we stretch.





Figure 32 During the presentation I used diagnostic ultrasound to demonstrate the effect of movement of the fascia of the body

### Figure 32 Using Diagnostic Ultrasound to Demonstrate The Effect of Movement On Fascia

My workshops always involve an active element where we work through stretches together to target specific areas of the body. For example, Figure 33 illustrates a unique Ashtanga yoga stretch that targets the thoracolumbar fascia.



Figure 33 Active participation of the attendees during the Science and Practice of Stretching sessions

The feedback that I receive from Yoga teachers who attend my workshops is that they find it very beneficial and easily incorporated into their teaching and personal practice. Yoga teachers typically don't have an anatomy or physiology background. My experience of the Ashtanga yoga teacher training was that the syllabus contained minimal content on anatomy and physiology. Another common thread that I received from yoga practitioners is that they benefited from learning about the latest evidence

on stretching, for example Figure 34,35 and 36.



**Section B – your views**

Having attended the workshop, did your views about stretching change? If so, in what way?

It reinforced my belief that I need to stretch. I had been discouraged from any stretching that was useful to me as I had been warned against it in case of injury and the workshop has reinforced my understanding of what I can do without injuring myself.

I had thought I understood the difference between active and passive stretching but realise now that it goes further than I had appreciated.

I did not know anything about yin stretching. I had heard the word but did not know what it was and was very interested to learn about it.

What did you find helpful about the workshop?

The overall level of information with more precise details about how stretching affects the body and how best to go about it.

It was particularly useful to see the actual physical differences on the screen between people who stretch and exercise and those who don't.

I suspect that there is still far more to learn than we were able to cover in the time available.

Figure 34 Practitioner Feedback Following the Science and Practice of Stretching Workshop.

What did you find helpful about the workshop?

*I enjoyed Gordon's very clear explanations about the 'biology' of the value of stretching, the ultrasound demonstration & slides.*

Figure 35 Practitioner Feedback Following the Science and Practice of Stretching Workshop

It's always encouraging when workshop motivates a change in behaviour, for example making time for stretching exercises on a daily basis (Figure 36).

Will you do anything different in future, having attended the workshop?

I will work much harder on a daily basis to put time aside to ensure I do stretching exercises.

Figure 36 Practitioner Feedback Following the Science and Practice of Stretching Workshop





Figure 37 Demonstrating a Hamstring Stretch Technique

Reflecting on the yoga workshops. I have adapted the way that I deliver them for yoga teachers and practitioners over time to convey the science in an easy and understandable manner. I have found that using models (Tensegrity and anatomical), diagnostic ultrasound and demonstrations alongside the presentation slides helps to convey the lessons to the attendees more successfully than a presentation on its own.

## 7.4 Future Plans

In the future, in addition to one-to-one, talks, workshops and presentations I plan to establish a channel on a social media platform and share knowledge more widely. I also plan to publish this thesis and write a book on Functional Movement and stretching. I would also like to engage in non-academic writing for a wider audience such as writing articles for yoga magazines and fitness publications. I have been asked to take part in a podcast run by the Sports Therapy Association, which is a great way to disseminate my knowledge to practitioners in my field. I am in the process of relocating to the South of France, where I will set up a wellbeing business with the focus on delivering regular teaching, workshops, retreats and CPD offerings for practitioners.

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# Appendices

## **Appendix A**

Analysis of Perceptions Studies Spreadsheet

Study Source	Author/s	Date	Study Title	Study Type	Study Aim	Data Collection Method/Tool	Questionnaires used	N - Participants /Studies	Study Duration	Inclusion Criteria/Exclusion Criteria	Outcome measures	Analysis Method	Results	Conclusion
	Alexanders et al.	2015	Musculoskeletal physiotherapists use of psychological interventions: a systematic review of therapists	Systematic Review										
Psychology of Sport and Exercise	Arvinen-Barrow et al.	2006	UK chartered physiotherapists personal experiences in using psychological interventions with injured athletes: An interpretative Phenomenological Analysis	Participant study	Investigate physiotherapists' personal experiences in using psychological intervention techniques as part of sport injury rehabilitation.	Semi Structured Interview following guidelines from Smith (1995) and Smith and Osborne (2003)		7	52 minutes	Chartered UK physiotherapists working full time (private practitioners, freelance physiotherapists, and national governing body physiotherapists in sport medicine.	Emergent associations and themes from interviews Mindgenius Education Enterprise Program	Interpretative Phenomenological Analysis (IPA; Smith, 1996), as is "offers psychologists the opportunity to learn from the insights of the	Physiotherapists were open about their lack of formal sport psychology training, and were knowledgeable in the use of goal setting and encouraging social support. There was less evidence of using other techniques. The participants stressed the importance of experiential knowledge and 'gut feeling'	Physiotherapists would benefit from further training on alternative techniques. The study provided valuable insight into the lived experiences of physiotherapists using psychological techniques
Musculoskeletal Science and Practice	Cowel et al.	2018	Perceptions of physiotherapists towards the management of non-specific chronic low back pain from a biopsychosocial perspective: A qualitative study.	Participant study	Investigate the perceptions of physiotherapists' in England in their use of the biopsychosocial model (BPS) approach to managing non-specific chronic lower back pain (NSCLBP) patients.	Semi Structured Interview (Developed by authors of the study)		10	50 - 60 minutes	Previous clinical experience and training at a post graduate level training of BPS	Thematic Analysis (TA). Emergent associations and themes from interviews.	Thematic analysis (Braun & Clarke, 2006).	Physiotherapists were cognizant of the multi-factor nature of NSCLBP and the need to use the BPS model to treat the condition. Treating psychological factors was challenging due to lack of training.	Physiotherapists recognise the need to use the BPS model to treat NSCLBP. Study highlights the problems of implementing evidence based guidelines that recommend addressing psychological factors when physiotherapists are not trained or supported in doing this.
Disability and Rehabilitation	Dean et al.	2005	Managing time: An interpretative phenomenological analysis of patients' and physiotherapists' perceptions of adherence to therapeutic exercise to low back pain	Participant study	Investigated the experiences of female and male patients with LBP undergoing outpatient physiotherapy rehabilitation and whether they adhered to the prescribed exercises.	Semi Structured Interview (Interview schedule developed during 8 pilot interviews)		9 patients & 8 physios	42 minutes	Inclusion Criteria - Non specific lower back pain (NCLBP) of between 2 to 8 weeks / Exclusion Criteria - Serious spinal pathology, patients already identified as long term disabling pain sufferers	Interpretative Phenomenological Analysis (IPA). Emergent associations and themes from interviews	Interpretative Phenomenological Analysis (IPA) (Smith and Osborn, 2003)	The study showed that making time for exercises was hard, and that prioritizing time for managing LBP was essential. Physiotherapists perceived that patients did not prioritise their back problem.	The lived experiences of patients revealed that focusing on routine exercise was crucial in the patients adherence to rehabilitative exercise
International Journal of Sport and Exercise Psychology	Heaney, C.	2011	Physiotherapists perceptions of sport psychology intervention in professional soccer	Participant study	The aim of the study is to identify sports injury rehabilitation personnel (SIRP) attitudes and beliefs about using sports psychology as an intervention during sports injury rehabilitation in professional soccer players	Email Survey (PSPQ) plus Semi Structured Interview	Physiotherapy and Sport Psychology Questionnaire (PSPQ; Hemmings & Povey, 2002). Questionnaire adapted from the Athletic Training and Sport Psychology Questionnaire (ATSPQ; Larsen et al., 1996)	39		Head physiotherapists in professional premier and football league clubs in England. 79% qualified in physiotherapy, 13% qualified in Football Association Diploma in the Treatment and Management of Injuries and 8% qualified in Sports Therapy/Rehabilitation	Similar Themes and categories.	Content Analysis (Cote et al., 1993). Qualitative analysis.	Professional soccer players are commonly psychologically affected by injury 75% of the time. Stress and anxiety was the most common psychological reaction. 51% of physiotherapists reported referring players for counseling for injury related reasons. All the physiotherapists interviewed during the semi structured interview believed that soccer players are psychologically affected by injury	There is a requirement for some degree of training for physiotherapists on the psychological impact of injury in professional soccer players. The study also revealed that barriers to sport psychology interventions exist in British professional soccer.

British Journal of Sports Medicine	Hemmings & Povey.	2002	Views of chartered physiotherapists on the psychological content of their practice: a preliminary study in the United Kingdom	Participant study	The aim of the research was to investigate the perceptions of chartered physiotherapists in England on the psychological context of their practice	Email Survey questionnaire (PSPQ)	The Athletic Trainer and Sport Psychology Questionnaire (ATSPQ; Larsen et al., 1996) to become the The Physiotherapist and Sport Psychology Questionnaire (PSPQ; Hemmings & Povey, 2002)	90		Chartered physiotherapists listed in the Eastern Region Sports Medicine Directory		Descriptive statistical qualitative analysis	Physiotherapists reported that psychological factors played an important role in sports injuries. Physiotherapists also reported that they used various psychological techniques when dealing with injured athletes.	Study highlighted the need for psychological training for physiotherapists as well as the benefits of including psychological interventions within an injury rehabilitation program
International Journal of Osteopathic Medicine	Inman, J., Thompson, P.O.	2019	Complementing or conflicting? A qualitative study of osteopaths perceptions of NICE low back pain and sciatica guidelines in the UK	Participant study	The aim of the study was to investigate the perceptions of UK based osteopaths on NICE guidelines on NSLBP	Semi Structured Interview	Constructivist Grounded Theory Method (CGTM; Charmaz, 2014)	7	3 months	Qualified and registered Osteopaths registered with the General Osteopathic Council (GOC) practice register. .]. 5 and 20 years experience	Constructivist grounded theory method (CGTM; Charmaz, 2014) Categories around identified	Constructivist grounded theory method (CGTM; Charmaz, 2014). Consolidated criteria for reporting qualitative research (COREQ; Tong et al., 2007)	Osteopaths views of NICE guidelines are heavily influenced by their experience of the conception of uncertainty in the clinical environment, their knowledge, professional identity and their approach to clinical decision making.	Osteopaths views if NICE guidelines on LBP vary with some believing that the guidelines obstructed the implementation of specialist osteopathic knowledge, training and experience. Some considered NICE guidelines did not account for multipactorial nature of the condition
Musculoskeletal Science and Practice	Korakakis et al.	2019	Physiotherapist perceptions of optimal sitting and standing posture	Participant study	The study investigated the perceptions of physiotherapists regarding the most beneficial sitting and standing posture	Researcher developed web-based survey		544		Undergraduate and graduate physiotherapists in Greece		IBM SPSS. Qualitative analysis. Strengthening the Reporting of Observational studies in epidemiology for cross-sectional studies (STROBE; von Elm., 2008)	93.9% Greek physiotherapists rating the education of optimal spinal sitting and standing posture as very important. Most physiotherapists believed that upright lordotic spinal postures are optimal for sitting and standing.	Upright lordotic sitting and standing postures are considered optimal by most physiotherapists in Greece. There is a lack of strong evidence that any specific posture if linked to better health outcomes.
The Sport Psychologist	Larson et al.	1996	Psychological Aspects of Athletic Injuries as Perceived by Athletic Trainers	Participant study	The study investigated the perceptions of certified athletic trainers attitudes, beliefs, and application of psychological techniques in the treatment of sports injuries	Emailed Survey questionnaire (ATSPQ)	The Athletic Trainer and Sport Psychology Questionnaire (ATSPQ) adapted from Wiese & Yukelson (1991) and Brewer et al.	482		Certified athletic trainers selected from the membership database of the National Athletic Trainers Association (NATA)	Divided responses into meaning units (Cote et al., 1993). Meaning unit = segment of text	Qualitative analysis. Quantifying observed categories/ characteristics into groups	47% athletic trainers believed that every injured athlete suffered psychologically as a result of injury, 24% have referred athletes for counselling related to their injury, and 25% reported having a sport psychologist as a team member	Future athletic trainer education should include psychological aspects of injury and the importance of developing a sport psychology referral pathway.
Arthritis Care & Research	Lawford et al.	2017	Physical therapists' perceptions of telephone and internet-mediated service models for exercise management of people with osteoarthritis	Participant study	Investigate the perceptions of physical therapists use of telephone and internet-mediated service models for exercise therapy for individuals with hip and/or knee osteoarthritis	Internet based survey via SurveyGizmo	Sections C and B of the survey were adaptations of Telemedicine Perception Questionnaire	217		Australian physical therapists	Items in the survey were based on the Behaviour Change Wheel (APEASE; Mitchie & West, 2014) criteria	IBM SPSS	Consensus among 81% that phone delivered care did not violate patient privacy, 76% believed telerehabilitation saved patients time. 82% believed that video delivered care saved patients time, 80% believed it was more convenient for patients, and 75% believed it did not violate privacy	Internet and telerehabilitation is time efficient and offers privacy advantages in cases of osteoarthritis. Video was viewed more favourably than telephone as a mode of services delivery. Most physiotherapists did not like the lack of contact of either model.
Research in Sports Medicine	Lafferty et al.	2008	Club-based and non-club based physiotherapists views on their psychological content of their practice when treating sports injuries	Participant study	The purpose of the study was to examine the differences in the psychological content of physiotherapy practice in the treatment of sports injuries between club and non-club contracted physiotherapists	Email Survey questionnaire (ATSPQ)	The Athletic Trainer and Sport Psychology Questionnaire (ATSPQ; Larson et al., 1996)	87		Certified physiotherapists who were members of the Chartered Society for Physiotherapists.	Answers from the ATSPQ questionnaire	Descriptive statistical qualitative analysis	96% physiotherapists reported that treating the psychological aspect of the injury was important. 98% believed athletes were psychologically affected by injuries.	Differences on the use of psychological skills do exist between club based and non club based physiotherapists. Non club based physiotherapists reported more use of psychological skills. Both groups reported that it was important to treat the psychological impact of athletic injuries

Physical Therapy in Sport	Meurer et al.	2017	Strategies for injury prevention in Brazilian football: Perceptions of physiotherapists and practices of premier league teams	Participant study	The study objective was to investigate the perceptions of physiotherapists and current injury prevention practices working in Brazilian premier league football teams	Interviews by phone following completion of a structured Questionnaire	Questionnaire adapted from McCall et al. (2014)	16		Physiotherapists working in first division Brazilian Premier Football League	Absolute and relative values associated with questions in structured questionnaire	<b>One way ANOVA and Bonferroni post-hoc test</b>	Previous injury and muscle imbalance were considered important injury risk factors. All teams used traditional strength training, core exercises, balance, proprioception and functional training for injury prevention	The perceptions of physiotherapists working within the Brazilian premier football league were similar to those in developed countries. There remains a disparity between clinical practice and scientific evidence in high level football
Workplace Health & Safety	Moore, T.	1998	A Workplace Stretching Program. Physiological and Perception Measurements Before and After Participation	Participant study	The aim of the study was to investigate stretching as a workplace prevention program for the prevention of muscle strains	A Workplace Stretching Program. Physiological and Perception Measurements Before and After Participation		60	2 months	Employees of a North Carolina pharmaceutical manufacturing company. Average age 42 yrs.	Fox Physical Self Perception Profile (PSP) (Fox, 1990). Flexibility profile (including sit and reach	<b>Paired t tests</b>	A statistical increase was found in all flexibility measurements	Participants who completed the program has no musculoskeletal injuries during the 2 months of the trial. The study suggests that ongoing development and implementation of stretching programs in workplaces may be beneficial for the wellbeing of employees.
Journal of Sport Rehabilitation	Niven	2007	Rehabilitation Adherence in Sport Injury: Sport physiotherapists' Perceptions	Participant study	The objective of the study was to further understand issues of adherence to sport injury rehabilitation from the perceptions of physiotherapists	<b>Semi Structured Interview</b>	Researcher developed interview guide	9 (6 female, 3 male)		UK based physiotherapists	Emergent associations and themes from interviews	<b>Interpretive Phenomenological Analysis (IPA). Qualitative analysis</b>	There wasn't consensus among the physiotherapists that adherence was a issue in practice. Participants agreed that rehabilitation adherence helped injury recovery and prevented injuries worsening	Both under and over adherence was an issue in practice. Most research focuses on under adherence. This study found that over adherence (athlete doing to much too soon) was generally reported as an issue
BMJ Open	Rushton et al.	2017	Patient and physiotherapist perceptions of rehabilitation following primary lumbar discectomy: a qualitative focus group study embedded within an external pilot and	Qualitative focus group study	The study aim was to investigate the perceptions of physiotherapists and patients about rehabilitation after lumbar discectomy surgery	Focus groups	Consolidated Criteria for Reporting Qualitative Research (COREQ)	Focus groups made up of 59 patients, 12 physiotherapists	January 2013 to July 2014	Patients and physiotherapists from the Queen Elizabeth Hospital Birmingham and the Salford Royal Foundation Trust	Topics led by experienced researcher and guided by literature	Krueger (1997), Ritchie and Spencer (1994) framework analysis	Patients perceived value in patients leaflets with or without physiotherapy interventions. Self-motivation was important in recovery. Group physiotherapy was useful. Patient preference influenced rehabilitation.	Both physiotherapists and patients perceived the study patient leaflet to be both useful and high quality. The preferences of patients rehabilitation was influenced by their personal priorities.
Journal of Sport Rehabilitation	Tracey.	2008	Inside the clinic: health professionals 'role in their clients' psychological rehabilitation	Participant study	The examine health professionals perceptions of their role and influence on the psychological recovery of their patients	<b>Semi Structured Interview</b>	2 Research questions: 1) What are health professionals perspectives of the roles they play in the psychological recovery of their patients from injury 2) What perceptions do health professionals have of their influence on the psychological recovery from injury	18	40 to 60 minutes	Full time health professionals employed at injury rehabilitation clinics who were certified physiotherapists, athletic trainers etc.	Themes from Interviews (general-dimension data themes)	<b>Interpretive Phenomenological Analysis (IPA).</b>	Health professionals perceive their role as important in the psychological recovery of their patients. Three important themes emerged 1) Building rapport with patients 2) Being the educator for patients 3) Communication with patients	Health professionals perceive their role as important in the psychological recovery of their patients from injury. There is a lack of professional training in the psychology recovery from injury for health professionals

## Appendix B

### Interview Questions to Practitioners

- 1) What are your views and opinions of stretching?

*Prompt: Knowledge through own experience/training?*

- 2) Did you receive any formal training on stretching during your training?

*Prompt: Basic knowledge applied to clinical practice.*

*Prompt: Additional training required? Was the information useful/adequate*

*Prompt: Do you think there should be more / less training and what specifically (more or less of)*

- 3) What are your views on the application of stretching in rehab or sports performance? (Amended depending on practitioner)

*Prompt: beneficial/not beneficial, in what way examples?*

*Prompt: personal and/or clinical experiences of stretching*

*Prompt: Do you apply stretching in your clinical or professional fitness practice?*

*Prompt: Are there any barriers to using stretching in your practice?*

*Prompt: What are the main reasons that you are prescribing stretching techniques for e.g., pain reduction, mobility, exercise)*

*Prompt: Do your clients generally adhere to the stretching exercise homework?*

*Prompt: What reasons do your clients give you for stretching or not stretching?*

- 4) Does the way that you apply stretching in your clinical or fitness practice differ to what you were taught?

*Prompt: Does / how does the training link to your clinical practice?*

*Prompt: What are the differences between what you were taught vs how you apply stretching in practice?*

*Prompt: How have you adapted / changed your views in clinical practice? Based on what?*

*Prompt: Has experience in practice changed your views of what you were taught?*

- 5) What importance do you place on stretching in rehab or sports performance?

*Prompt: Would you leave it out of treatment/training in favour of techniques or exercises if time was limited?*

*Prompt: Are there instances where you would always prescribe stretching?*

# Appendix C

## Invitation Letter



School of Sport and Exercise Sciences  
The University of Kent at Medway  
The Medway Building  
Chatham Maritime  
Kent  
ME4 4AG  
01634 888858

Dear

I am contacting you because you are currently a practitioner working as a physical therapist or fitness professional in the UK. I am undertaking a Doctorate in within the School of Sport and Exercise Sciences at the University of Kent. I am investigating physical therapists and fitness professionals' perceptions of stretching in their professional practice and would like to invite you to take part this research study.

The research study will involve a remote interview, via an online platform and will last no longer than an hour. The questions will be around your own views, experiences, and practice of stretching. The interview will be scheduled for a time that is convenient for you.

An information sheet is attached that gives full information about the purpose of the research, what you will be asked to do, and the risks and benefits of taking part in the study. If you have any further questions, you can contact myself using the contact information at the bottom of the information sheet.

If you are willing to take part in the research, then please do let me know and we can set up a convenient time for our interview.

Yours sincerely,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent



## Appendix D

### Participant Information Sheet



#### **Study title - An investigation into physical therapist and fitness professionals' perceptions of stretching in their professional practice**

I would like to invite you to take part in my research study. Before you decide, I would like you to understand why the research is being done, and what I will ask you to do. It is a good idea to talk to your friends or family about whether you should take part. I will be happy to go through the information sheet with you and answer any questions you have.

#### **What is the purpose of the research?**

I am interested in physical therapists' and fitness professionals' perceptions of stretching in their clinical / professional practice. This study will enable me to understand how stretching is utilised in physical therapy and fitness settings and whether there should be more emphasis on training and education on stretching for practitioners. The research will also inform future training and workshops for practitioners to ensure that these meet the needs of the profession.

#### **Why have I been invited to take part in this study?**

You have been invited to take part as you meet the inclusion criteria and are currently a practitioner working as a fitness professional or physical therapist. You also hold a current membership with the relevant professional governing body and possess relevant qualifications to practice in the UK.

#### **How long am I expected to be part of the study?**

The interview is expected to take no longer than an hour, and this will be scheduled at a time convenient to you.

#### **Do I have to take part in the study?**

No, taking part is voluntary. It is up to you whether you want to take part in the research. If you agree to take part, I will ask you to sign a consent form and will give you a copy of this form. You will be asked to complete a demographics form before the interview outlining your qualifications and professional membership. You are free to withdraw from the research at any time without giving a reason.

#### **What will I be asked to do if I agree to take part?**

I will check that you understand what is involved in this research study and will ask you to sign the consent form prior to the interview. I will also ask you to complete a demographics form at the same time. I will then arrange a convenient time for our interview. During the

interview I will ask you some open questions about your perceptions and views of stretching, education and training around stretching, the application of stretching in your professional or clinical practice and barriers to stretching you may have experienced.

### **What are the possible risks of taking part?**

The questions will be specifically around your own clinical / professional practice. It is not deemed to cause you any distress, or increased risk. You are welcome to contact myself or access support services should you be affected by the interview question.

### **What are the possible benefits from taking part?**

Your contribution to the research will contribute to knowledge and a better understanding of physical therapists and fitness professionals' perceptions of stretching in their professional practice. Your contribution will also help to identify and inform future workshops and the training to ensure that they meet the needs of the profession.

### **Will my taking part be confidential?**

The consent form you sign electronically will be kept on a secure laptop, within a password protected file that is only accessible by myself. The electronic consent form includes a space for an anonymous code that will link to your demographic questionnaire and interview transcript. The interview will be recorded, and a verbatim transcript will be typed out. The anonymous transcript will be analysed for themes across all the participants. The consent forms are kept for up to 12 months after the interview so that we can show the ethics committee that you gave informed consent and are then securely destroyed. All anonymous data such as your demographics and anonymous verbatim interview will be stored for up to 5 years after the study.

### **What will happen to the results of the research?**

I will analyse the anonymous interviews to identify themes and patterns in the data. I intend to publish the research findings to better our knowledge of how stretching is utilised within the physical therapy and fitness professions in the UK. The research will also inform future workshops and training needs of the profession.

### **Who is organising and funding the study?**

The research study is part of a practitioner doctorate within the School of Sport and Exercise Sciences at the University of Kent.

### **Who has reviewed this study?**

The Faculty of Sciences Research Ethics and Advisory Group (REAG) at the University of Kent has approved this study.

### **Who can I contact if I need to ask more questions about the study?**

You can contact me at any time using the contact details below.

### **Who can I contact if I want to complain about the study?**

If you wish to complain about the way that the study was conducted you can contact the Head of the School of Sport and Exercise Sciences, Professor Louis Passfield by email ([L.Passfield@kent.ac.uk](mailto:L.Passfield@kent.ac.uk)) or by phone (01634 888858).

### **What should I do now?**

If you are happy to participate in the research then please contact Gordon Teasdale on [gct20@kent.ac.uk](mailto:gct20@kent.ac.uk) or 07500 352323

Website: <http://www.kent.ac.uk/sportsciences/staff/index.html>

# Appendix E

## Consent Form



**Title of project: Physical therapist and fitness professionals’ perception of stretching in their professional practice.**

**Name of investigators: Gordon Teasdale**

**Participant Identification Number for this project:**

**Please initial box**

- 1. I confirm I have read and understand the information sheet dated xx/02/2015 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
  
- 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. If I wish to withdraw I may contact Gordon Teasdale gct20@kent.ac.uk; 07500 352 323).
  
- 3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised data.
  
- 4. I agree to take part in the above research project.

\_\_\_\_\_  
Name of participant    Date    Signature

\_\_\_\_\_  
Name of person taking consent    Date    Signature  
*(if different from lead researcher)*  
*To be signed and dated in presence of the participant*

\_\_\_\_\_  
Lead researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

Copies:

*When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in main file.*

# Appendix F

## Demographics Questionnaire

### Background and Demographics

What is your gender?

- a. Male
- b. Female

What is your age range?

- 1. Under 25
- 2. 25-34
- 3. 35-44
- 4. 45-54
- 5. 55-64
- 6. 65+

How many years have you been practicing/teaching?

- a. Under 10 years
- b. 10-20 years
- c. 21-30 years
- d. Over 30 years

What is your job title?

- a. Physiotherapist
- b. Sport Therapist
- c. Osteopath
- d. Strength and Conditioning coach
- e. Yoga Teacher
- f. Pilates Instructor
- g. Other – please specify

What is your highest qualifications?

- a. Diploma
- b. Undergraduate degree
- c. Masters
- d. PhD / Professional Doctorate
- e. Other – please specify

Are you registered with any professional bodies?

- a. HCPC (Health and Care Professions Council)
- b. SST (Society of Sports Therapists)
- c. STO (Sports Therapy Organisation)
- d. CNHC (Complementary and Natural Healthcare Council)
- e. GOsC (General Osteopathic Council)
- f. BASRat (British Association of Sport Rehabilitators and Trainers)
- g. Yoga Alliance / British Wheel of Yoga
- h. Pilates teacher association

Employment status

- a. Employed – full time
- b. Employed - parttime
- c. Self-employed – full time
- d. Self-employed – part time

What is your primary clinical / practice setting?

- a. Home clinic
- b. Business premises
- c. University
- d. NHS hospital
- e. NHS medical surgery
- f. Sport center/gym
- g. Yoga/Pilates studio

How many years have you been employed in your primary job role?

- a. 1-5
- b. 6-10
- c. 11-20
- d. 21-30
- e. 30+

# Appendix G

## Ethics Application

### FULL ETHICS APPLICATION FOR RESEARCH WITH HUMAN PARTICIPANTS – SSES



If any of the questions in Sections IV(B) and/or IV(C) and/or IV(D) is answered 'yes', a full ethics application must be made to the REAG. This also applies for studies not defined as 'research' in the narrow sense, i.e. evaluations/audits, etc. Complete this form and send it to the SSES REAG along with supporting documentation: a copy of the full research proposal; any participant information sheets and consent forms; any surveys, interview schedules; any advertising material or proposed website wording. **It is important to note that you must not commence any research with human participants until full approval has been given by the SSES Research Ethics Advisory Group – you will be notified via email when this has been granted.**

**During term time we aim to process a research ethics application within two weeks, however during vacation periods and busy times (e.g. exams and marking period) it can take up to four weeks.**

**It is the applicant's responsibility to ensure that their application is submitted in good time.**

OVERVIEW	
<b>Name(s) of applicant(s):</b>	<b>Contact details (email &amp; telephone number):</b>
Gordon Teasdale	<a href="mailto:gct20@kent.ac.uk">gct20@kent.ac.uk</a> 07500 352 323
<b>Title of project:</b>	
An investigation into physical therapist and fitness professionals' perceptions of stretching in their professional practice	
<b>Name(s) of supervisor(s) (if applicable):</b>	
Dy Kyra De Coninck	
<b>Lay summary. (Please provide a brief summary of the study)</b>	
<p>Stretching research has traditionally been conducted by either clinical researchers or sports scientists. The literature generally supports the notion of stretching for injury recovery, however, the body of research on the benefits of stretching for sports performance remains inconclusive. There are many kinds of stretching: static (SS), dynamic (DS) and proprioceptive neuromuscular facilitation (PNF). To date no research has been conducted to understand the benefits of long-term stretching on wellbeing or the effect of using a combination of SS, DS and PNF together.</p> <p>The challenge for physical therapists is to make sense of the contrasting views emerging from the research to make treatment choices for their clients. Due to the ambiguity in the literature fitness professionals and physical therapists' aren't sure whether to prescribe stretching in their professional practice.</p>	

The aim of this project is the investigate physical therapists' and fitness professionals' perceptions of the benefits of stretching in their professional practice.	
<b>What is the principal research question/objective?</b>	
What are physical therapists' and fitness professionals' perceptions of stretching in their professional practice	
<b>What are the secondary research questions/objectives, if applicable?</b>	
<b>How has the scientific/intellectual quality of the research been assessed?</b>	
<input checked="" type="checkbox"/> Internal review (e.g. supervisor)	Details: Dr Kyra De Coninck
<input type="checkbox"/> Independent external review (e.g. funder)	
<input type="checkbox"/> None	
<b>How have the statistical aspects of the research been reviewed (if relevant)?</b>	
<input checked="" type="checkbox"/> Internal review (e.g. supervisor)	Details: Dr Kyra De Coninck
<input type="checkbox"/> Independent external review (e.g. funder)	
<input type="checkbox"/> None	

<b>RISKS AND ETHICAL ISSUES</b>
1. Please list the principal inclusion and exclusion criteria
<p>Participants will be required to be current members of the relevant professional governing body and possess relevant qualifications to practice in the UK. The inclusion criteria for qualifications for physical therapists taking part in the research will be a minimum Level 5 Diploma in Sports Therapy for sports therapists or an undergraduate degree in the relevant profession. Inclusion criteria for qualifications for fitness professionals will be an appropriate teaching qualification which is recognised by the relevant professional governing body.</p> <p>Exclusion criteria are physical therapy practitioners that do not hold at least a Level 5 Diploma in Sports Therapy for sports therapists or a relevant undergraduate degree. Exclusion criteria for fitness professionals are practitioners that do not hold a teaching or coaching qualification which is recognised by relevant governing body of their profession.</p>
2. How long will each research participant be in the study in total, from when they give informed consent until their last contact with the research team?
Participants will be asked to participant in semi-structured interviews (SSI). It is anticipated that the SSI's will last between 30 to 60 minutes
3. What are the potential risks and burdens for research participants and how will you minimise them? (Describe any risks and burdens that could occur as a result of participation in the research, such as pain, discomfort, distress, intrusion, inconvenience or changes to lifestyle. Describe what steps would be taken to minimise risks and burdens as far as possible)
It is unlikely that the participants will be distressed or made to feel uncomfortable in any way due to the nature of the SSI questions being focused on their professional practice. Participants will be given information about the study beforehand in order to decide whether take part in the study or not. The interview will take place at a convenient time for them.
4. Please describe what measures you have in place in the event of any unexpected outcomes or adverse effects to participants arising from involvement in the project
The SSI schedule allows the participants to choose what information to share about their clinical of fitness practice. They will be offered a copy of the research on completion of the study.



5. Will interviews/questionnaires or group discussions include topics that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could occur during the study?
No, the SSI questions are around their clinical and fitness practice.
6. If yes, please describe the procedures in place to deal with these issues
N/A
7. What is the potential benefit to research participants?
There is no direct benefit to the participants, however the outcome of the research regarding perceptions of stretching may inform their clinical or fitness practice.
8. What are the potential risks to the researchers themselves?
There are no potential risks
9. Will there be any risks to the University? (Consider issues such as reputational risk; research that may give rise to contentious or controversial findings; could the funder be considered controversial or have the potential to cause reputational risk to the University?)
None noted
10. Will any intervention or procedure, which would normally be considered a part of routine care, be withheld from the research participants? (If yes, give details and justification). For example, the disturbance of a school child's day or access to their normal educational entitlement and curriculum).
N/A

#### **RECRUITMENT AND INFORMED CONSENT**

11. How and by whom will potential participants, records or samples be identified/selected for recruitment?
The main recruitment will be recruited via social medial platforms such as Instagram, Twitter and Facebook as well as local professional colleagues who work in health or fitness. In addition, a volunteer research participant request will be sent to the relevant professional governing bodies in the UK to forward on to their members via their regular newsletter or email.
12. Will this initial identification of potential participants to be recruited involve reviewing or screening identifiable personal information? (If 'yes', give details)
Basic demographics will be requested; however, pseudonyms will be used, and all identifiable characters will be removed from the interview transcripts.
13. Has prior consent been obtained or will it be obtained for access to identifiable personal information for recruitment purposes?
Prior to the interview participants will be given an information sheet about the study prior to giving informed consent.
14. Will you obtain informed consent from or on behalf of research participants for involvement in the research? (If 'yes' please give details. If you are not planning to gain consent, please explain why not and provide a justification).
Informed consent will be obtained prior to the commencement of the SSI's.
15. Will you record informed consent in writing? (If 'no', how will it be recorded?)
Informed consent will be recorded electronically via a word document sent by email.
16. How long will you allow potential participants to decide whether or not to take part?

Participants will be given 14 days from the receipt of the study information sheet to decide whether to take part in the study.
17. What arrangements have been made for persons who might not adequately understand verbal explanations or written information given in English, or have special communication needs? (e.g. translation, use of interpreters?)
Participants will be able to ask any questions at any stage of the interview process.
18. If no arrangements will be made, explain reasons (e.g. resource constraints)

**CONFIDENTIALITY AND GDPR**

*In this section personal data means any data relating to a participant who could potentially be identified. It includes pseudonymised data capable of being linked to a participant through a unique code number.*

19. What kind of data do you need to collect and how will it answer your research question? (e.g. is this the minimum necessary for the research purposes?)
Demographic data including age, sex, qualification, years in professional practice and perceptions of stretching will be gathered.
20. Does it infringe on any personal rights?
The data gathered does not infringe on any personal rights.
21. Have you included a privacy notice in participant information including a link to the University-level privacy notice? ( <a href="https://research.kent.ac.uk/researchservices/wp-content/uploads/sites/51/2020/06/GDPR-Privacy-Notice-Research.pdf">https://research.kent.ac.uk/researchservices/wp-content/uploads/sites/51/2020/06/GDPR-Privacy-Notice-Research.pdf</a> )
A privacy notice with a link to the University-level privacy notice will be included in the informed consent form
22. What would happen if the data was leaked?
The data will be anonymised, and no identifying information will be kept.
23. What measures have you put in place to mitigate risks to individuals?
The participants data will be anonymised. No data will be collected that may identify the participants. No further risks to the participants are anticipated.
24. How do you plan to store, access and work with the data you collect?
The data will be kept on a secure password protected laptop. Only the researcher will have access to the laptop.

25. Will you be undertaking any of the following activities at any stage (including in the identification of potential participants)? <ul style="list-style-type: none"> <li>• Electronic transfer by magnetic or optical media, email or computer networks</li> <li>• Sharing of personal data outside the EEA</li> <li>• Use of personal addresses, postcodes, faxes, emails or telephone numbers</li> <li>• Publication of direct quotations from respondents</li> <li>• Publication of data that might allow identification of individuals</li> <li>• Use of audio/visual recording devices</li> <li>• Storage of personal data on any of the following:             <ul style="list-style-type: none"> <li>– Manual files</li> <li>– University computers</li> <li>– Home or other personal computers</li> <li>– Private company computers</li> <li>– Laptop computers</li> </ul> </li> </ul>	<b>YES</b>	<b>NO</b>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<input checked="" type="checkbox"/>	<input type="checkbox"/>
26. Please give details and explain the measures you will employ to safeguard the data:	
Personal laptop is password protected and is only used by the researcher. No one else will have access to the laptop. The data will be anonymised, and no identifying data will be stored.	
27. Will there be any third party involvement in processing the data?	
No	
28. Will the data be transferred outside the European Economic Area? If so, how will you ensure the processing complies with GDPR requirements?	
No	
29. Can you fully anonymise the data and still achieve the same results?	
Yes	
30. How will you ensure the confidentiality of personal data? (e.g. anonymisation or pseudonymisation of data)	
All participants will be given a unique participation code to maintain their anonymity.	
31. Who will have access to participants' personal data during the study?	
The researcher and project supervisor will have access to the anonymised data.	
32. What will you do with the data once you have finished with it?	
The recording will be destroyed after the transcripts have been types out verbatim. The anonymised data will be destroyed 6 months after completion of the degree and or publication of the research.	
Information on writing a data management plan is available here: <a href="https://www.kent.ac.uk/guides/manage-your-research-data/write-your-plan">https://www.kent.ac.uk/guides/manage-your-research-data/write-your-plan</a>	
Please note: as best practice, and as a requirement of many funders, where practical, researchers must develop a data management and sharing plan to enable the data to be made available for re-use, eg, for secondary research, and so sufficient metadata must be conserved to enable this while maintaining confidentiality commitments and the security of data.	

### INCENTIVES AND PAYMENTS

33. Will research participants receive any payments, reimbursement of expenses or any other benefits or incentives for taking part in this research? (If 'yes', please give details)	
No	
34. Will individual researchers receive any personal payment over and above normal salary, or any other benefits or incentives, for taking part in this research? (If 'yes', please give details)	
No	
35. Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g. financial, share holding, personal relationship, etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest? (If 'yes', please give details)	
No	

**PUBLICATION AND DISSEMINATION**

36. How do you intend to report and disseminate the results of the study? If you do not plan to report or disseminate the results please give your justification.

The findings of the study will form part of my submission for the SportD degree, and it is intended that a research article will be disseminated in an appropriate journal.

37. Will you inform participants of the results? (Please give details of how you will inform participants or justify if not doing so)

Yes, participants will be able to have a copy of the outcome of the study and have access to any potential journal article as part of the qualitative method of analysis process a selection of the participants will be credibility of the study.

**MANAGEMENT OF THE RESEARCH**

38. Other key investigators/collaborators. (Please include all grant co-applicants, protocol authors and other key members of the Chief Investigator's team, including non-doctoral student researchers)

None

39. Has this or a similar application been previously rejected by a research Ethics Committee in the UK or another country? (If yes, please give details of rejected application and explain in the summary of main issues how the reasons for the unfavourable opinion have been addressed in this application)

No

40. How long do you expect the study to last?

- Planned start date: August 2021
- Planned end date: 2023
- Total duration: 24 months

41. Where will the research take place?

The research will be conducted remotely.

**INSURANCE / INDEMNITY**

42. Does UoK's insurer need to be notified about your project before insurance cover can be provided? *The majority of research carried out at UoK is covered automatically by existing policies, however, if your project entails more than usual risk or involves an overseas country in the developing world or where there is or has recently been conflict, please check with the Insurance Office that cover can be provided. Please give details below.*

No

**CHILDREN**

43. Do you plan to include any participants who are children under 16? **(If no, go to next section)**

No

44. Please specify the potential age range of children under 16 who will be included and give reasons for carrying out the research with this age group

N/A

45. Please describe the arrangements for seeking informed consent from a person with parental responsibility and/or from children able to give consent for themselves

N/A

46. If you intend to provide children under 16 with information about the research and seek their consent or agreement, please outline how this process will vary according to their age and level of understanding

N/A

#### **PARTICIPANTS UNABLE TO CONSENT FOR THEMSELVES**

47. Is there a risk that research participants may not be able to provide consent for themselves? Or is it possible that the capacity of participants could fluctuate during the research?  
**(If no, go to next section) (If yes, the research must be reviewed by an NHS REC or SCREC)**

N/A

48. Who inside or outside the research team will decide whether or not the participants have the capacity to give consent? What training/experience will they have to enable them to reach this decision?

All participants are clinicians or fitness professionals are able to provide informed consent.

#### **DECLARATION**

To be signed by the Chief Investigator

- I agree to comply, and will ensure that all researchers involved with the study comply with all relevant legislation, accepted ethical practice, University of Kent policies and appropriate professional ethical guidelines during the conduct of this research project
- If any significant changes are made to the design of the research I will notify the SSES Research Ethics Advisory Group and understand that further review may be required before I can proceed to implement the change(s)
- I agree that I will notify the SSES Research Ethics Advisory Group of any unexpected adverse events that may occur during my research
- I agree to respond to any SSES Research Ethics Advisory Group requests in relation to monitoring or audit of research studies
- I agree to notify the SSES Research Ethics Advisory Group of any complaints I receive in connection with this research project

**Signed:**

**Date:**

**Name:**

#### **WHAT TO DO NEXT**

Send your completed form, along with all supporting documentation, to the SSES REAG at [SSESethics@kent.ac.uk](mailto:SSESethics@kent.ac.uk)

#### **CHECKLIST**

Please ensure you have included the following with your application (where relevant):

- Full proposal



<ul style="list-style-type: none"><li>• Participant information sheet</li><li>• Consent form</li><li>• Covering letter</li><li>• Any questionnaires/interview schedules/topic guides to be used</li><li>• Any approved instruments/measures to be used</li><li>• Any advertising material to be used to recruit participants</li><li>• Confirmation that project is covered by UoK insurance policies (if necessary)</li></ul>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
--	--

# Appendix H

## Participant Invitation Templates

Dear BASRAT

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about their perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

“Calling all BASRAT members

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating sport rehabilitators’ perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around your’ views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk “

Calling all Sports Therapists

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating sports therapists' perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
[gct20@kent.ac.uk](mailto:gct20@kent.ac.uk)

**Gordon Teasdale MSc**  
**SportD program**  
**School of Sport and Exercise Sciences**  
**University of Kent**

E: [gct20@kent.ac.uk](mailto:gct20@kent.ac.uk)  
T: +44 (0) 7500 352 323



Dear Chartered Society of Physiotherapy

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about physiotherapists' perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

"Calling all Physiotherapists

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating physiotherapists' perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk       "

Dear General Osteopathic Council

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about osteopaths' perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

"Calling all Osteopaths

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating osteopaths' perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk       "

Dear Pilates Foundation

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about Pilates teachers perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

Calling all Pilates Teachers

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating Pilates' teachers perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their teaching practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk

Dear Society of Sports Therapists

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about sports therapists' perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

"Calling all Sports Therapists

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating sports therapists' perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk       "

Dear Sports Therapy Organisation

I am contacting you as I believe that your members might be interested in taking part in a brief semi-structured interview about sports therapists' perceptions regarding stretching. I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating the perceptions of a range of practitioners of stretching in their professional practice. Would you be able to disseminate the invitation to take part to your members? This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

"Calling all Sports Therapists

I am undertaking this research project as part of my Professional Doctorate in the School of Sport and Exercise Sciences at the University of Kent. I am investigating sports therapists' perceptions of stretching in their professional practice.

The research study will involve a remote interview, via Microsoft Teams and will last no longer than an hour. The interview will be recorded (audio and video) and stored securely. No one other than the researchers will have access to the recording. The questions will be around practitioners' views, experiences, and use of stretching in their clinical practice. The interview will be scheduled for a time that is convenient for you. This research project has been approved by the School of Sport and Exercise Sciences Research and Ethics Committee.

If you would like to take part you can contact myself using the contact information below,

Gordon Teasdale  
School of Sport and Exercise Sciences  
University of Kent  
gct20@kent.ac.uk "

# Appendix I

## Interview Questions to Practitioners

- 1) What are your views and opinions of stretching?

*Prompt: Knowledge through own experience/training?*

- 2) Did you receive any formal training on stretching during your training?

*Prompt: Basic knowledge applied to clinical practice.*

*Prompt: Additional training required? Was the information useful/adequate*

*Prompt: Do you think there should be more / less training and what specifically (more or less of)*

- 3) What are your views on the application of stretching in rehab or sports performance? (Amended depending on practitioner)

*Prompt: beneficial/not beneficial, in what way examples?*

*Prompt: personal and/or clinical experiences of stretching*

*Prompt: Do you apply stretching in your clinical or professional fitness practice?*

*Prompt: Are there any barriers to using stretching in your practice?*

*Prompt: What are the main reasons that you are prescribing stretching techniques for e.g., pain reduction, mobility, exercise)*

*Prompt: Do your clients generally adhere to the stretching exercise homework?*

*Prompt: What reasons do your clients give you for stretching or not stretching?*

- 4) Does the way that you apply stretching in your clinical or fitness practice differ to what you were taught?

*Prompt: Does / how does the training link to your clinical practice?*

*Prompt: What are the differences between what you were taught vs how you apply stretching in practice?*

*Prompt: How have you adapted / changed your views in clinical practice? Based on what?*

*Prompt: Has experience in practice changed your views of what you were taught?*

- 5) What importance do you place on stretching in rehab or sports performance?

*Prompt: Would you leave it out of treatment/training in favour of techniques or exercises if time was limited?*

*Prompt: Are there instances where you would always prescribe stretching?*

## Appendix J

### GET and PET Theme Breakdowns Per Participant

GET	PET	Andrew	Karen	Peter	Deborah	Anne	Natalie	Clare	Lena	Sophia	Victoria	Zoe
<b>1 IDENTITY</b>		X			X	X			X	X	X	
	<b>1 Defining/Decisive Moments</b>				X	X						X
<b>2 DEVELOPING EFFICACY THROUGH EXPERIENCE</b>						X	X				X	
	<b>1 Bargainng and Negotiation</b>	X				X				X		
	<b>2 Challenging Orthodoxy</b>	X		X		X						
	<b>3 Creativity In Practice</b>	X	X			X	X			X	X	X
	<b>4 Person Centered Care</b>		X	X				X	X		X	X
	<b>5 Didactive Role of The Practitioner</b>			X				X	X	X	X	X
	<b>6 Ownsrip of Practice. This is My Own Approach</b>			X				X		X	X	X
<b>3 LEARNING THROUGH EDUCATION AND EXPERIENCE</b>				X		X	X			X		X
	<b>1 Tension Between Theory And Observed Reality</b>	X		X		X				X		
	<b>2 Experiences Around Education</b>		X	X	X	X	X	X	X	X	X	X
	<b>3 Taking What is Needed From CPD</b>			X		X	X	X	X			
<b>4 ENGAGEMENT WITH RESEARCH</b>												
	<b>1 Keeping Up With The Latest Research</b>	X	X					X	X			
	<b>2 When The Research is Inconclusive</b>	X	X					X				





## Appendix K

### Example of IPA Analysis: Andrew

Keywords/GET Themes	Text	PET Themes
	<p>00:00:00.000 --&gt; 00:00:01.150 Alastair Thrush Gordon, apologies.</p> <p>00:00:00.600 --&gt; 00:00:00.930 Gordon Teasdale This.</p> <p>00:00:05.320 --&gt; 00:00:06.230 Alastair Thrush Can you hear me OK?</p> <p>00:00:06.480 --&gt; 00:00:09.050 Gordon Teasdale Yeah, I can hear you fine. Thank you for joining me.</p> <p>00:00:10.010 --&gt; 00:00:14.870 Alastair Thrush That's fine, maybe yeah. For some reason my Mac books not connecting to the Internet so I had to do it over the phone.</p> <p>00:00:15.840 --&gt; 00:00:19.940 Gordon Teasdale Oh yeah, you're on you're you're gonna have an amazing video on your phone. I'm impressed.</p> <p>00:00:22.290 --&gt; 00:00:28.120 Gordon Teasdale Thank you so much for joining me Alistair. I'm before we start. You have any questions about my research.</p> <p>00:00:28.550 --&gt; 00:00:29.330 Alastair Thrush No no no.</p>	

	<p>00:00:30.590 --&gt; 00:00:41.780 Gordon Teasdale That's that's perfect. I'm just by way of introduction I know I've put some information in in the email. I'm one of Kyra's professional doctorate student she's supervising me.</p> <p>00:00:42.020 --&gt; 00:00:42.390 Alastair Thrush Uh-huh</p> <p>00:00:42.450 --&gt; 00:00:45.180 Gordon Teasdale And I'm, uh, uh, sports therapists. Full time.</p> <p>00:00:46.110 --&gt; 00:00:58.750</p>	
	<p>Gordon Teasdale And what I'm looking into, and one of my studies is just the perception and the opinions of practitioners both in the fitness industry, the rehab and the clinical field, their perceptions of stretching.</p> <p>00:01:00.120 --&gt; 00:01:01.930 Gordon Teasdale And that's what I'd like to talk to you about today.</p>	
<p><b>What I am now (Professional Identity)</b></p> <p><b>Physiotherapist</b></p>	<p>00:01:00.220 --&gt; 00:01:00.530 Alastair Thrush OK.</p> <p>00:01:02.190 --&gt; 00:01:02.660 Alastair Thrush OK.</p> <p>00:01:03.350 --&gt; 00:01:06.530 Gordon Teasdale Can you give me a little bit of background about yourself?</p> <p>00:01:07.220 --&gt; 00:01:13.530 Alastair Thrush So I'm a chartered physiotherapist, so I I'm just gonna put my ears in I.</p>	

<p><b>Sport and Exercise Science</b></p> <p><b>Overseas working experience</b></p> <p><b>What I am now: The fluidity of Professional Identity</b></p> <p><b>Variety of Clinical Experience</b>  <b>Clinical experience</b>  <b>Academic experience</b></p>	<p>00:01:14.190 --&gt; 00:01:16.790  Alastair Thrush  Did my initial degree in sport and exercise science.</p> <p>00:01:17.150 --&gt; 00:01:17.740  Gordon Teasdale  OK.</p> <p>00:01:18.020 --&gt; 00:01:28.330  Alastair Thrush  And then at the end of that degree I went on and did a masters in physiotherapy and qualified in 2003.</p> <p>00:01:29.180 --&gt; 00:01:31.970  Alastair Thrush  So I spent a few years in the NHS and.</p> <p>00:01:32.020 --&gt; 00:01:36.650  Alastair Thrush  Uh, and then a few years overseas in New Zealand and Australia.</p> <p>00:01:37.460 --&gt; 00:01:51.550  Alastair Thrush  And then back here to the UK. And then I've worked in professional football for the last <b>10 years</b> and come and now just come out of football back into the private sector again and now working for the. That University of Kent.</p>	<p>Changing jobs and experiences</p>
<p><b>Application of stretching</b>  <b>Personal use of stretching</b></p>	<p>00:01:52.140 --&gt; 00:01:52.830  Gordon Teasdale  OK.</p> <p>00:01:54.450 --&gt; 00:01:55.020  Gordon Teasdale  And.</p> <p>00:01:55.850 --&gt; 00:02:01.520  Gordon Teasdale  Starting right off the bat, what are your views of stretching in your clinical practice?</p>	

<p><b>Navigating Research in Practice</b></p> <p><b>Hasn't kept up to date with latest research on stretching</b></p> <p><b>Has not kept up to date</b></p> <p><b>perception of stretching conflicting in the literature</b></p> <p><b>Professional Identity</b></p> <p><b>Application influenced by clinical practice</b></p> <p><b>Experiential Knowledge</b> <b>Tops Training</b></p> <p><b>Use of multiple techniques to change tissue structure</b></p>	<p>00:02:02.440 --&gt; 00:02:04.780 Alastair Thrush Well, I I use I I use stretching.</p> <p>00:02:02.660 --&gt; 00:02:02.930 Gordon Teasdale.</p> <p>00:02:04.850 --&gt; 00:02:09.920 Alastair Thrush Uh, a lot. I have to say I haven't kept up to date.</p> <p>00:02:10.930 --&gt; 00:02:23.640 Alastair Thrush With with some of the latest research, I know that it's often quite a conflicting area stretching as to whether it's is it. Is it good? Is it bad?</p> <p>What type of stretching should we be sort of using and when?</p> <p>00:02:23.930 --&gt; 00:02:31.060 Alastair Thrush Uh, but in my clinical practice I would use a combination of you know you you come across.</p> <p>00:02:31.920 --&gt; 00:02:46.100 Alastair Thrush Muscle tightness and and soft tissue tightness all the time. So how do I change that structure? How do I change that soft tissue structure? I will use a range of techniques.</p> <p>00:02:46.150 --&gt; 00:02:46.540 Alastair Thrush Uhm?</p>	<p>When the Research is Ambiguous</p> <p>Stretching research is contradictory.</p> <p>Range of Techniques</p>
<p><b>Beliefs around changing soft tissue tightness</b></p> <p><b>Experiential Knowledge</b> <b>Tops Training</b></p> <p><b>Use PNF stretching</b></p>	<p>00:02:47.870 --&gt; 00:02:59.740 Alastair Thrush Trigger point release dry needling but I will sometimes try and employ some stretching techniques that might be sort of sort of passive assisted stretching.</p> <p>00:03:00.440 --&gt; 00:03:03.710 Alastair Thrush Uh, might be PNF stretching.</p>	

<p><b>Use of multiple stretching techniques adapted in clinical practice</b></p> <p><b>Navigating the Research in Practice</b></p> <p><b>Experiential Knowledge Tops Training</b></p> <p><b>Barriers to continued learning /. Keeping up with the evidence</b></p>	<p>00:03:04.490 --&gt; 00:03:22.680 Alastair Thrush Uh, and yeah, sometimes I'll give the the client some homework if you like to. To you know, for example in the calfs, for example, I will often get clients just to stand on a calf board, which I guess is is a passive static stretch. 00:03:23.570 --&gt; 00:03:34.440 Alastair Thrush Uh, you know and and use that to try and facilitate sort of elongating that that that issue. But the evidence, yeah, I'm I'm. I have to say, I'm I I. I don't keep up to date with it. I have to say.</p>	
<p><b>Stretching training Not a lot of stretching in training</b></p> <p><b>Barriers to practical training / learning</b></p> <p><b>Emphasis on specific elements of stretching</b></p>	<p>00:03:35.620 --&gt; 00:03:46.610 Gordon Teasdale And in your training, both in your sport and exercise science training and your physiotherapy training, if you can think back was there a good foundation education in stretching? 00:03:47.160 --&gt; 00:04:10.980 Alastair Thrush Yeah, I mean, I certainly. I mean, it's a long while ago now looking back at the sports sites I, I would say that we didn't do a lot with regards to, you know, stretching it was much more theoretical course than it was practical. We may have come across it's slightly when talking about the maybe the stretch reflexes and stuff, but in the in the physio degree again. 00:04:11.810 --&gt; 00:04:14.230 Alastair Thrush I, I wouldn't say we spent a lot of time on it now.</p>	

	<p>00:04:14.840 --&gt; 00:04:15.390  Gordon Teasdale  OK.</p>	
<p><b>Making it Work</b></p> <p><b>Treatment modalities adapted to when clients/patients attend clinic</b></p> <p><b>In clinic vs Home rehab Time as restrictor to therapy</b></p> <p><b>Making it Work</b></p> <p><b>Perceptions of what works in home rehab</b></p>	<p>00:04:16.380 --&gt; 00:04:31.570  Gordon Teasdale  That's interesting, and when you worked in the NHS, did you have an opportunity to employ stretching? Because that's quite different. I wouldn't work. In fact, is it very different to to private practice working in the NHS?  00:04:32.110 --&gt; 00:04:45.080  Alastair Thrush  Yeah, obviously within a NHS there's a <b>you tend to have less time with your client in between sessions</b>, so you know you. You'll see them for a session and invariably then you wouldn't see them again. Maybe for a couple of weeks.  00:04:45.610 --&gt; 00:05:06.320  Alastair Thrush  Uh, so yes, there would be a greater onus on them doing work outside of the the session. If you like homework, does it work? So yeah, we we do. Stretching a fair bit. You know in that because that's something that you know you feel the client can do easily at home with with limited equipment limited.  00:05:07.010 --&gt; 00:05:08.460  Alastair Thrush  Uh, you know needs.</p>	
	<p>00:05:09.050 --&gt; 00:05:16.720  Gordon Teasdale  Could you give me an example of a typical client that you would prescribe stretching for in the NHS?</p>	

<p><b>Stretch – edge of step – not supported by current research</b>  <b>Only knows he has been taught</b></p>	<p>00:05:18.870 --&gt; 00:05:22.940  Alastair Thrush  So probably you know.  00:05:24.150 --&gt; 00:05:25.460  Alastair Thrush  Uh.  00:05:27.150 --&gt; 00:05:41.290  Alastair Thrush  Now it's been. It's been a long time since I've been in the NHS by trying to think of some of the presentations. For example, if someone who's been in cast because of an ankle fracture, they need to stretch through their sort of posterior.  00:05:42.560 --&gt; 00:05:55.880  Alastair Thrush  Ankle calf you know I would probably give them some static stretches you know with you know, heels off the hanging off the edge of a step up or you know some simple calf stretching exercises.</p>	
<p><b>Perceptions/observations/ experience of what stretching does</b></p> <p><b>Perceptions of effect of stretching. Range vs Pain</b></p>	<p>00:05:56.850 --&gt; 00:06:00.760  Gordon Teasdale  So to relieve pain, increase range of motion.  00:06:00.360 --&gt; 00:06:04.120  Alastair Thrush  That might increase range of moment, increase range of movement really.  00:06:04.880 --&gt; 00:06:09.220  Gordon Teasdale  K is it primarily what what you you've used stretching for in their natures?  00:06:09.570 --&gt; 00:06:15.240  Alastair Thrush  Yeah, yeah, definitely. I think it's more of a range of movement thing than a than a pain thing for me personally.  00:06:15.770 --&gt; 00:06:20.790</p>	

<p><b>Focused use of stretching for particular population groups</b></p> <p><b>Experiential Learning Tops Training</b></p> <p><b>Increase range of movement</b></p>	<p>Gordon Teasdale OK, and does that apply the same in professional football and the other fields that you've worked in? 00:06:22.060 --&gt; 00:06:23.360 Alastair Thrush Uh, yeah I would. 00:06:24.050 --&gt; 00:06:24.790 Alastair Thrush Use it more. 00:06:24.880 --&gt; 00:06:25.490 Alastair Thrush Uhm? 00:06:26.790 --&gt; 00:06:36.810 Alastair Thrush In in in professional sport, yes. As a as a way of trying to increase range of movement, but in professional sport more so as well of way of perhaps. 00:06:37.360 --&gt; 00:06:43.890 Alastair Thrush A pre activating the you know the the the muscle units a little bit prior to exercise.</p>	
<p><b>Professional Identity</b></p> <p><b>Making it Work</b> <b>Not about mobility but about injury prevention</b></p> <p><b>Experiential Learning Tops Training</b></p>	<p>00:06:45.330 --&gt; 00:06:53.860 Gordon Teasdale That's interesting, and and when you're working with professional athletes, do you come? Is it of interest to you at all? How mobile they are? 00:06:54.980 --&gt; 00:06:59.020 Alastair Thrush Uhm, I tend to find that for me. 00:07:00.220 --&gt; 00:07:11.760 Alastair Thrush So it's been obviously working in professional athletes who you know for us, it's all about</p>	<p><b>Breadth of Client Exposure</b></p>



<p>Association of stretching to flexibility and/ or injury prevention</p> <p>No correlation between flexibility and risk of injury</p> <p>Influence of Practice</p> <p>Experiential Learning Tops Training</p> <p>Normative values not same as range of movement</p> <p>Do we need a change in the normative values?</p>	<p>trying to avoid injury, you know? And injury prevention strategies, and I've tended to find the actually.</p> <p>00:07:12.680 --&gt; 00:07:26.960</p> <p>Alastair Thrush</p> <p>There isn't a great correlation between flexibility and and risk of injury. You know I can have some of the players with some of the tightest hamstrings, for example, and you look at them on a either a sit and reach or a straight leg raise.</p> <p>00:07:27.580 --&gt; 00:07:54.100</p> <p>Alastair Thrush</p> <p>And you think, Oh my God, like you know, these are some of the tightest hamstrings I've ever seen yet that players never sustained a hamstring injury in their life. And yet some of the more flexible ones who's you know, range of movement, you would argue is is within, you know, normative values and one that you wouldn't say particularly tight are those that perhaps sometimes that are ones that are picking up the hamstring strains. So I, I wouldn't necessarily say that there's a correlation for me between flexibility and.</p> <p>00:07:54.720 --&gt; 00:07:55.420</p> <p>Alastair Thrush</p> <p>Uh.</p> <p>00:07:56.850 --&gt; 00:07:57.450</p> <p>Alastair Thrush</p> <p>Injury</p>	
	<p>00:07:59.270 --&gt; 00:08:00.200</p> <p>Gordon Teasdale</p> <p>So it's interesting.</p> <p>00:08:00.920 --&gt; 00:08:09.660</p> <p>Gordon Teasdale</p>	

<p><b>Professional Identity</b></p> <p><b>Assumptions – hyper mobility, extremes of range, soft tissue damage</b></p> <p><b>Implications of effects of stretching</b></p>	<p>And and but equally, would you say that there is a correlation? Or would you say there's no correlation between someone who is over maybe more flexible in injury?  00:08:10.200 --&gt; 00:08:31.510  Alastair Thrush  yeah, so hyper mobility I guess. I think there probably isn't more susceptibility to injury with the hyper mobility. Just because you don't have that sort of, you know. Same same level of control exhibited around around the joint and therefore it's much more likely that you're going to take it into the extremes of its range and therefore damaged some of the surrounding soft tissue structures ligaments.  00:08:32.720 --&gt; 00:08:43.710  Alastair Thrush  It cetera. So yeah, I think hypermobility. Perhaps there is a greater per say for for for injury, but again, I I'm being up to date with the research in that side of it. I have to say.</p>	
	<p>00:08:43.990 --&gt; 00:08:50.910  Gordon Teasdale  But I've got quite interested in in in your clinical experience basically or life experiences, 'cause this is quite I'm. I'm quite interested in.  00:08:51.680 --&gt; 00:09:00.110  Gordon Teasdale  And and just going back to the the professional sports people because you're the first person I'm interviewing is actually work with footballers at our high level.  00:09:01.050 --&gt; 00:09:16.050  Gordon Teasdale  So if you had two footballers, one that is</p>	

<p>Applications / uses of stretching</p> <p>Risk factors of injury – flexibility has no effect</p> <p>Experiential Knowledge Tops Training</p> <p>Personal views of individual mobility/flexibility in people</p> <p>Pelvis</p> <p>Control of movement</p> <p>Sagittal plane</p> <p>Coronal plane</p>	<p>relatively inflexible and one that is not hyper flexible but it's slightly more flexible, would you say they both have similar risk to injury? Or is one more at risk than the other?</p> <p>00:09:17.300 --&gt; 00:09:20.130 Alastair Thrush Uh, I think from a terms of if you're purely looking at.</p> <p>00:09:20.180 --&gt; 00:09:24.480 Alastair Thrush Flexibility, then they're probably the risk factor is going to be similar.</p> <p>00:09:24.910 --&gt; 00:09:28.630 Alastair Thrush Uh, in both individuals, it then comes down to other factors.</p> <p>00:09:29.030 --&gt; 00:09:43.730 Alastair Thrush Uh, you know, in terms of how well you know where does their pelvis sit? How well can they control their movements? You know in the sagittal plane coronal plane? You know there's other factors then. That sort of come come into it.</p>	
	<p>00:09:42.190 --&gt; 00:09:42.940 Gordon Teasdale Let's see.</p> <p>00:09:44.320 --&gt; 00:09:46.530 Gordon Teasdale OK, and uh.</p> <p>00:09:47.440 --&gt; 00:09:51.650 Gordon Teasdale Stretching with regards to UM.</p>	

<p>Stretching in relation to functional movement</p>	<p>00:10:16.210 --&gt; 00:10:16.590 Alastair Thrush You know? 00:10:16.680 --&gt; 00:10:17.390 Gordon Teasdale Just motion.</p>	
<p>Experiential Knowledge Tops Training</p>	<p>00:10:17.630 --&gt; 00:10:20.670 Alastair Thrush No, I mean you tend to find most of them you know, move horrendously.</p>	<p>Breadth of Exposure</p>
<p>Evolution of assessment techniques / learning what works Moved away from flexibility as basic to more about wider implications e.g. posterior chain in ankle, thoracic, spine and shoulder.</p>	<p>00:10:21.870 --&gt; 00:10:26.410 Alastair Thrush So yeah, we used to. I mean, initially when I started out, we usually the FMS. 00:10:27.070 --&gt; 00:10:38.070 Alastair Thrush Uh, obviously, which has the flexibility component to it, but then we started to move away from that a little bit more towards just a basic sort of overhead squat screen. 00:10:38.770 --&gt; 00:10:50.380 Alastair Thrush Uh, where you're looking there at sort of flexibility of of of in particular around the posterior chain in that ankle, but also thoracic, spine and shoulder. 00:10:51.400 --&gt; 00:10:52.030 Alastair Thrush Complex.</p>	<p>Creativity in Practice</p>
<p>Feedback cycle, testing / implications of test results (ROM) on injuries in the field</p>	<p>00:10:52.090 --&gt; 00:10:54.970 Alastair Thrush Uhm, and what we were finding? 00:10:55.800 --&gt; 00:10:57.700 Alastair Thrush Yeah again that those with poor. 00:10:58.610 --&gt; 00:11:14.320 Alastair Thrush You know movement patterns had an increased susceptibility to to to injury, so those who</p>	<p>Creativity in Practice</p>

	<p>weren't able to, you know, perform a good overhead squat pattern usually wear the ones that that that that were higher.  00:11:04.310 --&gt; 00:11:04.680  Gordon Teasdale  OK.  00:11:15.130 --&gt; 00:11:18.740  Alastair Thrush  A risk of injury across the season.  00:11:19.430 --&gt; 00:11:32.160</p>	
<p><b>Observation</b>      <b>in</b>      <b>the</b>  <b>population</b></p>	<p>Gordon Teasdale  And and would you say those that so the the UM, functional movement tests? Overhead squat is the full squad with arms overhead in line with the years kind of thing with the the touristics buying extended.  00:11:32.510 --&gt; 00:11:32.870  Alastair Thrush  Yep.  00:11:32.930 --&gt; 00:11:33.480  Gordon Teasdale  Uhm?  00:11:38.250 --&gt; 00:11:41.620  Gordon Teasdale  How many of your athletes could do the full squad just as a percentage?  00:11:42.020 --&gt; 00:11:42.430  Alastair Thrush  Off  00:11:43.810 --&gt; 00:11:47.750  Alastair Thrush  if you're if you're testing a squad set of 24, I would say.  00:11:49.360 --&gt; 00:12:00.310  Alastair Thrush  Uh, less than half of those would would would have a a squat pattern that you would be</p>	<p><b>Breadth of Client Exposure</b></p>

	<p>deemed as being sort of acceptable, and on the good side.  00:11:52.270 --&gt; 00:11:52.810</p>	
	<p>Gordon Teasdale  Interesting.  00:12:00.770 --&gt; 00:12:10.580  Gordon Teasdale  It's interesting so so if if if that correlates too high injury or higher potential risk of injury, just purely like a functional movement.  00:12:13.100 --&gt; 00:12:15.310  Gordon Teasdale  Is that something that is?  00:12:16.580 --&gt; 00:12:21.520  Gordon Teasdale  Being corrected amongst the athletes themselves, do they recognize that they have this movement problem?  00:12:18.350 --&gt; 00:12:18.670  Alastair Thrush  Yeah.</p>	
<p><b>Profile and test - designing rehab/corrective programs</b></p> <p><b>Corrective exercises</b></p>	<p>00:12:21.950 --&gt; 00:12:40.890  Alastair Thrush  Yeah, so off their movement profiling then we would. We would then put together, uh, you know, range of corrective exercises for them to work on to try and improve that that that movement screen. So invariably that would often include thoracic spine work.  00:12:41.230 --&gt; 00:12:45.360  Alastair Thrush  Uh ankle mobilization exercises.  00:12:45.860 --&gt; 00:12:47.890  Alastair Thrush  Uh, you know?</p>	<p><b>Breadth of Client Exposure</b></p>

<p><b>Active stretching movement</b></p>	<p>00:12:49.690 --&gt; 00:12:55.970  Alastair Thrush  Would it include? You know, I wouldn't. I wouldn't say that there was a lot of static stretching type movement. It would be more.  00:12:56.400 --&gt; 00:13:01.000  Alastair Thrush  Uh, sort of active active stretching type movements.  00:13:01.610 --&gt; 00:13:03.700  Alastair Thrush  Uh, you know for that?  00:13:05.020 --&gt; 00:13:11.900</p>	
<p><b>Adherence to exercises and stretching – pretty good</b></p> <p><b>Client session periodicity affects on stretching / treatment</b></p> <p><b>Reliance on client's feedback re exercises and stretching</b></p>	<p>Gordon Teasdale  Perfect 'cause that leads me on to my next question, which I'm really interested in is do you find that?  00:13:13.620 --&gt; 00:13:25.430  Gordon Teasdale  Stretches or the exercises you give to your clients or your athletes? Do they adhere to them what? What is their response specifically with regards stretching compared to, say, strength exercises?  00:13:26.320 --&gt; 00:13:44.990  Alastair Thrush  Yeah, I think the the professional athletes to be fair with pretty good. I have to say so they they. They used to do their mobility exercises. You know fairly regularly. You know most days prior to training they would be in the gym. You know doing them ability circuit their mobility.  00:13:45.080 --&gt; 00:13:51.650  Alastair Thrush  Uhm drills, uh, for the general client.  00:13:52.540 --&gt; 00:14:06.420  Alastair Thrush</p>	<p><b>Breadth of Client Exposure</b></p>

<p>Stretching is boring / monotonous</p> <p>Stretching is deleterious</p>	<p>Uh, it's difficult to say because you don't see them obviously as much, so you're you're relying on them telling you, but invariably they're not as good in terms of of adherence to to the programs in general, whether that be stretching or strengthening. 00:14:06.810 --&gt; 00:14:26.690 Alastair Thrush Uh, but I do think a lot of people find stretching quite boring. Quite a you know, fairly monotonous and and actually because it often elicits you know a small degree of discomfort. You know you're taking your muscles into a range that could be classed as being. 00:14:27.100 --&gt; 00:14:30.020 Alastair Thrush Uh, you know nociceptive and and and so. 00:14:30.780 --&gt; 00:14:33.440 Alastair Thrush Uh, you know, people don't like to be. 00:14:34.300 --&gt; 00:14:39.840 Alastair Thrush Putting themselves into those positions so 10 then not to perhaps perseverance and adhere to to them. 00:14:42.270 --&gt; 00:14:43.080</p>	
	<p style="text-align: center;">Gordon Teasdale</p> <p>Very interesting.</p> <p>00:14:43.650 --&gt; 00:14:54.700 Gordon Teasdale Uhm, and you've seen. I mean, you've been in practice for many years now, so you've seen quite a range of clients. Southern Hemisphere, Northern hemisphere athlete and and within the NHS.</p>	



<p><b>Physical literacy</b></p> <p><b>Physical education in schools – not enough</b></p> <p><b>Experiential Knowledge Tops Training</b></p> <p><b>Social constraints / baneful effect on movement</b></p>	<p>00:14:55.630 --&gt; 00:15:03.750  Gordon Teasdale  Would you just how would you describe those populations in terms of just their general mobility? The ability to move and.</p> <p>00:15:04.990 --&gt; 00:15:05.850  Gordon Teasdale  Move freely.</p> <p>00:15:05.300 --&gt; 00:15:05.740  Alastair Thrush  Yeah.</p> <p>00:15:06.660 --&gt; 00:15:07.950  Alastair Thrush  I I think we have very poor.</p> <p>00:15:08.430 --&gt; 00:15:10.530  Alastair Thrush  Uh, you know movement.</p> <p>00:15:11.150 --&gt; 00:15:41.940  Alastair Thrush  Uh, patterning in in in this country. I have to say uh and and my feeling is that that comes very much from the early ages and and you know the fact now that the the, you know the PE curriculum in the schools is not. I don't think anything like as good as it used to be. There's not enough time given to <b>physical literacy</b> in the in the in the school curriculum so that you know when individuals are going through those really important.</p> <p>00:15:42.000 --&gt; 00:15:43.430  Alastair Thrush  Phases of our lesson growth.</p> <p>00:15:44.130 --&gt; 00:15:59.140  Alastair Thrush  Actually there that we're doing nothing to to either maintain or or try and improve their movement. Competence is so, you know you might have, you know you have a child age of</p>	
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	<p>12 and I see it with my own children that you know.  00:15:59.740 --&gt; 00:16:00.580  Alastair Thrush  A year ago.  00:16:01.390 --&gt; 00:16:15.870</p>	
<p><b>Experiential Knowledge Tops Training Personal acceptance of inevitable change /</b></p> <p><b>Justification of current state of immobility</b></p> <p><b>Loss of mobility as we age</b></p> <p><b>Lack of functional movement in education</b></p> <p><b>Experiential Knowledge Tops Training</b></p> <p><b>Accepting subordinate state</b></p> <p><b>Token stretching before playing sport</b></p> <p><b>Setting plays a role in prioritising stretching</b></p> <p><b>Time sacrifice – optimising time/training</b></p>	<p>Alastair Thrush  You know my oldest used to be able to touch his toes no problem, and now he's nowhere near them just because he's shot in growth and and you know. And it and it, it's really interesting that that yeah, we're not probably spending enough time on those fundamental movement patterns.  00:16:16.700 --&gt; 00:16:21.320  Alastair Thrush  It within the school PE program and probably you know equally.  00:16:22.060 --&gt; 00:16:52.010  Alastair Thrush  Uh, guilty probably a bit. You know. We in the sports setting, you know when they play their football and the weekends, you know they don't tend to spend a lot of time doing mobility WOD classes. Sort of mobility work. You know, the warm up tends to be a few drills obviously just to get things moving. The heart rate up and and a few a few sort of token stretches I think at the professional level and in these sort of professional Academy level, I think it's a lot different. I think there is a lot better focus.  00:16:52.620 --&gt; 00:17:00.390  Alastair Thrush  Now on movement profiling and and and you know, especially in the in the youth development phase.  00:17:00.970 --&gt; 00:17:23.090</p>	<p><b>Breadth of Client Exposure</b></p>

	<p>Alastair Thrush</p> <p>Uh, across the Academy setups and that's all come through with this sort of elite player performance plan, the triple P, whereby now we're starting to realize that one corner of that is, you know that there's a four corner model to the professional football, physical, technical, tactical, and and psychological, and in that physical.</p> <p>00:17:24.030 --&gt; 00:17:32.190 Alastair Thrush Side, you know that that's very much to do with. You know how well that individual moves in their physical profiling.</p> <p>00:17:30.970 --&gt; 00:17:31.300 Gordon Teasdale Richard 00:17:32.300 --&gt; 00:17:40.360</p>	
<p><b>If it works in professional sport</b></p> <p><b>Innovative training</b></p>	<p>Gordon Teasdale could you give me an example of what they would do to optimize the the we have been profiled exercises or?</p> <p>00:17:40.850 --&gt; 00:17:56.530 Alastair Thrush So lots of what we do, lots of exercises, for example with broom handles you know with her flexibility. So working through those squat</p>	

<p><b>Experiential Knowledge Tops Training</b></p> <p><b>Primal movement Functional movement</b></p>	<p>patterns with with with broomhandles would just do lots of exercises and games. 00:17:41.530 --&gt; 00:17:42.440 Gordon Teasdale It doesn't appear. 00:17:56.940 --&gt; 00:17:58.730 Alastair Thrush Uh, whereby? 00:17:59.440 --&gt; 00:18:13.270 Alastair Thrush You know we'd be trying to utilize the <b>movements of crawling and rolling up.</b> We would be doing hurdle drills. You know where you're having to go over and under hurdles. 00:18:13.660 --&gt; 00:18:19.590 Alastair Thrush Uh, we would be doing <b>some of the animal flow type movement patterning.</b> 00:18:20.180 --&gt; 00:18:27.030 Alastair Thrush Uh, I don't know if you ever seen this sort of animal flow so and animal flow is a.</p>	<p><b>Creativity Practice</b>      <b>in</b></p>
<p><b>Experiential Knowledge Tops Training</b></p> <p><b>Applying a higher standard of flexibility to population (academy players) but does not apply to general population?</b></p>	<p>Gordon Teasdale No. 00:18:27.710 --&gt; 00:18:32.710 Alastair Thrush A concept like I can't remember who came up with the concept, but it's trying to. 00:18:33.670 --&gt; 00:18:48.920 Alastair Thrush Follow you know the primates and the and the and the sort of animal world in in their sort of movement patterns and and take it back to us. So it's a lot of. For example, crouching right down on your knees, and if I'll. 00:18:49.920 --&gt; 00:18:51.150 Alastair Thrush He probably won't be able to see,</p>	<p><b>Creativity Practice</b>      <b>in</b></p> <p><b>Breadth of Client Exposure</b></p>

<p><b>Perceptions of what works</b></p>	<p>00:18:52.600 --&gt; 00:19:09.880  Alastair Thrush  So well, but you know, crouching down like you know, like you see a primate and just and just working on sort of patterns of of kind of movement. You know working on, you know getting the the hips and shoulders and and bits moving. So we do a lot of that within the Academy football.</p> <p>00:18:56.520 --&gt; 00:18:57.170  Gordon Teasdale  Yeah.</p> <p>00:19:10.330 --&gt; 00:19:11.240  Alastair Thrush  Uh.</p> <p>00:19:11.340 --&gt; 00:19:12.260  Gordon Teasdale  It's fascinating.</p> <p>00:19:12.080 --&gt; 00:19:12.900  Alastair Thrush  You know setting.</p> <p>00:19:13.410 --&gt; 00:19:16.320  Gordon Teasdale  So it's it's, it seems more.</p> <p>00:19:17.320 --&gt; 00:19:21.460  Gordon Teasdale  Dynamic than opposed to just static or passive stretching.</p> <p>00:19:20.600 --&gt; 00:19:24.410  Alastair Thrush  Oh yeah, yeah, absolutely yeah, it's all dynamic. Yeah, yeah.</p> <p>00:19:24.850 --&gt; 00:19:28.290</p>	
	<p>Gordon Teasdale  Do you do any passive or active stretching?  00:19:29.210 --&gt; 00:19:32.540  Alastair Thrush</p>	

<p><b>limitations knowledge/experience applied to practice</b></p>	<p><b>in</b></p> <p>Not not a lot. Not a lot of passive. Yeah, not a lot of passive. 00:19:29.560 --&gt; 00:19:31.040 Gordon Teasdale But this activity. 00:19:33.570 --&gt; 00:19:35.110 Gordon Teasdale OK, that's really interesting. 00:19:35.110 --&gt; 00:19:41.160 Alastair Thrush The only passive stretch I tend to give is for my is for my Calfs. 00:19:41.850 --&gt; 00:19:44.830 Alastair Thrush Where are you? I get them to stand on the calfboard. 00:19:45.570 --&gt; 00:19:47.380 Alastair Thrush Uh, because I find that it's. 00:19:48.370 --&gt; 00:20:13.080 Alastair Thrush It's a really good way of just trying to get sustained stretch twice. They can do other stuff, so it might be that they're making their breakfast, but they'll do it standing on the cardboard and and and often in kids you know it's very hard to get a kid to stand against the wall and and and do a calf stretch, you know, so it's a way for me to try and get them to do it whilst they're taking their mind off it with other things so, but that's probably the only. 00:19:55.570 --&gt; 00:19:55.980 Gordon Teasdale Yeah. 00:20:04.680 --&gt; 00:20:05.060 Gordon Teasdale Yeah. 00:20:13.730 --&gt; 00:20:18.960 Alastair Thrush</p>	
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	<p>Static stretch I give. I don't tend to give passive stretches for the hamstring anymore.  00:20:19.320 --&gt; 00:20:23.310  Alastair Thrush  Uh, yeah, I I I, I just try and do everything more active.  00:20:23.980 --&gt; 00:20:24.390  Gordon Teasdale  And.  00:20:25.500 --&gt; 00:20:32.710</p>	
<p><b>Professional Identity</b></p> <p><b>Targeted application</b></p> <p><b>Hopeful outcomes</b></p>	<p>Gordon Teasdale  What do you see as the outcome as your your youth players progress with these functional movements do? Do you see them?  00:20:33.500 --&gt; 00:20:36.730  Gordon Teasdale  Uh, becoming faster stronger.  00:20:36.950 --&gt; 00:21:06.960  Alastair Thrush  Well, I think it it it it it would, it would hopefully translate to them becoming faster 'cause they've got a better range. Say for example at the hip. If you've got a better range of movement of which to you know to propel, to propel from from from a flex to extended position, I think that's gonna that's gonna result in improvements in your in your speed profile.  And then from a strength perspective yeah what what you then hoping is that when we come to adding load into their strength programs.  00:21:07.250 --&gt; 00:21:16.770  Alastair Thrush  using, you know, we often use your fundamental Olympic lifts that that they've then got the flexibility to be able to, to, you know, perform those lifts and therefore.</p>	<p><b>Practice Confidence</b></p>

<p><b>Experiential Learning Tops Training</b></p> <p><b>Influence of clinician community on practice</b>  <b>Preference for gaining knowledge from other clinicians rather than literature</b></p> <p><b>External thinker!</b>  <b>Clinical application seen as more important and relevant than literature</b></p>	<p>00:21:17.190 --&gt; 00:21:19.750  Alastair Thrush  Uh, you know, strengthen appropriately.  00:21:20.730 --&gt; 00:21:28.000  Gordon Teasdale  And have you found these techniques? Did you draw it from research or did you develop this through your own experience in practice?  00:21:28.930 --&gt; 00:21:29.610  Alastair Thrush  Uh.  00:21:30.870 --&gt; 00:21:50.890  Alastair Thrush  Little bit of both, I think. Just picking up off other clinicians very much. So I say I haven't. I have to say I haven't delved into the literature much on on stretching. We say we we had a couple of externals come in say one on that animal flow and then we also had Kelly.  00:21:51.990 --&gt; 00:21:53.420  Alastair Thrush</p>	<p><b>Creativity Practice</b>      <b>in</b></p>
<p><b>New / pioneering training system</b></p> <p><b>External influences</b></p>	<p>Uh, is it Kelly Starmer?  00:21:54.640 --&gt; 00:21:55.850  Alastair Thrush  Trying to think of a name now.  00:21:56.720 --&gt; 00:22:13.970  Alastair Thrush  Uh, I think it's Kelly Starmer come in and do some of his stretching work with us, which was interesting because he you know he talks very much about again the animal world and how, for example, you know when you watched the big cats.  00:22:15.410 --&gt; 00:22:23.000  Alastair Thrush</p>	<p><b>Creativity Practice</b>      <b>in</b></p>
<p><b>Drawing inspiration from the animal world</b></p>	<p>Uh, you know who's invariably are very lazy. For you know 95% of their day.  00:22:24.070 --&gt; 00:22:27.630  Alastair Thrush</p>	



	<p>Yeah, for that 5% at a time when they're actually on the hunt.  00:22:28.350 --&gt; 00:22:58.340  Alastair Thrush  You know they they won't limber up and and do stretches and and and you know get themselves or they're both they're gone and and they would just explode into into movement top speed without any sort of warm up or stretch. And yet they don't seem to be coming off with any sort of, you know, they don't pull up our way through going already, and that was a bit that was a bit sore, so you know what can we learn from the from the animal world? And I noticed fundamental differences. Now that we've come up onto 2 legs, you know, I think that's a big change for us, is that?  00:22:34.980 --&gt; 00:22:35.340</p>	
<p><b>Time constraints driving/precipitating treatment/rehab/training design</b></p>	<p>Gordon Teasdale  Yeah.  00:22:56.430 --&gt; 00:22:56.690  Gordon Teasdale  Yeah.  00:22:58.430 --&gt; 00:23:16.120  Alastair Thrush  You know we've gone from four to two where they're all still on four, but yeah, just it was interesting to sort of look at that concept of stretching and the the big thing that I would love to do it and and and I and I can never see it happening but but I look at professional football.  00:23:17.040 --&gt; 00:23:18.150  Alastair Thrush  And I see.</p>	<p><b>Constraints to Practice</b></p> <p><b>Making it Work</b></p>

<p><b>The bigger picture</b></p>	<p>00:23:18.570 --&gt; 00:23:25.550 Alastair Thrush</p>	
	<p>Uh, you know there's a lot of talk about the loading of players in professional football, and obviously the the the.</p>	
<p><b>Specificity to professional sport</b></p>	<p>00:23:27.190 --&gt; 00:23:35.030 Alastair Thrush</p>	
	<p>This the fixture schedule is is very demanding. You know on these players you know. Often playing two games a week.</p>	
	<p>00:23:35.560 --&gt; 00:23:47.250 Alastair Thrush</p>	
	<p>Uh, but yet in a 90 minute game of football we talk about, you know how much they've worked in that 90 minute game, but often what we don't consider they they've already been out there for 45 minutes before the game warming up.</p>	<p><b>Constraints to Practice</b></p>
	<p>00:23:48.390 --&gt; 00:23:51.960 Alastair Thrush</p>	
	<p>And I and I'd love to take a a A team.</p>	
	<p>00:23:52.930 --&gt; 00:23:54.090 Alastair Thrush</p>	
	<p>That didn't do any.</p>	<p><b>Constraints to Practice</b></p>
	<p>00:23:54.690 --&gt; 00:23:55.180 Alastair Thrush</p>	
	<p>Warmup.</p>	
	<p>00:23:56.540 --&gt; 00:24:19.910 Alastair Thrush</p>	
	<p>As such, to and and to see whether there's any change in their in their injury rates throughout the season when there's no. Now, of course, I think you you know you're part of the warm up serves to get a feel for the pitch to get a feel for the environment that the temperature you know and and obviously as well. Yes, you'd need a bit of a pulse raiser, I think.</p>	

	<p>00:23:57.160 --&gt; 00:23:57.980  Gordon Teasdale  Very interesting.  00:24:20.570 --&gt; 00:24:33.060</p>	
<p><b>Going through the motions</b>  <b>Losing benefit from warm up</b></p>	<p>Alastair Thrush  But again, it very what you tend to do. Your warm up and then you go and sit back in the changing room for 10 minutes and and you're thinking, well, actually have you just lost all the benefit of that warm up and you know now you'll see.  00:24:33.630 --&gt; 00:24:43.800  Alastair Thrush  Uh teams when they come out they will do little potentiation things, won't they? Just literally, just before they go on the pitch and you know. And it's so, so really interesting concept and you know, and you know.  00:24:44.440 --&gt; 00:24:46.810  Alastair Thrush  So you know the the the the, the the the the.  00:24:46.860 --&gt; 00:24:48.330  Alastair Thrush  The UM?  00:24:48.960 --&gt; 00:24:58.440  Alastair Thrush  The function of a warm up and and and the and the sort of involvement of stretching within that and and are we are we actually overcooking the warm up? How much do we actually need it?  00:24:58.970 --&gt; 00:25:11.240  Alastair Thrush  Uh, and I say it would be really, really interesting experiment, but I can't ever see it happening because you know, too many people. You know, the the the warmups just part of their psyche and you know to tell some.</p>	<p><b>Constraints to Practice</b></p> <p><b>Player Rituals Practice Confidence</b></p>
<p><b>Applied potential?</b></p> <p><b>research</b></p> <p><b>Questioning need for warm up</b></p> <p><b>Warmups and placebo</b></p>		

<p>Prevalence of injury rates in football unchanged</p> <p>Warm up = getting pulse up a bit</p> <p>No longitudinal difference in injuries for footballers</p> <p>New tech unaffacting injury rates</p>	<p>00:25:10.270 --&gt; 00:25:16.350 Gordon Teasdale If my teammate this week? Oh yeah, for some players it's a perceive oh I need to do this this and this and that. And then I'll play well. 00:25:14.740 --&gt; 00:25:15.260 Alastair Thrush Yeah. 00:25:16.620 --&gt; 00:25:23.140 Alastair Thrush Yeah, exactly and and and yet it might have absolutely no impact on it at all, but it would be a great experiment. I think to take a team, you know. 00:25:23.640 --&gt; 00:25:53.460 Alastair Thrush I would you know without any warm up at all, or or literally just come on and and just do a quick couple of you know couple of strides up and down just to just to get the pulse up a bit. But you know, but none of those typical stretching and number typical activation work and see see how that related to the to the injuries across the season. Football is in a really interesting predicament because you know for years now we've not really had a change in the in the prevalence of of injury rates in football. They they they've been. 00:25:38.780 --&gt; 00:25:39.240 Gordon Teasdale I agree. 00:25:53.560 --&gt; 00:26:01.610 Alastair Thrush They've not been getting any better, uh, hamstring rates in in in football. Hamstring injuries are still very, very high. 00:26:02.380 --&gt; 00:26:13.890 Alastair Thrush</p>	<p>Constraints to Practice</p>

	<p>Yet with all this technology with the GPS with all the expertise and everything at our disposal, we still haven't really been able to decrease rates.</p> <p>00:26:14.380 --&gt; 00:26:17.540</p> <p>Alastair Thrush</p> <p>Uh of hamstring injury within football?</p>	
<p><b>Developing Professional Identity</b></p>	<p>00:26:16.910 --&gt; 00:26:20.470</p> <p>Gordon Teasdale</p> <p>Is it the most prevalent injury, hamstring and groin?</p> <p>00:26:21.010 --&gt; 00:26:22.540</p> <p>Alastair Thrush</p> <p>Yeah, hamstring and calf.</p> <p>00:26:22.880 --&gt; 00:26:25.180</p> <p>Gordon Teasdale</p> <p>Hamstring and calf and is this?</p> <p>00:26:24.090 --&gt; 00:26:32.440</p> <p>Alastair Thrush</p> <p>Calfs#2 calf number one. Well, concussions number one in rugby calf is their number one muscle injury in rugby.</p> <p>00:26:33.520 --&gt; 00:26:34.540</p> <p>Alastair Thrush</p> <p>Number two in football.</p>	
<p><b>Barriers to client education</b></p>	<p>00:26:35.260 --&gt; 00:26:50.300</p> <p>Gordon Teasdale</p> <p>Or two football? And is this in players that again I'm? I've got no experience professional footballs, but is this in players that undergo regular hamstring conditioning things like Nordic curls ridges or it's.</p> <p>00:26:49.410 --&gt; 00:27:00.110</p> <p>Alastair Thrush</p> <p>Yes, Yep, so again you know that forms part of</p>	<p><b>Challenging Orthodoxy</b></p> <p><b>Player Superstition</b></p>

<p><b>Co-founding variables.</b>  <b>Superstition - Experience from professional practice</b></p>	<p>the continuing, you know injury prevention cycle if you like so they would be doing.  00:27:00.720 --&gt; 00:27:12.570  Alastair Thrush  Uh, those exercises. As with the rest of the squad, although again, you talk about sort of, you know, <b>superstitions</b> and things you will always get some players who would argue that I'm not doing Nordics because.  00:27:13.200 --&gt; 00:27:23.590  Alastair Thrush</p>	<p><b>Breadth of Client Exposure</b></p>
<p><b>Barriers to client education</b></p> <p><b>Developing Professional Identity</b></p> <p><b>Practice Confidence</b>  <b>Resistance to change</b></p> <p><b>Resistance to change in professional sport</b></p>	<p>That caused me to have an injury two years ago and we would try and educate them, otherwise they won't do them. And of course, you're the problem with football is you're very.  00:27:24.960 --&gt; 00:27:46.470  Alastair Thrush  I always found when I worked in professional football you have to be very very brave to change something in football because as soon as you change something if then that leads to an increase injury or something happens off the back of it or fingers get pointed back at you for that change. So it's a you, you, you've gotta tread very carefully with it, which is often not the right way about it, but.  00:27:38.900 --&gt; 00:27:39.140</p>	<p><b>Challenging Orthodoxy</b></p>
<p><b>Still getting injured despite XX</b></p> <p><b>Prevention exercises</b></p>	<p>Gordon Teasdale</p> <p>Hey.</p> <p>00:27:47.430 --&gt; 00:27:57.890  Alastair Thrush  Uh, but invariably yes, those individuals that are sustaining the hamstring injuries as a still doing all the other, you know, prevention exercises that the rest of this quarter doing.</p>	

<p><b>Experiential Knowledge Tops Training</b></p> <p><b>Psychological aspect Body mind connection</b></p> <p><b>Psychological aspect to injury</b></p>	<p>00:27:56.350 --&gt; 00:27:57.670 Gordon Teasdale As other structures. 00:27:58.260 --&gt; 00:28:01.380 Gordon Teasdale As well as the functional movements that you've described. 00:28:01.770 --&gt; 00:28:02.140 Alastair Thrush Yeah. 00:28:02.560 --&gt; 00:28:03.370 Gordon Teasdale Interesting. 00:28:03.850 --&gt; 00:28:05.660 Alastair Thrush But but I think you know there's very much. 00:28:06.100 --&gt; 00:28:36.020 Alastair Thrush Uh, the more I see in football and more, I think that there's a a sort of psychological aspect to injury as well. I think if you've got a heightened anxiety that for whatever reason that I don't have the the the the sort of of the Physiology behind it. But almost like your body is slightly more tense than normals. Now be that a a bigger game in a bigger occasion you're playing in front of a big crowd or it's your first game back, or it's. 00:28:36.340 --&gt; 00:28:41.010 Alastair Thrush Something you're playing out of position or something where there's a little bit of an extra. 00:28:41.650 --&gt; 00:28:46.810 Alastair Thrush Psychological component and sometimes find that that might just be the little thing that tips them.</p>	
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	<p>00:28:47.410 --&gt; 00:28:48.080  Alastair Thrush  Over the edge.  00:28:48.200 --&gt; 00:28:48.620  Gordon Teasdale  Saying  00:28:49.780                    --&gt;                    00:28:58.750</p>	
<p>Musculoskeletal health and growing adolescents</p> <p>Should be part of education curriculum</p> <p>Physical education in schools</p> <p>The way PE is taught</p> <p>Experiential Knowledge Tops Training</p> <p>Experiential Knowledge Tops Training School teachers don't understand functional movement</p> <p>Non specialist teaching movement</p>	<p>Gordon Teasdale  and if I can ask them just a little bit about you being a dad with kids and you watching your kids move 'cause you mentioned that your your son touching his toes.  00:29:01.210 --&gt; 00:29:02.670  Gordon Teasdale  Do you, UM?  00:29:03.290 --&gt; 00:29:11.430  Gordon Teasdale  Feel that stretching has a role to play in in developing kids. Certainly in this country, maintaining healthy ranges of movement.  00:29:11.880 --&gt; 00:29:42.480  Alastair Thrush  Hey absolutely it should. Yeah absolutely. And they should be, you know, for me this should be forming the fundamental curriculum of physical education. PE within the school you know. But but doing it in a way that's fun and engaging and that's the that's the key. And and but you can. You can do that. And they say some of those animals, you know the the animal movements a great way of engaging kids into behaving like primates and getting them to roll and crawl. And everything like that. And they don't realize that what they're doing, they actually, they're they're. They're actually taking themselves integrate.</p>	



<p><b>Physical literacy</b></p>	<p>00:29:42.760 --&gt; 00:30:00.490  Alastair Thrush  Movement patterns here, but unfortunately I mean my wife said primary school teacher she would never clue. She would never clue about fundamental movement patterns. You know, she might be teaching them to sort of catch a ball and throw a ball, but I think we need specialists, you know, going into the schools.  00:30:01.290 --&gt; 00:30:23.510  Alastair Thrush  In these positions to to teach physical literacy and at the end of the day, physical education should be as much in the in the education side of it as it should. About, you know. Actually just running around the playground. Yes, of course. You know we need to be running around and and but the but the children have lots of time for that in in free play as and I'm talking particularly at the at the primary school level.  00:30:19.890 --&gt; 00:30:20.330</p>	
<p><b>Curriculum omissions in early education</b></p> <p><b>Long term effect of poor physical literacy</b></p> <p><b>Experiential Learning Tops Training</b></p>	<p>Gordon Teasdale  In  00:30:23.890 --&gt; 00:30:29.930  Alastair Thrush  Uh, where I do think that the the PE has been cut hugely in the curriculum.  00:30:30.570 --&gt; 00:30:37.420  Alastair Thrush  Yeah, and I know that that you know my my kids now at hardly getting any PE in the week and that really that really frustrates me.  00:30:37.830 --&gt; 00:31:01.520  Alastair Thrush  Uh, because I I think you know our young children are only going to be the poorer for it when they when they grow up and it's going to cause more problems. You know,</p>	

<p><b>Obesity and poor underlying health</b></p>	<p>musculoskeletal problems you know, and here we are. You know a country that that's the set with with obesity and and and poor underlying health. I mean, you know I I have to say I think one of the reasons why. 00:31:02.200 --&gt; 00:31:05.480</p>	
<p><b>Pandemic and UK health</b></p>	<p>Alastair Thrush We as a country perhaps haven't fared so well in this pandemic. 00:31:06.290 --&gt; 00:31:12.210 Alastair Thrush It is one of the big factors for me is that we have a, uh, inherently unhealthy population in this country. 00:31:12.690 --&gt; 00:31:15.730</p>	
<p><b>Making it Work</b></p>	<p>Alastair Thrush Uh, I think that, coupled with the fact that we're so. 00:31:16.000 --&gt; 00:31:20.090</p>	
<p><b>Movement /pandemic / UK Travel hub</b></p>	<p>Alastair Thrush Uh, congested in this country where we we live on top of each other. 00:31:20.380 --&gt; 00:31:51.630</p>	
<p><b>Priorities / resources / health</b></p>	<p>Alastair Thrush Uh, you know. Plus the fact that we were big international, you know, travel hub, those three factors combining is is probably a reason why, you know, we haven't fared as well as some other countries and they and and and therefore sometimes it's hard to to make direct comparisons between countries because there's so many different factors involved. But but I think the health of this nation is a big, big big big underlying problem, and and I'm hoping you know that the government are gonna throw a bit of money into this now going forward and it's one of the areas of.</p>	
<p><b>Making it Work</b></p> <p><b>Non specialist teaching movement</b></p>	<p>00:31:52.150 --&gt; 00:32:14.420</p>	

<p><b>Inadequate training</b></p> <p><b>Inappropriately targeting interventions</b></p>	<p>Alastair Thrush  Of research, I'd like to try and do a bit more of here at Kent. Is looking at trying to, you know, establish a a better you know almost physical education program within the schools or or at least see what they're doing at the moment because they say, I think it's certainly most primary schools when, where, where really, you're just getting the class teacher to take the the PE.  00:32:15.440 --&gt; 00:32:31.940  Alastair Thrush  But they don't really know what they're doing. They may have been on a a short day or Two's course, but but invariably, like my wife, they don't really know what they're what they're doing in the in the lesson you know, and I think it's an area that needs big improvement.  00:32:27.010 --&gt; 00:32:27.390  Gordon Teasdale  Yeah.  00:32:32.470 --&gt; 00:32:35.660</p>	
<p><b>Modern/cultural influence on movement/posture</b></p>	<p>Gordon Teasdale  I want to explore just a little bit you. You were saying that.  00:32:36.750 --&gt; 00:32:44.880  Gordon Teasdale  You know we're heading towards muscular skeletal problems with our youngsters. UM, can just expand on that. Well, why do you believe on consequences?  00:32:45.200 --&gt; 00:33:14.790  Alastair Thrush  What a big thing for me is is the is the fact that we're sitting on that. They're sitting on the computers all day, so you know and and again I</p>	

	<p>I get so frustrated with my boys you know, because over the weekend you know, I I, I looked on because you know we can track it on the phone and I think my boys spent 8 hours or on on on either Saturday or Sunday on on his console 8 hours and I was flabbergasted by this and part of me is shocked and and and embarrassed. There's apparent that I've allowed that.</p> <p>00:33:15.180 --&gt; 00:33:22.300</p> <p>Alastair Thrush</p> <p>But you just end up doing your own thing and and carrying, you know, doing what you're doing. It's almost lazy parenting, but you know you think of.</p> <p>00:33:21.440 --&gt; 00:33:23.640</p>	
<p><b>Body control</b></p> <p><b>Modern/cultural influence on movement/posture</b></p> <p><b>Experiential Learning Topics Training</b></p> <p><b>Digital culture</b></p>	<p>Gordon Teasdale</p> <p>I've got two kids myself, so Yep, I know what it's like.</p> <p>00:33:23.260 --&gt; 00:33:51.810</p> <p>Alastair Thrush</p> <p>Yeah, you think of the, you know, the musculoskeletal consequences of being hunched over that control panel, thoracic spine, you know. Anterior chest, you know, and then multiply that by however many years texting always on our phones, you know. So I think you know muscle skeletal wise. We haven't yet seen the effects of this because you know, in essence, we're only talking. Probably about the last 15 years. I don't think we've it's yet caught up with us.</p> <p>00:33:52.260 --&gt; 00:34:22.710</p> <p>Alastair Thrush</p> <p>Uh, into into what we're seeing in clinical practice, but it but it will. And and and I know that my kids are by no means the worst that you know, there's going to be ones out there</p>	

<p><b>Modern/cultural influence on movement/posture</b></p>	<p>that are worse than mine and spend more time on it than mine. So that's a big problem for me as well. The the digital culture aged where we're playing we're playing less where we you know and and then again. I guess there's the the you know, we're we're we're wrapping our kids more in cotton wool these days you know we're not allowing them to go to the park. 00:34:22.760 --&gt; 00:34:41.370</p>	
<p><b>Free Play</b></p>	<p>Alastair Thrush By themselves, perhaps where you and I might have been allowed to go to the park at 12 years old or whatever. Now we're saying. Well, no, we don't want you going to the park by yourself, you know. Or OK with Dad, can you come with me or no? Actually, I've got to do this. Sorry son, you gotta play by yourself. You know, I think it's. 00:34:42.320 --&gt; 00:35:12.160</p>	
<p><b>Poor static postures</b></p>	<p>Alastair Thrush It it it's? Yeah whereas before 20 years ago or so I think children were engaged in much more free play activities. Or, you know, outside of school and at home. Now there there's less free play because we're curtailing their imagination and free play because of data. No risk of danger and fear of of danger. And we also you know that there there's this push towards them being on on consoles and and things where they're just adopting. 00:34:50.370 --&gt; 00:34:50.900</p> <p>Gordon Teasdale</p> <p>Yeah.</p> <p>00:35:12.700 --&gt; 00:35:15.460 Alastair Thrush Poor static postures for long hours of the day.</p>	

	00:35:16.940 --> 00:35:28.930	
	<p>Gordon Teasdale Your time in New Zealand compared to your time working here. Would you say there were any differences in terms of moving patterning amongst the young and the the, the the, the kind of clients who were exposed to? 00:35:29.740 --&gt; 00:35:30.160</p> <p>Gordon Teasdale There. 00:35:29.800 --&gt; 00:35:44.150</p> <p>Alastair Thrush Yeah, I mean, I think I definitely say as a nation. They were much more outdoor living nation so very much geared to outdoor activity. Outdoor pursuits, sport, you know, throughout you know. 00:35:44.380 --&gt; 00:35:50.350</p> <p>Alastair Thrush Uh, you know so and and I think you know that comes partly with. 00:35:50.950 --&gt; 00:35:58.500</p> <p>Alastair Thrush Climate, partly with facilities, partly with just the psyche of the of the country. You know, rugby's. Obviously there big sport. 00:35:58.990 --&gt; 00:36:18.200</p> <p>Alastair Thrush Uh, everybody plays rugby. Whatever age you are whatever body shape size you are, you're involved in it somehow. Now don't get me wrong there. Of course there's still a beast. People in in in New Zealand, especially amongst the the Marie population there. There can be some really big big people, but. 00:36:19.310 --&gt; 00:36:21.700</p> <p>Alastair Thrush But overall I'd say they have a greater.</p>	
<b>Outdoor pursuits</b>		
<b>Modern/cultural influence on movement/posture</b>		
<b>Experiential Learning Tops Training</b>		

<p><b>Modern/cultural influence on movement/posture</b></p>	<p>00:36:22.600 --&gt; 00:36:23.340 Alastair Thrush Uh. 00:36:24.390 --&gt; 00:36:38.620 Alastair Thrush You know, use of the outdoors. I I I always said to people. I see New Zealanders. England was sort of 30 years ago. You know they they are still in that sort of ability where there is <b>free play</b> where there is. 00:36:32.090 --&gt; 00:36:32.470 Gordon Teasdale So. 00:36:39.050 --&gt; 00:36:53.300 Alastair Thrush Uh, you know neighborhoods where kids just run around, create their own games, their own, take games, football in the part you know. Football in the street type environment, you know which, now say you're seeing less and less obvious in this country. 00:36:53.710 --&gt; 00:36:54.930</p>	
	<p>Gordon Teasdale You know, so it's actually quite sad. 00:36:55.250 --&gt; 00:36:59.380 Gordon Teasdale Uh, I'm originally from South Africa, and that that's that's kind of. 00:36:58.050 --&gt; 00:37:01.020 Alastair Thrush I was gonna say I thought I'd said detecting some South African yeah. 00:37:00.380 --&gt; 00:37:07.120 Gordon Teasdale Yeah, that that's a generation I I grew up. You know we were outdoors. It's a very outdoorsy type type of country.</p>	

00:37:07.620 --> 00:37:15.840  
Alastair Thrush  
Yeah, I'll spend some time in Cape Town I did my elective placement in Cape Town and so I was at the Heart School Hospital.

00:37:07.760 --> 00:37:08.040  
Gordon Teasdale  
Uh.

00:37:12.760 --> 00:37:13.140  
Gordon Teasdale  
Oh wait.

00:37:15.950 --> 00:37:17.580  
Gordon Teasdale  
Oh yeah, no, wait here.

00:37:16.490 --> 00:37:16.990  
Alastair Thrush  
Uh.

00:37:18.060 --> 00:37:21.030  
Alastair Thrush  
So now I enjoyed that very much and.

00:37:21.890 --> 00:37:31.790  
Alastair Thrush  
But yeah, I I sort of I, I worry a bit for South Africa I do. I love it as a as a country and they say you know from a uh.

00:37:32.470 --> 00:37:37.850  
Alastair Thrush  
A geographic point of view, it's it's it's. It's beautiful, you know. But I, I do still feel.

00:37:38.570 --> 00:38:08.500  
Alastair Thrush  
There is an undercurrent of of division and racism still in South Africa which which just is holding it back and until it that can be properly addressed it it remains a in in a bit of a volatile situation and of course then so your affluent population, be that be that white or black. Yeah affluent population again they they're kind of ring fence the bit because they're behind



	<p>security gates and there and in there there there there there won't be as much play on the street. 00:38:08.570 --&gt; 00:38:19.920</p>	
	<p>Alastair Thrush Because you know everything is is is is with that fear of of kind of you know fear beyond your your own sort of gates, which is a great shame as well. Yeah? 00:38:09.130 --&gt; 00:38:09.500 Gordon Teasdale So. 00:38:17.430 --&gt; 00:38:17.790 Gordon Teasdale No. 00:38:20.050 --&gt; 00:38:22.760 Gordon Teasdale It's the haves and the have nots until Africa sadly. 00:38:22.400 --&gt; 00:38:24.640 Alastair Thrush Yeah, yeah for sure. It is a shame. 00:38:25.030 --&gt; 00:38:31.130 Gordon Teasdale Do you practice stretching just the last few that I just want to come with you? I really appreciate your time at this time. 00:38:30.780 --&gt; 00:38:31.400 Alastair Thrush Yeah, that's fine. 00:38:31.830 --&gt; 00:38:36.430</p>	
	<p>Gordon Teasdale Do you practice stretching in your in your own life? Did stretch my any kind of stretching?</p>	

<p><b>Stretching therapeutic</b></p> <p><b>Counterpose</b></p> <p><b>Believes should stretch but doesn't?</b></p>	<p>00:38:34.910 --&gt; 00:38:35.560 Alastair Thrush Yep. 00:38:36.870 --&gt; 00:38:43.760 Alastair Thrush No, no West on the West physio no. I probably don't. Not not enough in less I have a a an actual problem. 00:38:44.410 --&gt; 00:38:46.130 Alastair Thrush Uh, I I don't. 00:38:46.640 --&gt; 00:39:09.050 Alastair Thrush Uh so, but if I do, for example, recently, you know I had a bit of a disk E type. Lower back pain, so I was doing more extension stretches to try and counteract that. But as soon as that issue goes away, I kind of forget about it. And and invariably, like most people, yeah, stop doing it. So yeah, I'm I'm very poor. 00:39:09.410 --&gt; 00:39:14.770</p>	
<p><b>Positive experience/ (common denominator) from clinical practice</b></p>	<p>Gordon Teasdale And do you? Do you think that's the correct usage? Would you like to do more? Do you think it'll be? 00:39:14.370 --&gt; 00:39:18.470 Alastair Thrush No I should. I should do more for sure. Should do more. I think you know. 00:39:19.430 --&gt; 00:39:20.470 Alastair Thrush Some of the best. 00:39:21.500 --&gt; 00:39:52.530 Alastair Thrush Uh, people I meet in private practice. Who who I think blindly. I wish I was like you when I'm 6070 they the the common denominator</p>	

	<p>usually is that they all have a routine of of flexibility. Exercises maybe first thing in the morning so they'll get up and they will go through a as as a series of flexibility exercises every morning and and that sort of seasoned through. And actually, you can tell that they you know and and they say that might not be stretching per say it.</p> <p>00:39:52.600 --&gt; 00:39:57.070</p> <p>Alastair Thrush</p> <p>It's usually just sort of a series of mobility type exercises.</p> <p>00:39:57.810                      --&gt;                      00:40:08.600</p>	
<p><b>Routines / placebo on professional sport</b></p> <p><b>Intangible results from stretching</b></p>	<p>Gordon Teasdale</p> <p>And fascinating, absolutely fascinating. I'm just going to go through and do you believe there are any barriers to stretching in in your professional practice?</p> <p>00:40:09.310 --&gt; 00:40:16.280</p> <p>Gordon Teasdale</p> <p>You mentioned, well one where potentially football football are which.</p> <p>00:40:18.090 --&gt; 00:40:24.980</p> <p>Gordon Teasdale</p> <p>It'll be potentially against something because it it freaked him out or he tweaked his body doing something and he wouldn't do it.</p> <p>00:40:25.300 --&gt; 00:40:26.700</p> <p>Gordon Teasdale</p> <p>Uh, like.</p> <p>00:40:26.280 --&gt; 00:40:56.640</p> <p>Alastair Thrush</p> <p>Yeah, so definitely, definitely within the professional athletes side of things that they say they tend to be set in their ways a little bit, so I think you either get groups that that like stretching because they feel it benefits them or</p>	<p><b>Breadth of Client Exposure</b></p>

<p><b>Discipline in the practice</b></p> <p><b>Patience vs quick results</b></p> <p><b>Focus/ priorities in professional sport</b></p>	<p>they they don't like stretching 'cause they just can't see how it influences. And I think that's the thing with stretching. You don't really see huge sort of tangible results from it, whereas if you do strengthening exercises you'll see the hypertrophy you know in in in your physique now, flexibility of stretching.</p> <p>00:40:56.690 --&gt; 00:41:26.540</p> <p>Alastair Thrush</p>	
<p><b>Attitudes toward stretching</b></p> <p><b>Stretching is boring</b></p>	<p>You might see that yeah, you've gone from, you know, being added touch somewhere near your ankles to be able to now touch your toes. But I just think that for for a lot of footballers where they're wanting to see that instant reward, they can't see it with stretching and so therefore they they kind of question the the the the, the use of it perhaps? And that's one of for me. The barriers is that I've always found stretching to be inherently a little bit boring for for people and and and and. And they 'cause they're because they find it boring.</p> <p>00:41:26.700 --&gt; 00:41:31.900</p> <p>Alastair Thrush</p>	
<p><b>Fear of stretching</b></p>	<p>It's not something that they. They invariably want to then do so. I think that's a bit of a barrier.</p> <p>00:41:32.190 --&gt; 00:41:33.100</p> <p>Alastair Thrush</p>	
<p><b>Practice Confidence</b></p> <p><b>lack of education / knowledge</b></p> <p><b>how far to push a stretch</b></p>	<p>Uhm?</p> <p>00:41:34.700 --&gt; 00:41:43.760</p> <p>Alastair Thrush</p> <p>Yeah, otherwise I on the other thing is I think as mentioned earlier, is that actually sometimes when you're stretching it, it can cause some <b>transient discomfort.</b></p>	

	<p>00:41:42.350 --&gt; 00:41:42.690</p> <p>Gordon Teasdale</p> <p>Thanks.</p> <p>00:41:44.970 --&gt; 00:42:08.760</p> <p>Alastair Thrush</p> <p>And and it's about sort of the education that actually, that transient discomfort is ok to to experience that we we almost want that. And it's not a sign of damage. It's not a sign of of of of anything going wrong, and I think some people then don't push themselves to that level. What they need to with their mobility. You know, if I were to do a big thoracic stretch now and probably quite sore for me, it be good. You know, it's a good source, yeah?</p> <p>00:42:09.420 --&gt; 00:42:18.990</p>	
<p>Stretching has evolved</p> <p>Old school static stretching</p>	<p>Gordon Teasdale</p> <p>Do you believe that there's enough knowledge just amongst the general public as well as amongst clinicians on the application of stretching?</p> <p>00:42:21.080 --&gt; 00:42:21.730</p> <p>Gordon Teasdale</p> <p>Two individual.</p> <p>00:42:21.310 --&gt; 00:42:42.310</p> <p>Alastair Thrush</p> <p>No, I mean I think I think if you went out to the general public and and said you know what do you? You know what do you associate with with stretching? I think they would vast majority of them would be looking at sort of old school static sort of stretches, you know, sort of going down and and and reaching and and and that you know and that that probably again.</p>	

<p><b>Body stored memories of pain</b></p>	<p>00:42:42.790 --&gt; 00:42:43.590 Alastair Thrush Uhm?</p>	
<p><b>Somatic trauma</b></p>	<p>00:42:44.320 --&gt; 00:42:57.260 Alastair Thrush Brings up sort of memories of of pain and and and and things, which is why perhaps a lot of</p>	
<p><b>Continued evolution of understanding</b></p>	<p>people you know don't stretch and and so, yeah, I do think there needs to be better education around the fact that action stretching is not. 00:42:58.130 --&gt; 00:43:13.250</p>	
<p><b>Old school</b></p>	<p>Alastair Thrush All about static stretching. In fact, actually, you know now there's a much more probably of a shift towards active sort of flexibility and</p>	
<p><b>Tradition / habit / old knowledge</b></p>	<p>movement as opposed to these sort of static stretches, which I think have been almost static stretching. I think it's been shown to actually be crease.</p>	
	<p>00:43:13.830 --&gt; 00:43:30.380 Alastair Thrush Uh, sort of muscle strength and and and output. You know, in in the in the sort of time straight after the stretch, you know. So if you're doing static stretching as a warm up, you're probably not doing yourself any favors. Going into a sporting sort of environment.</p>	

	<p>00:43:32.460 --&gt; 00:43:33.520  Gordon Teasdale  And it's fascinating.  00:43:34.770 --&gt; 00:43:44.270</p>	
<p><b>Ambiguity of types of stretching</b></p> <p><b>We only know what we know</b></p> <p><b>Preconceptions around stretching</b></p> <p><b>Association of stretching as separate from movement</b></p> <p><b>Preconceptions around stretching</b></p>	<p>Gordon Teasdale  When would you prescribe just on that note, when would you prescribe a static stretch to someone in your clinic and when we push you prescribed by active stretch?  00:43:45.970 --&gt; 00:43:46.680  Alastair Thrush  Uhm?  00:43:47.950 --&gt; 00:43:51.120  Alastair Thrush  I I'd probably try and do a bit of bit of bit of both, and I probably wouldn't.  00:43:51.800 --&gt; 00:43:53.320  Alastair Thrush  Necessarily pick one over the other.  00:43:53.640 --&gt; 00:44:03.300  Alastair Thrush  Uhm, I said the only type the only type of passive stretch I tend to give is that is that on the calf borders or say I don't tend to give two.  00:43:59.650 --&gt; 00:43:59.920  Gordon Teasdale  Uh.  00:44:04.760 --&gt; 00:44:06.780  Alastair Thrush  Many other sort of passive.  00:44:07.580 --&gt; 00:44:10.000  Alastair Thrush  Stretches so most of my now I would give.  00:44:10.770 --&gt; 00:44:15.570  Alastair Thrush  Would be sort of active, you know, stretches with with with movement.</p>	

	<p>00:44:17.550 --&gt; 00:44:18.210  Gordon Teasdale  And.  00:44:20.320 --&gt; 00:44:37.820</p>	
<p><b>Evolution of knowledge</b></p> <p><b>Preconceptions around stretching</b></p>	<p>Gordon Teasdale  Everything that you've come to to understand about stretching. Uhm, how does that compare? Are there any contradictions to your memories of what you were taught going way back in in any of your your either your sport science or your physiotherapy?  00:44:37.970 --&gt; 00:44:39.060  Gordon Teasdale  I'm sorry.  00:44:38.850 --&gt; 00:44:44.110  Alastair Thrush  I mean, are you I I, I do remember somewhere now. I mean it, this might be even harking back to a level sort of P.  00:44:44.470 --&gt; 00:45:14.890  Alastair Thrush  Uh, you know there used to be this whole school of thought that ballistic stretching was was was bad and it should be. It should be avoided, you know. But I think now you know if if I'm right there with search is now saying. Well, actually no, it it, it's it's it's it's OK. But again it might not be suitable for what you're wanting it to achieve. And I think that's the key now with the stretching is what are you? What are you stretching for? You know are you doing stretching as part of an, uh, up reactivation for?  00:44:51.000 --&gt; 00:44:51.170  Gordon Teasdale  Or  00:45:14.970 --&gt; 00:45:28.400  Alastair Thrush  Through a sporting occasion, in which case,</p>	



	<p>yeah, I don't think you do want those sort of ballistic and and static type stretches because that can potentially decrease performance straight after the stretch.  00:45:29.020 --&gt; 00:45:54.750  Alastair Thrush  You know, are you stretching to try and you know elongate tissue in in a more of a medium to long term, in which case some of those stretches might be more applicable? Yes, they might be short term physiological deck you know decrements in performance, but actually longer term it. It's better. So I think that's there's definitely got to be better education about what are you stretching for.  00:45:55.890 --&gt; 00:46:03.020  Alastair Thrush  I think, but that was the one. Definitely I sit, you know, and I think there still is a bit of a misnomer about that. You know, the ballistic stretches.  00:46:03.920 --&gt; 00:46:13.480</p>	
<p><b>Lack of mobility in clinical cases</b></p>	<p>Gordon Teasdale  I I in fact I remember that as well, there was a paragraph was good and then it was kind of off the cards and it's something that's drawn me to be interested in this because.  00:46:14.190 --&gt; 00:46:14.890  Gordon Teasdale  Uhm?  00:46:17.160 --&gt; 00:46:18.360  Gordon Teasdale  One of the things I've.  00:46:19.130 --&gt; 00:46:49.290  Gordon Teasdale</p>	

<p><b>Movement patterns are key to a healthy body</b></p>	<p>For me, a very common factor amongst my clients are we practicing for 10 years here in the UK is their lack of mobility just so incredibly stuff and and it I've become quite interested in functional movement in individuals and and and that's kind of what's drawn me along this pathway to to just understanding well how is stretching being being utilized amongst other practitioners. So that's it's been really interesting. I'm just going through most. I think I've covered all of the questions that come.</p> <p>00:46:25.660 --&gt; 00:46:26.080 Alastair Thrush Yeah.</p> <p>00:46:49.870 --&gt; 00:46:52.540 Gordon Teasdale I've wanted to ask you about different, UM.</p> <p>00:46:53.570 --&gt; 00:47:01.350 Gordon Teasdale Sheets here so I can't think of anything else at this point in time and anything else you can add about stretching that we haven't covered.</p> <p>00:47:03.030 --&gt; 00:47:06.100 Alastair Thrush No, I don't think so. I think it's it's been quite. It's been quite interesting.</p> <p>00:47:08.790 --&gt; 00:47:25.350 Alastair Thrush</p>	<p><b>Practice Confidence</b></p>
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<p><b>Modalities to improve movement patterns</b></p>	<p>Not really, no. I mean, I'd be really interested to see how you know how I compare. If you like two other clinicians out there, you know we are all different, of course, but I think we all hold the same sort of fundamental principles at heart that that actually, you know.</p>	
<p><b>Preconceptions around stretching</b></p>	<p>00:47:14.570 --&gt; 00:47:15.090</p>	
<p><b>Affirmative Intuition on stretching</b></p>	<p>Gordon Teasdale Yeah.</p>	
	<p>00:47:26.600 --&gt; 00:47:32.340 Alastair Thrush I'm the line movement patterns is the key to to a healthy body and and and healthy movement.</p>	
	<p>00:47:32.740 --&gt; 00:47:54.140 Alastair Thrush Uh, and yeah, if if we don't have the the the necessary flexibility in our muscular system then then we're not going to be able to to to get into those. Those movement patterns. I mean, I've always been quite proud. You know I can, you know, I, you know I can still squat down fairly fairly comfortably into a into a into a fairly deep.</p>	
	<p>00:47:55.080 --&gt; 00:48:03.690 Alastair Thrush You know into a fairly deep duck squat. You know, keep my heels on the ground. I'm not too bad, you know. And and and and and I try and keep that.</p>	
	<p>00:47:59.870 --&gt; 00:48:00.250 Gordon Teasdale Set.</p>	
	<p>00:48:00.880 --&gt; 00:48:01.610 Gordon Teasdale That's rare.</p>	
	<p>00:48:04.470 --&gt; 00:48:07.340 Alastair Thrush That flexibility going, but then it's hard, you know I.</p>	

	<p>00:48:07.980 --&gt; 00:48:08.800  Gordon Teasdale  Now let's count.  00:48:08.220 --&gt; 00:48:08.890  Alastair Thrush  I I Anna.  00:48:09.470 --&gt; 00:48:10.670  Gordon Teasdale  Now let's Carol duel.  00:48:11.120 --&gt; 00:48:11.880  Alastair Thrush  Some 43  00:48:12.300 --&gt; 00:48:15.990</p>	
<p><b>Predisposition of inflexibility</b></p> <p><b>Contradictions / movement patterns / lifestyle</b></p>	<p>Gordon Teasdale  That's rare to do a sport that is very rare in this country.  00:48:13.510 --&gt; 00:48:14.050  Alastair Thrush  but it but.  00:48:16.270 --&gt; 00:48:19.930  Alastair Thrush  Yeah, but I'd but I I do think there's a little bit of an underlying.  00:48:20.700 --&gt; 00:48:37.150  Alastair Thrush  And and and this would be interesting as well.  And again, I don't know if there's any literature out. There is almost an underlying genetic component to to whether you're flexible, like 'cause I'm not good flexibility in my hamstrings. But then my father hasn't either. My father's got terrible flexibility in his hamstrings.  00:48:37.520 --&gt; 00:48:43.580  Alastair Thrush  Uh, so you know whether there's a slight genetic component to your sort of flexibility?  00:48:44.070 --&gt; 00:48:48.560  Alastair Thrush</p>	

	<p>Uh, you know. In in football we used to measure.  00:48:49.230 --&gt; 00:48:52.230  Alastair Thrush  A lot sort of need to warm up.  00:48:53.130 --&gt; 00:48:58.690  Alastair Thrush  Measure you know so so length of the of the sort of gas drop to less complexity like.  00:48:59.460 --&gt; 00:49:14.920  Alastair Thrush  And again there there's huge variability. You know, with some players up in this sort of teams, you know the 1415 centimeters you know, and other players are only sort of 5-6 centimeters, you know, and you know really quite tight in in that posterior calf.  00:49:16.300 --&gt; 00:49:19.830  Alastair Thrush  You know, and you think, wow, like what? Why is that such a difference? There, you know?  00:49:19.850 --&gt; 00:49:22.300</p>	<p><b>Breadth of Client Exposure</b></p>
	<p>Gordon Teasdale  Could it be that?  00:49:23.590 --&gt; 00:49:27.890  Gordon Teasdale  Because at a base level, when we are born, we all.  00:49:28.550 --&gt; 00:49:37.200  Gordon Teasdale  Squat and poot. If I could put it that way and if we maintain that movement pattern as we go through adolescence.  00:49:30.320 --&gt; 00:49:30.720  Alastair Thrush  Yeah.</p>	

<p><b>Young children losing their ability to squat</b></p>	<p>00:49:38.620 --&gt; 00:49:49.320  Gordon Teasdale  Might it be that those structures would continue to be that mobile, whereas when we start sitting? I mean I've seen children as young as four in my clinic.  00:49:44.260 --&gt; 00:49:45.450  Alastair Thrush  Yeah, maybe yeah.  00:49:50.020 --&gt; 00:50:01.060  Gordon Teasdale  Not that I treat children that young, but when when parents bring their kids always take the opportunity to just look at moving. I'm so fascinated and I've seen children as young as four in this country. Lose the ability to squat.  00:50:01.400 --&gt; 00:50:02.820  Alastair Thrush  Yeah, now I think.  00:50:01.970 --&gt; 00:50:02.680  Gordon Teasdale  Which is quite.  00:50:03.350 --&gt; 00:50:07.040  Gordon Teasdale  It's quite concerning 'cause that takes away half of the hip movement during development.</p>	
<p><b>School curriculum – so important  Need to start with school age children</b></p>	<p>00:50:03.880 --&gt; 00:50:04.260  Alastair Thrush  Done.  00:50:07.570 --&gt; 00:50:12.690  Alastair Thrush  Yeah, absolutely. And and I think This is why for me again, actually getting uh.  00:50:13.620 --&gt; 00:50:29.160  Alastair Thrush  You know physical literacy into the school PE curriculum is is is so important. Really, really important? I'm just trying to see if I can find a</p>	

	<p>presentation I gave and it's got that classic picture on it and.  00:50:35.710 --&gt; 00:50:38.060  Alastair Thrush  I can't see I. I did a presentation.  00:50:42.340 --&gt; 00:50:49.180</p>	
<p>Innovative treatment / rehab approach  Free play – explore trees, climbing. Natural movement</p>	<p>Gordon Teasdale</p> <p>I'd be really grateful if you could share that with me so I could have a look. And also Alastair, I'm what one of the things I'm hoping.</p> <p>00:50:49.900 --&gt; 00:50:54.860  Gordon Teasdale  With the outcome of my research is to influence early education.  00:50:55.570 --&gt; 00:50:58.500  Gordon Teasdale  Uh, it's it's not a.  00:50:55.600 --&gt; 00:50:55.940  Alastair Thrush  Yeah.  00:50:59.360 --&gt; 00:51:20.540  Gordon Teasdale  What I don't believe that schools need to add anything. If anything, I think they need to take away so allow some classes to be to be given where kids are just sitting on the floor, barefoot moving functionally kind of thing, hoping just to to influence that. So I think there's a bit of a synergy there between what you and I want to achieve.  00:51:13.520 --&gt; 00:51:13.930  Alastair Thrush  Yep.</p>	

<p><b>Back to basics - children – rope, climbing</b></p> <p>abandonment of long-established beliefs</p> <p><b>Health and safety – potential barrier to free play and natural movement in children</b></p>	<p>00:51:22.380 --&gt; 00:51:53.520 Alastair Thrush Yeah, for sure and and also just say a concept of almost <b>just free play</b>, just you know, just go run around the playground. You know, I think we always trying to organize things now for them. You know we set we set that we set the confines that we reset the boundaries where in fact sometimes you just want them to explore free play climbing the trees, climbing, crawling, rolling all those kind of fundamental movement patterns that again I think perhaps sometimes get get lost. You know you you know. Remember back to the old school gymnasiums where we had the ropes and.</p> <p>00:51:39.980 --&gt; 00:51:40.280 Gordon Teasdale Yeah.</p> <p>00:51:53.950 --&gt; 00:52:16.840 Alastair Thrush And that you know those sort of things which which they sort of did away with. You know, you know. Again, health and safety comes in and deem them to be a bit dangerous. You know, climbing ropes you know up up to the top of the thing. Well yeah, but you know that was so good for for, for, for, for developing that shoulder mobility, and that that kind of you know, the beams and things. It's all going away with the health and safety, but yeah.</p> <p>00:52:07.290 --&gt; 00:52:07.680 Gordon Teasdale Yeah.</p> <p>00:52:09.590 --&gt; 00:52:10.070 Gordon Teasdale Really.</p> <p>00:52:11.470 --&gt; 00:52:11.800 Gordon Teasdale Yeah.</p>	
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	<p>00:52:16.280 --&gt; 00:52:16.610  Gordon Teasdale  Yes.  00:52:17.410 --&gt; 00:52:18.850  Gordon Teasdale  We move so differently now.  00:52:19.830                    --&gt;                    00:52:25.400</p>	
<p><b>Finish – end words</b></p>	<p>Gordon Teasdale  Understood thank you so much for your time. I really appreciate it. I've I've learned tons. I've captured tons.  00:52:25.800 --&gt; 00:52:33.780  Gordon Teasdale  Uh, I will definitely keep you in the loop as to where we going and and anything that I it'll be a couple of years. Of course. 'cause I'm Catholic data, but I will definitely.  00:52:25.850 --&gt; 00:52:26.850  Alastair Thrush  Not good, I'm so.  00:52:32.410 --&gt; 00:52:51.070  Alastair Thrush  Yeah, yeah, well, no, that's that's I think. Yeah, 'cause I'm here at the university I'll be I'll be following you know what you're doing with some interest because again it's it's it's it's very close to some of my areas that that I'd like to tap into. So obviously I know Kyra well, so yeah, well I've been, you know see your stuff with interest the hope it hope it comes out and get some good stuff.  00:52:41.550 --&gt; 00:52:42.040  Gordon Teasdale  Yeah.  00:52:51.330 --&gt; 00:52:55.490  Gordon Teasdale</p>	

	<p>Lovely thank you so much. Again, thank you  alaister much appreciate your time. Thank you.  00:52:52.990 --&gt; 00:52:53.550  Alastair Thrush  Oh my God.  00:52:54.930 --&gt; 00:52:56.870  Alastair Thrush  So permits will catch up again. Take care.  00:52:56.930 --&gt; 00:52:57.710  Gordon Teasdale  Yes bye bye.  00:52:57.910 --&gt; 00:52:58.590  Alastair Thrush  Here's now bye bye.</p>	

## Appendix L

### Example of IPA Themes: Andrew

#### IPA Themes: Andrew

Group Experiential Theme	Personal Experiential Theme	Relevant Quotations
1 ENGAGEMENT WITH RESEARCH		
	1 The Practice Conundrum. Keeping Up With The Latest Research	<p><i>"Well, I use stretching a lot. I have to say I haven't kept up to date with some of the latest research. (Andrew: Pg 3)"</i></p> <p><i>"But the evidence, I have to say, I don't keep up to date with it. I have to say (Andrew: Pg 4)"</i></p>
	2 When The Research is Inconclusive	<i>"I know that it's often quite a conflicting area stretching as to whether. Is it good? Is it bad? What type of stretching should we be sort of using and when? (Andrew: Pg 3)"</i>
2 IDENTITY (From "What I am Now" Multiple Identities)		<p><i>"So I'm a chartered physiotherapist ... I did my initial degree in sport and exercise science and then at the end of that degree I went on and did a masters in physiotherapy and qualified in 2003 (Andrew: Pg 2)"</i></p> <p><i>"so I spent a few years in the NHS and then a few years overseas in New Zealand and Australia. And then back here to the UK. And then I've worked in professional football for the last 10 years and now just come out of football back into the private sector again and obviously just started my journey in academia the University of Kent (Andrew: Pg 2)"</i></p>
	1 Defining/Decisive Moments	
	2 Strategies for Overcoming Imposter Syndrome	

3 PRACTICE CONFIDENCE: DEVELOPING CONFIDENCE THROUGH EXPERIENCE		
	1 Sophisticated Bargaining and Negotiation (Discuss sophisticated bargaining and negotiation in discussion)	<p><i>“and it’s about sort of the education that actually, transient discomfort is ok to experience that. We almost want that, and is not a sign of damage. Its not a sign of anything going wrong, and I think some people then don’t push themselves to that level (Andrew: Pg 33)”</i></p> <p><i>“ ... you will always get some players who would argue that I’m not doing nordics because that caused me to have an injury two years ago and whatever, and no matter how much you try and educate them, otherwise they won’t do them (Andrew: Pg 22)”</i></p> <p><i>“ ... you’ve gotta tread very carefully with it, which is often not the right way about it (Andrew: Pg 22 - 23)”</i></p>
	2 Challenging Orthodoxy	<p><i>“... you know that forms part of the continuing injury prevention cycle if you like. So they would be doing those exercises. As with the rest of the squad, although again, you talk about, you know, superstitions and things (Andrew: Pg 22)”</i></p> <p><i>“I always found when I worked in professional football you have to be very, very brave to change something in football because as soon as you change something it then leads to an increase injury, or something happens off the back of it or fingers get pointed back at you for that change ... (Andrew: Pg 22)”</i></p>
	3 Creativity and Curiosity In Practice	<p><i>“ ... so yes, there would be a greater onus on them doing work outside of the session. If you like homework, does it work? So yeah, we do stretching a fair bit. You know that’s something</i></p>

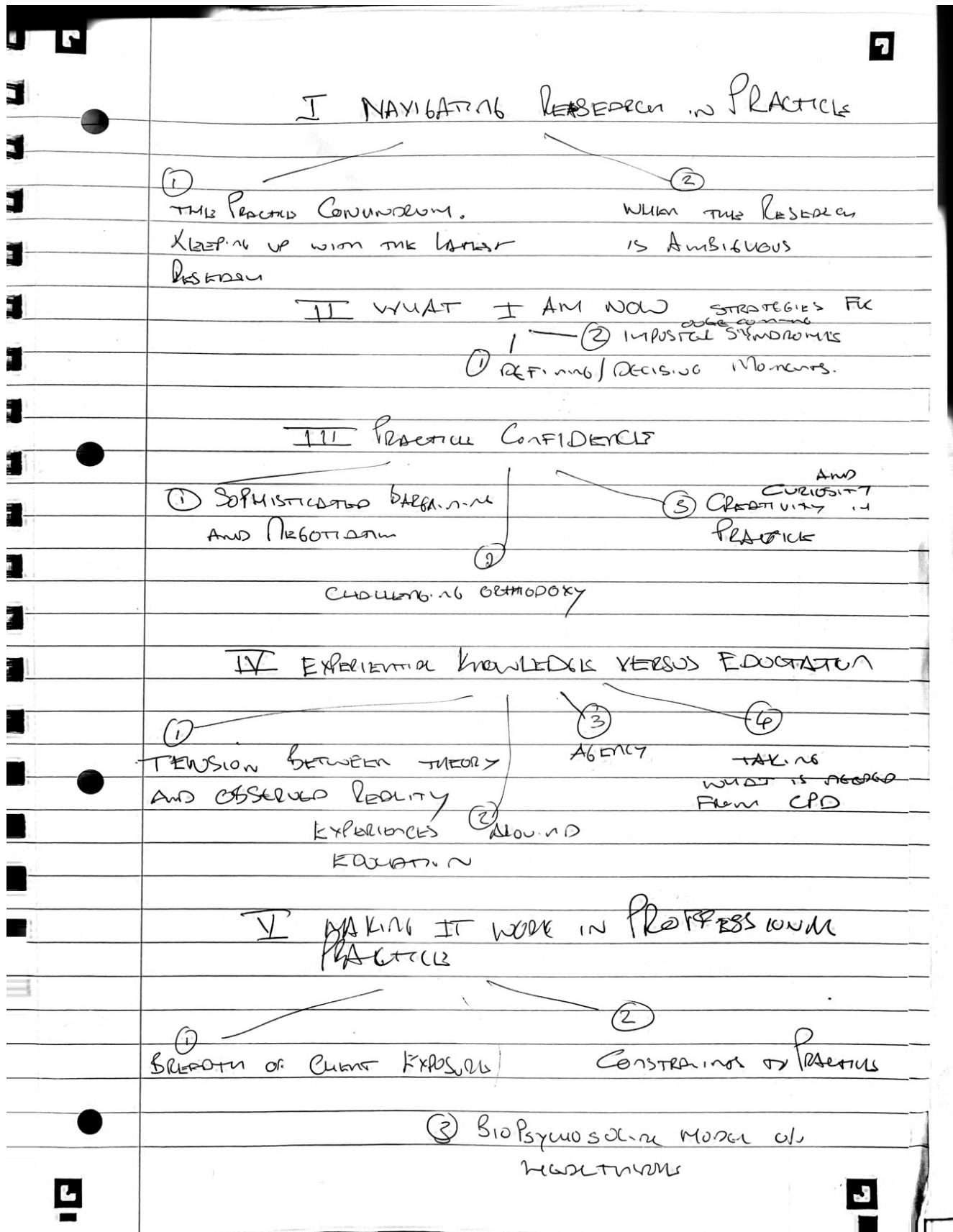
		<p><i>that you feel the client can do easily at home with, with limited equipment limited (Andrew: Pg 5)”</i></p> <p><i>“... obviously, which has the flexibility component to it, but then we started to move away from that a little bit more towards just a basic sort of overhead squat screen... (Andrew: Pg 9)”</i></p> <p><i>“You know we'd be trying to utilize the movements of crawling and rolling up. We would be doing hurdle drills. You know where you're having to go over and under hurdles. We would be doing some of the animal flow type movement patterning. ... and animal flow is a concept like... it's trying to follow the primates and the sort of animal world in their movement patterns and take it back to us. So it's a lot of. For example, crouching right down on your knees .... crouching down like you see a primate and just working on sort of patterns of kind of movement. ... working on getting the hips and shoulders and bits moving. So we do a lot of that within the Academy football (Andrew: Pg 15)”</i></p> <p><i>“ ... but yeah, just it was interesting to sort of look at that concept of stretching and the, the big thing that I would love to do it and, and, and I, and I can never see it happening but, but I look at professional football and I, and I'd love to take a, a A team that didn't do any warmup as such, to, and, and to see whether there's any change in their, in their injury rates throughout the season ... (Andrew: Pg 19)”</i></p> <p><i>“Football is in a really interesting predicament because you know for years now we've not really had a change in the, in the prevalence of, of injury</i></p>
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		<i>rates in football. They, they, they've been, they've not been getting any better, uh, hamstring rates in in in football. Hamstring injuries are still very, very high. Yet with all this technology, with the GPS, with all the expertise and everything at our disposal, we still haven't really been able to decrease rates (Andrew: Pg 21"</i>
	4 Person Centered Care	
	5 Didactic Role of The Practitioner	
	6 Ownership of Practice. This is My Own Approach	
4 LEARNING THROUGH EDUCATION AND EXPERIENCE		
	1 Tension Between Theory and Observed Reality	<i>"So it's been obviously working in professional athletes who for us, it's all about trying to avoid injury and injury prevention strategies, and I've tended to find that actually there isn't a great correlation between flexibility and, and risk of injury. You know I can have some of the players with some of the tightest hamstrings, for example, and you look at them on a either a sit and reach, or a straight leg raise, and you think, Oh my God, like you know, these are some of the tightest hamstrings I've ever seen, yet that players never sustained a hamstring injury in their life. And yet some of the more flexible ones who's you know, range of movement, you would argue is, is, is within, you know, normative values and one that you wouldn't say particularly tight, are those that perhaps sometimes that are ones that are picking up the hamstring strains. So I, I wouldn't necessarily say that there's a correlation for me between flexibility and injury (Andrew: Pg 6)"</i>
	2 Experiences Around Education	
	3 Taking What is Needed from CPD	

5 WORKING IN DIFFERENT ENVIRONMENTS		<i>“Yeah, obviously within the NHS there's a, you tend to have less time with your client in between sessions, so you know you. You'll see them for a session and invariably then you wouldn't see them again. Maybe for a couple of weeks (Andrew: Pg 4)”</i>
	1 Breadth of Client Exposure	
	2 Constraints to Practice	
	3 Biopsychosocial Model of Healthcare	

# Appendix M

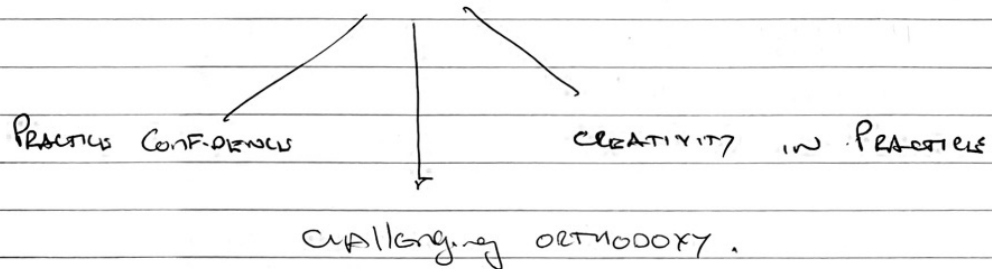
## Example of The Development of GET and PET Themes



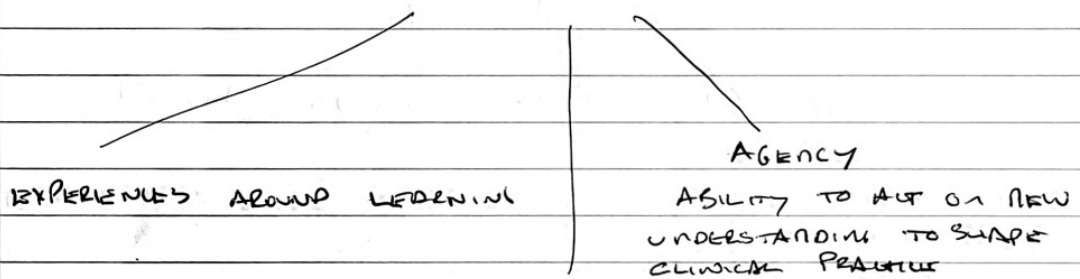


ADD GET THEM  
PERCEPTIONS OF SYSTEMS

### WHAT I AM NOW

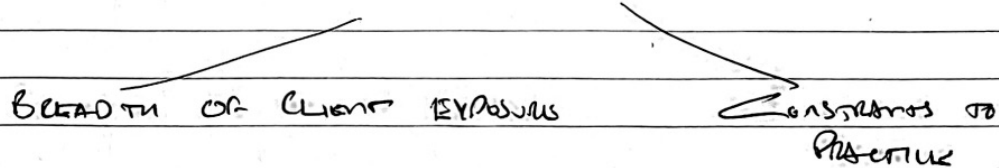


### EXPERIENTIAL KNOWLEDGE $\leftrightarrow$ TRAINING



TAKING WHAT IS NEEDED FROM CPD

### MAKING IT WORK



# Appendix N

## Personal Experiential Themes (PET)

### 2.6.1 Personal Experiential Themes (PET)

#### 2.6.1.1 Defining/Decisive Moments

Several participants described a specific circumstance that changed their perception of themselves. This Personal Experiential Theme (PET) describes those moments in a participant's lived experience which fundamentally influenced the future direction that they would take. For example, for Deborah it was the moment when she realised that she had to get healthy:

*"I was really unfit. There was something that comes to mind. When I was 40 I had a really weird airing cupboard in my bedroom, which was really quite high off the floor and ... I'm always able to do things. I tried to get into the airing cupboard when I was about 40 and I thought, well, this is hard ... something's going on with my body now. This is hard ... things were starting to seize up ... (Deborah: Pg 6)"*

This experience was the catalyst that motivated her to begin to attend Pilates classes. Deborah, now in her fifties believes that 'this is her time to keep it going':

*"The thing is, is that I'm getting on a bit now, and I do really believe that this is my time to keep it going. Because they say I don't wanna be that seized up old person and say I'm 52 in August, so I just feel like it's my time just to concentrate on keeping this ... (Deborah: Pg 13)"*

For Anne the defining moment that in her words "pushed me into research" was:

*" ... a lot of the people that I was seeing on the NHS and that's what actually pushed me into research was I had a lady, she must have been an early 20s, and I asked her to turn over. She was lying on her back. I asked her to turn*

*onto her side, and she couldn't do it. She didn't have the movement skills to do that, and I thought this is desperate ... (Anne: Pg 42)"*

The defining moment for Zoe was after she had attended a course in kinesiology taping:

*"I was really interested in the different ways men and women respond to stress. That was kind of my initial idea. To research and then I did a kinesio tape course. And because that was sort of starting to sort of emerging. And a lot of my clients were asking me about it and I thought it was a lot of rubbish. So but I did the course more to kind of be able to prove to my clients that it was a load of rubbish and then actually could really see the reasoning and I became more interested in this sliding and adhesions, the relationship between the skin fascia and muscles ... (Zoe: Pg 4)"*

### **2.6.1.2 Bargaining and Negotiation**

When the participants spoke about their practice, they would also talk about their interactions with their patients and clients. It became evident from these conversations that the participants used bargaining and negotiation to encourage exercise adherence or to improve their motivation. The interactions would sometimes take for form of educating the clients, for example, in the extract below, Andrew explains that some 'transient discomfort' as 'ok' to experience while stretching:

*"and it's about sort of the education that actually, transient discomfort is ok to experience that. We almost want that and is not a sign of damage. It's not a sign of anything going wrong, and I think some people then don't push themselves to that level (Andrew: Pg 33)"*

Andrew's experience was that professional players needed careful negotiation with some exercise routines because of their injury history:

*“ ... you will always get some players who would argue that I'm not doing nordics because that caused me to have an injury two years ago and we would try and educate them, otherwise they won't do them (Andrew: Pg 22)”*

Anne often prompts her students during class by reminding them that its healthy and natural to move:

*“I quite often quote it when I'm teaching Pilates and saying, you know, actually this is what our bodies are supposed to be able to do. And the fact that we can't do this is got to be responsible for hip pain ... (Anne: Pg 34 – 35)”*

She encourages her students to take every opportunity to move, even when they are shopping:

*“You know, its getting people moving. It's hopefully expanding their movement repertoire. I'm constantly saying to people when you're standing in the supermarket queue, and when the adverts come on the telly, this is the exercise. But I don't know how much people do ... (Anne: Pg 49)”*

Similarly, Sophia encourages her students by giving them creative challenges:

*“Suggest things to people and encourage people so every now and again you know, I would send out a newsletter and every now and again I'll sort of say your challenge for this month is to stand on one leg while you're cleaning your teeth ... (Sophia: Pg 27)”*

### **2.6.1.3 Challenging Orthodoxy**

Several participants challenged the usual way things were done in their profession. In this section I have cited extracts where the participants share how they have adapted their practices to challenge the status quo, for example: one of the challenges that Andrew faced working in professional football was the fear of change:

*“I always found when I worked in professional football you have to be very, very brave to change something in football because as soon as you change something it then leads to an increase injury, or something happens off the back of it fingers get pointed back at you for that change ... (Andrew: Pg 22)”*

Andrew said that some of the players were superstitious of changes to their strength and conditioning regimen because they believed that it may predispose them to injuries:

*“... you talk about ... superstitions ... you will always get some players who would argue that I'm not doing Nordics because that caused me to have an injury two years ago ... (Andrew: Pg 22)”*

In the extract below Peter talks about his belief that the profession of Osteopathy has changed to become similar to physiotherapy:

*“So basically what we're saying is we are working it the wrong way round. So we've become a physio. You know physio is the one he's hurt his knee 'OK now I gotta fix his knee' But if the osteopathy philosophy is saying I wanna work on alignment so that he doesn't get his knee fixed. So what am I doing on the football pitch? and not before and so. So I think that's where we are not true totally to our profession ... (Peter: Pg 36 – 37)”*

He feels Osteopaths are not positioning themselves to help with 'alignment' and prehab and are too focused on rehab after the fact. He believes that Osteopaths should equally be focused on preventing injuries as much as they are on rehabilitating them.

Anne completed the Pilates Australian Physiotherapy and Pilates Institute (APPI) certification training but felt that the teaching was too dogmatic, or in her words 'too precious':

*"I decided not to go through API probably because I just think they're raking in so much money. I didn't want to give them any more of my money, and actually I don't like the way that they teach. It's too precious (Anne: Pg 7)"*

Anne's approach to teaching Pilates is very unconventional and non-traditional. Her goal is that her students are able to help themselves.

*"... I am doing Pilates cause I'm using Pilates principles. Even getting people moving they, people don't know how to do that, crawling. I get people crawling. The people always think I'm taking the piss really. But I think it's important that people can crawl. I'm gotta be able to crawl when if I fall, I wanna be able to crawl to the chair and help myself up ... (Anne: Pg 43)"*

#### **2.6.1.4 Creativity in Practice**

Creativity in Practice describes the theme amongst those participants that expressed imaginativeness in their professional practice. For example, in the extract below Andrew describes how he and his team used primal animal locomotive movements to improve the hips and shoulders of his academy football players:

*"... we'd be trying to utilize the movements of crawling and rolling up. We would be doing hurdle drills ... where you're having to go over and under hurdles. We would be doing some of the animal flow type movement patterning. ... and animal flow is a concept like ... it's trying to follow the primates and the sort of animal world in their movement patterns and take it back to us. So it's a lot of. For example, crouching right down on your knees .... crouching down like you see a primate and just working on sort of patterns of kind of movement. ... working on getting the hips and shoulders and bits moving. So we do a lot of that within the Academy football (Andrew: Pg 15)"*

Similarly, Karen discovered that the participants on her research group enjoyed a particular movement that she made up as an opening exercise routine:

*“ ... we did something I referred to as ... an opener and what we're doing... so we were standing with feet shoulder width apart, we bend the knees, come down and then we come up and do a full body stretch and then down. So, it's sort of, I suppose combining a very minimal squat with that rotation that stretching upwards. So the kind of lower down and then pull up and they really enjoyed that ... (Karen: Pg 26)”*

Because everyone in the group enjoys the movement, Karen starts all the sessions with the group with the 'opener' movement.

Anne stated that it was always her intention to be creative in her practice:

*“ ... I don't teach in the way that they're asking me to teach. So that, you know, as soon as I had done that, I can be creative ... (Jane: Pg 7)”*

Working on complex cases withing the NHS Anne discovered at times that no protocol or treatment strategy existed to treatment and rehabilitation. Anne and her team had to focus less on specific symptoms and take a more creative and collaborative approach. Anne went on to describe a particular case:

*“ ... If I describe ... one of the ladies that I might have seen, she might be in her 50s, she might have held down a job ... dentist, reception. She was in her late 50s. She fell and fractured her wrist. It was a conservative fracture. It was conservatively treated, and the plaster came off and she developed complex regional pain syndrome (CRPS). So then it wasn't just her arm that was painful. It wasn't just her wrist that was painful, it was her whole arm, and she literally stopped using her right arm... (Anne: Pg 18 – 19)”*

At this point in the interview Anne got more animated, her voice got a little louder and I remember feeling that she felt passionate about this case. Her memories of it were still clear in her mind. She went on:

*“ ... and as a result of that ... she lost her job, she lost her house, her husband left her. She had to go on to benefit, so she lost everything. She wouldn't come out the house ... (Anne: Pg 18 – 19)”*

Anne was presented with a patient that suffered personal, emotional and economic loss following a common wrist fracture. The patient needed treatment that was 'way beyond physiotherapy'. Anne shared the approach that she and her team took:

*"... so ... where we were with our program was trying to get people just engaged with life again. And a lot of our work, it was way beyond physiotherapy. You know we had obviously a team of psychologists and we work very closely with psychologists and the occupational therapists... (Anne: Pg 18 – 19)"*

Working with CRPS Anne and her team realised they needed to adopt an approach that was unique to the individual:

*"... even touching their effective part. They wouldn't even be able to touch it or let water touch it. So, you know what? We're starting way back. We're stretching, we might do some stretching with them, but it might be of the lower limbs, the spine just to get their body reconnecting to some sort of exercise (Anne: Pg 19 – 20)"*

Sophia who was working as a personal trainer was drawn to Yoga teaching out of curiosity:

*"... and so it was something completely different. It was more driven by curiosity rarely rather than a desire, rather than a clear plan of knowing what I wanted to do with it. It was curiosity because I didn't know that much about it ... (Sophia: Pg 3)"*

As she progressed in her Yoga teacher training, she was attracted to the styles of Yoga that allowed for 'more freedom' of expression as a teacher:



*“Vinyasa has more freedom for the teacher to sequence it themselves, but held together with the principles of Ashtanga, the alignment principles and some of the core components such as the vinyasas ... (Sophia: Pg 4)”*

Later on, in the interview, Sophia’s elucidated that she was curious of the human body and takes every opportunity to learn more:

*“I’m one of those people that, I just read lots and I’m not very good at just being told to do something with that, being told why. So, whenever I go and see someone like you or when I’ve seen physios in the past, I will always ask him if they tell me to do something. Why? what muscle? what am I trying to do? and then normally I will read around it to try and understand it as well. And then in terms of on social media, I tend to follow people on those sorts of things. And then do my own research, you know, YouTube, Books ... (Sophia: PG 31)”*

Zoe described a particularly creative method of helping to reducing the discomfort of PNF stretching by applying heat just before the application of the PNF technique:

*“... Like a very aggressive PNF, but because the muscles had not been prepared, the people I think felt a little bit it wasn't really the time or the place to say that really hurts because they felt that it was a good pain at the time. So that really got me thinking about there must be a different way. So I had this system that I'd sort of just developed by warming up the muscles with heat. And just hot water bottles or heated blankets, and then to do a very, very gentle neuromuscular stretching (Zoe: Pg 8)”*

Later in the interview Zoe shared that her belief that normal stretching would be counterproductive for some of her clients led her to develop an alternative way of stretching:

*“And that's then when I learned that with some people, it's really not a good idea to do any stretching, fibromyalgia hypermobility, multiple sclerosis. So*

*where actually the stretching might cause fatigue in very specific conditions, but because at the time I was seen quite a lot of those people, I sort of developed these alternative ways to the more mechanical way of stretching ... (Zoe: Pg 11)”*

### **2.6.1.5 Person Centered Care**

This PET was generated from the data amongst those participants that spoke of adapting their approach in close cooperation with their client’s individual needs, for example Karen used trial and error and working closely with her clients with CNSLBP to develop movements and exercises that would be beneficial for them:

*“ ... they love roll downs, which I do a lot ... so that has been I think the favourite thing. I've included it in every single session since I first did it ... They've all said that when their back is feeling tight and a bit kind of seizey, that helps ease off and that's just it's obviously stretching out the lumbar spine when we're in that kind of tilted over position ... “Karen: Pg 28)”*

Clare admits that her background as a psychologist has enabled her to adopt her own personal centered care to her Yoga practice:

*“... so I think because of my background in psychology and yoga and mindfulness I'm very in tune with my body and what I kind of need. So even within my yoga practice, if I'm doing my yoga practice on my own, I tend to always move in a way that I feel is beneficial for my body (Clare: Pg 8)”*

Specifically, Clare found that ‘mindfulness meditation’ was particularly useful to allow herself to ‘tune in to her body’:

*“... and within mindfulness meditation and with through my yoga practice. That's where I really learned to listen more to my body and just that that understanding of what I needed ... (Clare: Pg 9)”*

She finds 'mindfulness' and 'meditation' particularly useful when working with her clients:

*"after a mindfulness or meditation exercise I do with them, I will say to them, OK, you've been sitting in a particular position and quite still for awhile, right? Move your body in the way that you feel is right, so you might want to, you know, reach up. You might want to twist. You might want to stretch (Clare: Pg 13)"*

In a similar way for Victoria, person centered care is at the heart of her personal yoga practice:

*".. it's a lovely practice. It's very linked with the breath. As I feel all yoga's should be. And it's almost a little bit like Tai Chi. It's very kind of flowing movements. Very big focus on working with your own body, feeling how your own body feels rather than shape making ... (Victoria: Pg 4)"*

When Victoria teaches students she encourages them to be aware of 'what's going in in their body' and to move in a way 'that feels good for them':

*"... and they're feeling what's going on with their body and they're working with what feels good for them. So it's lovely. Really lovely practice, really enjoying teaching that at the moment ... (Victoria: Pg 6)"*

The analysis of Zoe's interview provided particularly vivid examples of Person Centered Care. The following extract illustrates how Zoe adapted and changed her approach depending on the individual circumstances of her client:

*"Depending on what's what's needed. So I found for example, working with cyclists who naturally have very short hip flexors. That actually working to the end of range, sometimes throw people out of balance a little bit. So I would actually work with seats, athletes like golfers and cyclists to a kind of a happy mid-range. So that there was mobility within the joints and the muscles were happy to lengthen as well as to shorten ... (Zoe: PG 13)"*

The extract below later in the interview illustrates Zoe's ability to understand the sociocultural influences on individuals and adapt her approach accordingly:

*"... So, I would probably look at the different needs of, say, a lorry driver in the UK to a rice farmer in India for example ... (Zoe: Pg 17"*

During the interview when we were talking about her early approach to stretching, Zoe stated that:

*"I think when I was working, I was probably a little bit more conservative (Zoe: Pg 20)"*

Later in the interview I asked:

*"But now what are your thoughts as a researcher now understanding fascia? (Researcher: Pg 20)"*

Zoe's response illustrated a shift from viewing stretching as a mechanical structural intervention to a higher level neurological one:

*"But I think for me. It's not necessary. It's not always the mechanical restrictions that need to be overcome. For me, it's much more around feeling. Embodied feelings. Centered feeling that this movement is safe. It's not going to damage you ... (Zoe: Pg 21 – 22)"*

#### **2.6.1.6 Didactive Role of the Practitioner**

An important feature of the participant interviews was how the participants presented themselves as the educator to their clients. The interview extracts contained many examples of the participants informing and educating their clients as part of their professional practice. From the interview extracts it may be seen that much of the education takes the form of helping individuals understand that they have control over their own health and wellbeing.

Peter for example, feels strongly that the 'body is the medicine chest' and that the role of the osteopath is to educate the public on preventing injuries.

*"... then also you should preach it. We should say it to the people out there, because if we believe in the osteopathy world, that it is holistic and, that the body fixes itself. That type of the body is a medicine chest. You know we can't do anything to it if it is fixing itself. Then why don't we apply it? ... You know where my dissertation went out on the role of the osteopath in professional sport. But as an osteopathic we believe in preventative. Right? So we need to work with the public to prevent these things, not when it happened and afterwards ... (Peter: Pg 34 – 36)"*

The context of the extract below from Clare's interview below is that small daily changes can indeed amount to significant behaviour change:

*"... but I even tell clients just you know, just do one little thing a day ... (Clare: PG 21)"*

Lena provides a creative example of educating clients is by using normal home activities as a form of exercise:

*"I sometimes I will give people homework, but my homework might be when you're standing boiling the kettle. I want you to stand on one foot. Or I will quite often I've got a lot of clients in with their electric toothbrushes at home, and they stand on one quadrant on one foot and then swap to just to keep working on their balance. If they're older clients balance is gonna be really important for them to maintain. Or other people I might just say when you're boiling the kettle, give them a few standing exercises to do just in that couple of minutes while the kettles boiling ... (Lena: Pg 31)"*

The extract below describes how Zoe directed her athletes and dancers to incorporate a much more holistic stretching approach:

*“when I’m thinking about the athletes and the dancers I worked with, quite often they, for example, especially with the dancers it was about helping them to direct their stretching because often there were stretching the areas that they were much more comfortable with, and they were used to stretching than safe example stretching the thorax ... (Zoe: Pg 23 - 24)”*

Later on, in the interview, the extract from Zoe provides a good example of the didactic role of the practitioner explaining a concept, in this instance the gentle engagement of the nervous system:

*... the way that I used to explain it to people was that we just want to gently give the nervous system a nudge, but we don’t want to wake it up completely. And that’s kind of how people understood it says OK, yeah, I’m. I’m just nudging. OK, just nudging ... (Zoe: Pg 36)”*

#### **2.6.1.7 Ownership of Practice. This is my Own Approach**

During the interviews it became evident that some participants had developed an original and unique approach to their practice. Participants talked of how they had come to form their own views of their practice, for example Peter believed that Osteopaths need to ‘know more’ and it’s not just about ‘rubbing your back’:

*“... this has been something that’s in my head for a while, and I’ve been thinking, there’s so many osteopaths out there and they need to know more, and not just rubbing your back, but learning more about it ... I study these things and I applied to my life, and I apply it to my patients here. Maybe it’s a self-belief thing as well ... (Peter: Pg 29)”*

Peters believed that Osteopaths need to do more self-learning and be examples for their clients. Early in the interview, Peter shared that his views had been informed from being active in his own sport as well as from the people and clients that he had worked with:

*“A lot this is my own views and what I've worked with patients, and with people that I work with, and being very active in my own sport ... (Peter: Pg 11)”*

In the extract below Clare talked of how her yoga teaching is focused on the fact that emotions are stored in the body:

*“I'm a very firm believer that we do store our emotions in our body so therefore movement of any type. Its really important in terms of freeing those emotions that are stored ... (Clare: Pg 13 - 14)”*

Victoria's interview had some vivid examples of how she has developed her yoga teaching practice in a unique and special way. In the extract below Victoria explains her choice of yoga style as being more closely aligned with her role as a Neuro OT:

*“But I really kind of fell in love with the Vinney yoga as a kind of therapeutic method. And I felt that that was much more in line with the work that I do with as a therapist as well ... (Victoria: PG 3)”*

Further on she goes on to describe her teaching as 'somatics' and looking inward and being 'very in your body':

*“so it's much more kind of feeling your way in and it does bring in quite a little bit of somatics as well. So being very in your body, working very slowly and mindfully through a practice and what I teach ... (Victoria: Pg 5)”*

### **2.6.1.8 Tension Between Theory and Observed Reality**

This PET highlights examples of when the participants perceptions of stretching differed from the literature or the accepted norms. In the extract below Andrew's experience is that there is very little correlation between flexibility and injury:

*“... so it's been obviously working in professional athletes who for us, it's all about trying to avoid injury and injury prevention strategies, and I've tended to*

*find that actually there isn't a great correlation between flexibility and, and risk of injury ... (Andrew: Pg 6)"*

*Anne's views of stretching is more nuanced. Even though she enjoys stretching, she feels that some stretching may not be good for the body:*

*"... there is some stretching that's probably not terribly helpful. It's difficult for me to say. Personally, I enjoy stretching. But that's probably because of my background. So for me when I do any sort of exercise, it will always include some stretching. Because I enjoy stretching, it feels good for my body ... (Anne: Pg 22 – 23)"*

### **2.6.1.9 Experiences Around Education**

The participants were asked about their educational experiences around stretching. The participants experience around education was a prevalent PET among ten of the eleven participants. The important features of the participants Experiences Around Education were the views of the educators and how the material was taught.

Some participants found that some educators were biased towards their own views:

*"...one thing I did find is the lectures were quite biased towards their own viewpoints, which made it difficult to get, uhm, quite like a, a well-rounded view of some things. And obviously that only applies to certain lecturers ... (Natalie: Pg 5)"*

*"... and it was very much drummed into us that we have to do stretching at all the time. It was something I think my instructors are very good at ... (Karen: Pg 7)*

*"... we had that instructor that taught us that stretching was really important and really focused on it ... (Karen: Pg 9)*



*"I did one course and I thought, no, this is this is really not for me and it was all marketed in terms of functional training and it was functional this and functional that the stretching part. Was very aggressive and he felt that, yes, this bruising is a good sign because it means that he had all kinds of, in my view, pseudo-scientific. But at the time, I didn't know. I thought these were a scientific tests and studies that had been done ... (Zoe: Pg 7)"*

Similarly, some of the participants believed that her education on stretching was misguided or was simply following the norms of the time:

*"... at that stage you know we're talking about the 1970s, nineteen 80s. It was completely ballistic. Completely and you know, you would have your partner or the coach jumping on you and forcing you a bit like you see, in the training of the Russian gymnasts, if you ever watch that on YouTube, you know, the leg is taken, and it's just forced. Or you're in splits and somebody's on your shoulders. It was completely ballistic and quite brutal really (Anne: Pg 9)"*

*"In fact, the overriding emphasis was on the flexibility. I don't think there was the knowledge at that stage that actually strength was as important, if not more important (Anne: Pg 10)"*

*"Well, I think I'm suffering from the effects of that now. It was all about getting the stretch. It wasn't about getting the strength to support the stretch. (Anne: Pg 10)"*

*"So yeah, so a lot of my stretching came as a as a response to other types of stretching which I felt were not very effective, so I think potentially, if Gary Gray hadn't come along with all of his courses, I may never have been that ... (Zoe: Pg 9)"*

*"When I trained, I was taught three sets of 10. That was kind of the standard three sets of 10, and there was no concept of kind of going to where it feels comfortable and then going a little bit beyond that border where it might not be, feel so comfortable, but still not painful and that's kind of the border that I'm working with. So, it could be end of range, very flexible people or it could*

*be you know not a lot of movement for people that are very bound up and very, very tight ... (Zoe: Pg 34 – 35)”*

Several participants perceived that their education was lacking in certain areas. Peter, for example felt that stretching was hardly mentioned at all in his Osteopathy training, which is something that Peter did not like about the training:

*“... so, with the osteo, I only qualified 10 years ago, there was very little on exercise and that's it. That's the big thing I had against it. You know where you can get these people that comes from a housewife background to study osteo and they think they can study anatomy and then prescribe exercises for rehab. But if you don't do it, you don't know what you're talking about, and how can you then go on to prescribe that. So, I think the OSTEO curriculum has got very little on exercise-based modalities (Peter: Pg 8 - 9)”*

Peter felt strongly that it is important for the practitioner to practice what they prescribe other to do. In general, Peter seemed dissatisfied with his Osteopathy Education. From the grammar of the extracts from Peter it may be seen that English is not Peters first language. In the extract below Peter explains in his best English that his perception of his Osteopathy training is that the students were not educated think critically or to view a problem from a higher level:

*“... It goes back into the whole education side. Because I think sometimes there's a few guys that It's got an idea and then everybody hang on to one or two things, but they've got to look a lot more global to it than Just one thing. (Peter: Pg 32 – 33)”*

Care was similarly dissatisfied with her yoga teacher training. Clare's dissatisfaction was that there are no basic standards of stretching anatomy and physiology training across yoga schools:

*“... Because I think one of the problems with yoga teacher training. And I I've got a few friends who have done different yoga teacher training, not just different Yoga schools but the same the same school of yoga. For example, Ashtanga, but with different and yoga training associations. And it seems to*

*be so varied. You know, some are very much about physiology and anatomy, some are very much about they sort of place more emphasis on the spirituality, part of it or the background and where it comes from so, I think first and foremost, if you're going to incorporate stretching into the yoga teacher training, there needs to be some sort of, This is the basic that all yoga teachers should have at least and then you can sort of add on and perhaps stretching and anatomy and physiology needs to be part of that core curriculum (Clare: Pg 25)”*

Some found the education process mundane and pushed through the training to gain the qualification:

*“I'm finding at the moment with the reformer training. I'm just finding the training pretty mundane and boring because I have to practice the training so I can pass, you know for the qualification, and I find that really quite restraining (Anne: Pg 6 - 7)”*

By Contrast, some participants enjoyed their education experience when their educators that were inspirational, encouraging and supporting:

*“... and, and my teachers say, she's such an inspiration, just a fantastic person (Deborah: Pg 4)”*

*“To sort of say to me when you started, you were skinny and you had no muscles, and now you've been doing this and she said. I've never known anybody actually do these classes at home. They come once a week and they expect results. But she said, you're the one person that's ever come into my classes and I can physically sort of see the transformation between you're skinny and, and sort of refined body to the one that you have now. So, she really gave me such a huge, huge sort of encouragement (Deborah: Pg 4)”*

*“... she huge sort of encouragement. Really. So yeah, when she said that about me, you know, she could see that my body had changed. I was so proud ... (Pg 4) “*

It was important for some of the participants that their educators were open-minded, well-rounded and able to think in untraditional ways:

*“I did my teacher training, my 300 hour teacher training with the British wheel of yoga, and that was with XXXX and XXXX over at XXXX in XXXX. They're both got very individual experiences of yoga. XXXX is a Vinny yoga teacher, so his whole kind of journey through yoga has been in the Vinny Yoga tradition and XXXX is more somatic, so I felt like I got a really good well-rounded couple of people there taking me through the teacher training and there weren't ever. There were always very open minded about people going off and doing their own thing ... (Victoria: Pg 3)”*

*“we learned about how muscles move and levers and all. All of that stuff, but then also how you can move a leg, but it's related to the other part of your body... we looked at the skeleton, but we also looked at how fascia and everything is connected, that if you're working with the leg, you're working with other parts of the body as well. It's moving away from that traditional thinking, isn't it that, you know, the arm moves in isolation of the rest of the body? It doesn't ... (Victoria: Pg 11)”*

Sophia's reflections of her yoga teacher training were pragmatic. She accepted that the course covered a wide range of topics at a superficial level:

*“... I think what I've realized about training, I did a 200 hours training which isn't very much, and they do everything. So, it's very superficial, isn't it? They tried to touch on everything at a level... I think it would be useful because it's something that I'm interested in, but as a general comment on the course. Not necessarily, because it was quite broad. I think in terms of its syllabus compared with other courses that I'm aware of ... (Sophia: Pg: 8 – 9)”*

It appears that Sophia's positive perception of her yoga training was attributed to her expectations of the course:

*“... all it's doing is giving you a very small body of knowledge to unleash you on the world and then you then you really start to put it into practice and discover what areas of yoga you're interested in, what yoga means to you, 'cause. I don't think yoga means the same thing. To me, to you, to the next person ... (Sophia: Pg 5)”*

### **2.6.1.10 Taking What is Needed from CPD**

Participants accomplished CPD in various ways such as attending formal courses, taking part in informal discussions with colleagues at work, researching the literature, and following social media influences online.

Peter relayed an example of a time when he attended a formal CPD event. Although the focus of the event was achilles injuries in football, Peter was inspired by the event to develop the idea that the principals would apply to other areas of the body as well:

*“... lengthen and out and then come down and up so as if you stand on a step, but you don't. You don't drop it down into your stretch, so as I was listening to that philosophy on the achilles and I thought, but if that works on those muscles then, then, then it should work on the others. There's like you're, it's like your hamstring ... (Peter: Pg 26)”*

Natalie received regular CPD from weekly informal discussions on research papers that are relevant to their current case load:

*“... every week we sit down as a team up in the hospital and go through a different research paper, which is relevant to practice. So as a lot of strength and balance training, or fears of falling, and think things that are quite relevant to the population that we see. A man I know that is common practice within the within different NHL teams. UM is to sit down as a team and like appraise research together. And so, I think there's so much support ... (Natalie: Pg 10)”*

Those participants that regularly undertook CPD education opted for courses covering subjects that they were interested in, for example:

*“But then if I look at who I then whose classes I attend and who I engaged with, whether that's listening to podcasts or you know, following them in Instagram, then I do notice that I gravitate towards teachers who are more into mobility, functional strengths and anatomy. Understanding how the body is made up ... (Sophia: Pg 11)”*

*“I'm subscribed to a site called PilatesOlogy, which is a site, basically a lot of classical Pilates either workouts or observe and learn, kind of videos. So, I would go there, and it's ordered in terms of by apparatus or there's specifics on knees or hips or so you can go in a dip in and out of some videos from people who've been doing this for years ... (Lena: Pg 32)”*

#### **2.6.1.11 Keeping Up with the Latest Research**

An important feature of the participants perceptions of stretching was their perspectives of keeping up to date with the latest stretching research. Some of the participants found that maintaining currency with stretching research was a challenge.

Some participants did not engage in any stretching research recently, for example:

*“Well, I use stretching a lot. I have to say I haven't kept up to date with some of the latest research (Andrew: Pg 3)”*

*“But the evidence, I have to say, I don't keep up to date with it. I have to say (Andrew: Pg 4)”*

*“.. I haven't read anything on stretching in sometime. It's all been very much focused on exercise interventions at the moment for me (Karen: Pg 16)”*

*For other participants, lack of time was a limiting factor:*

*“I mean, I think if I had the time, I would like to explore the research a little bit more and just sort of try and I guess for me I would need to understand the benefits myself. So having time to understand the benefits of stretching and then maybe put it into place and then maybe even incorporate that into my yoga practice a little bit more ... (Clare: PG 16)”*

For other participants, stretching research was simply not a focus for current their practice:

*“.. I haven't read anything on stretching in sometime. It's all been very much focused on exercise interventions at the moment for me (Karen: Pg 16)*

One participant shared that she was completely mystified as to where to start with stretching research:

*“... I don't know where I would start, to be honest other than Googling. I don't know where I would go to other than Google or other instructors ... (Lena: Pg 33)”*

### **2.6.1.12 When the Research is Inconclusive**

Some of the participants found that the recommendations arising from stretching research were unclear, for example:

*“I know that it's often quite a conflicting area stretching as to whether. Is it good? Is it bad? What type of stretching should we be sort of using and when? (Andrew: Pg 3)*

*“I'm a bit confused about stretching to be honest .... and then I seem to recall some of the research that came out was that the one was good, but you didn't have to do the other one and I can't recall which way around it was. For example, I think you stretch before, but you don't stretch afterwards or the*

*other way around, so I'm quite confused as to whether it's necessary, whether it's beneficial. (Clare: Pg 3)”*

Clare perceived that the messaging from the stretching literature was author dependant and seemed to change over time:

*“I would imagine if I started looking at different sources, different people will have different opinions so like I said I think the perception of stretching has changed over the time ... so I think the perception has changed so much over time that I'm not quite sure what the sort of in thing is, and the more up to date research is (Clare: Pg 19)”*

According to Karen, there was confusion among practitioners about to how to apply stretching in practice:

*“... But from what I remember seeing, it was always people arguing about the duration of stretches ... and it's like can we stop arguing and kind of have a consensus ... (Karen: Pg 16)”*



## Appendix M

### Hip Opening Stretch Sequence

#### Hip Opening Sequence Adapted

The focus of the hip opening series of stretches is to increase hip and lower back flexibility and mobility.

Practice the following series of stretches after exercise or when your body is warm. If you have not exercised, then consider stretching after a warm shower or bath. Breathe slowly and deeply into the stomach and lungs while you are stretching and hold each stretch for 3 deep slow breath cycles. Remember to always stretch both sides of the body.

Knee hugs: start with knees into chest and tuck your sacrum down toward the earth.



Draw your flexed knee toward the chest while pushing out through the heel of the extended leg. Try to prevent compressing the side body by keeping the same length between the left and right ribs and the pelvis. This movement is both a deep flexion of the hip of the flexed knee, as well as a hip extension and stretch of the extended leg. Keep both feet active by flexing the ankle as shown. Place a rolled towel or cushion under the knee of the extended leg if the back of your knee does not reach the ground.



Half happy Baby stretch. Extend the leg to form a 90-degree angle, Clasp both hands behind the thigh and gently draw the thigh toward the chest. Remember to continue to tuck the tailbone down. Keep a rolled towel or cushion underneath the knee of the extended leg for support if the heel does not reach the ground. This movement is a deeper hip flexion and gluteal stretch. At the same time notice the deeper stretch of the hip flexors of the extended leg.





Hamstring stretches. Extend one leg keeping a micro bend in the knee to prevent overextension. Place a strap or belt over the forefoot bring the leg toward you until you feel. Stretch in the middle of the back thigh. If you experience any pain or discomfort behind the knee ease off the stretch. Keep a micro bend in the knee to prevent overextension.



Supine hamstring crossover stretch. Take the leg toward the opposite side. Keep both shoulders on the ground. The movement stretches the medial/maximal glutes, IT band and hamstrings.



Hamstring and adductor stretch. Take the leg out to the side. Ensure that the pelvis remains stable on the ground. Use the opposite hand to help to keep the opposite hip from lifting off the ground.

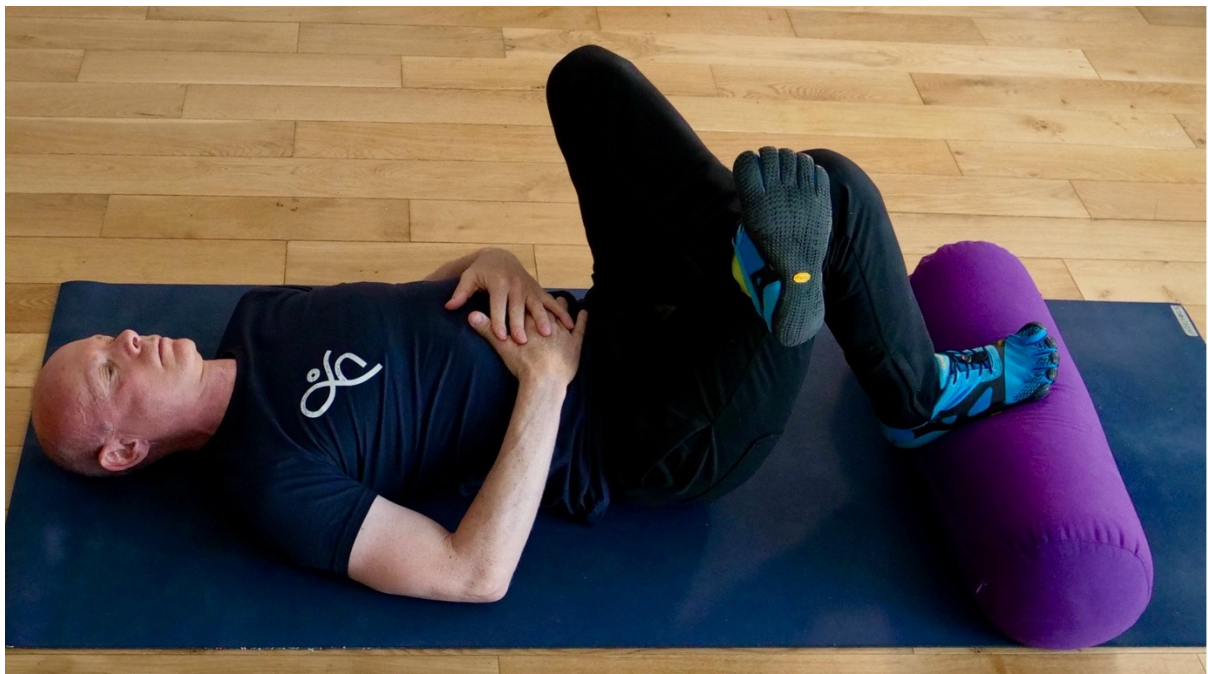




Supine pigeon stretch. Lie *on the back in a supine* position. Bend the knees, bringing the heels close to sit bones and cross one ankle over the opposite knee. Thread the hands or reach through between the thighs. Dorsiflex both ankles flexed to protect the knees. This is an external rotation and deep stretch of the piriformis and glutes.



If you are unable to reach your thighs use a cushion to raise the grounded foot as shown.



Eagle twist stretch. Cross the legs and spread the arms as shown. Keep both shoulders grounded. Twist toward the direction of the crossed leg. The movement focuses the rotation in the lumbar spine and stretches the soft tissues of the lower back.





Reclining twist stretch. Bring the knees together and toward the chest then twist toward one side. Keep both shoulders on the ground. This movement focuses the rotation in the thoracic spine and stretches the soft tissues of the mid back while lengthening the lumbar spine.





Supine bound angle stretch. To stretch your inner thighs spread the knees out to the side to stretch the insides of the thighs. If you feel that the stretch is too intense then use cushions to support the knees as shown.



Seated Bound angle stretch: For a deeper stretch of your inner thighs bring your heels toward your hips and gently take your knees toward the ground. Keep the spine long. If your back is arching, then sit on a block as shown. The block helps to rotate the hips anteriorly and extend the lumbar spine to a more neutral position



Bench assisted psoas stretch: This will stretch the hip flexors (psoas and quadriceps). Use a bench as shown





If the quadricep flexibility allows try to bring your foot toward your hips as shown to increase the stretch in the quadriceps

