Individual Research Project Presentations Day 10th June 2024, Kent and Medway Medical School.

Overuse Syndrome in Persons with Peromelia: A Scoping Review

Student[a]**:** Lawrence Miller | **Supervisor(s)**[b]**:** Dr Claire Parkin

Abstract

Background: For persons with peromelia, also called congenital transverse deficiency of the upper limb, overuse syndromes (OS) especially in the shoulder, back and residual limb are a common yet debilitating problem that greatly affects quality of life and activities of daily living (ADL). Common types of OS are carpal tunnel syndrome, medial and lateral epicondylitis and rotator cuff injury. This condition is more widely recognised amongst elite athletes and within the sports medicine field. There is a scarcity of literature surrounding OS in relation to upper limb amputees, therefore this scoping review set out to explore the prevalence and severity of OS, risk factors and preventative measures for persons with peromelia. A secondary aim was to identify areas requiring further research.

Methods: This was a scoping review using the PRISMA extension for Scoping Reviews (PRISMA-ScR) guidelines. This scoping review followed a systematic approach to map evidence on overuse syndromes in persons with peromelia to identify main concepts such as risk factors, preventative interventions and knowledge gaps. Sources were thematically analysed.

Results: The review yielded 10 peer reviewed publications and 10 sources of grey literature. Thematic analysis identified 3 major themes with 10 subtheme categories. These were: 1. Clinical presentation including the severity, variation and burden of overuse syndrome; 2. Risk factors for overuse include repetition and resistance, compensatory movements and prior pathology; and 3. Interventions to prevent overuse syndrome include reduction in mechanical stressors, routine assessment, posture correction and prosthesis use.

Conclusions: Around half of individuals with congenital or acquired upper limb loss are likely to experience some form of overuse syndrome. The condition's severity varies and can severely impact the ability to perform ADL. The results also show there is a higher chance of OS in individuals with a more proximal deformity. OS is more commonly seen in the shoulder and back, with lower incidence in the neck and hand. The most significant risk factors identified for OS are repetitive or resistive activities and compensatory movements. Systemic illness, age and BMI are more minor risk factors. Physiotherapists and Occupational Therapists were highlighted as having a significant role in education, assessment, exercise, and prosthetic training. The evidence suggests the use of prostheses can offer a protective benefit against overuse syndrome, though this assertion warrants further, detailed investigation due to inconclusive findings.

Keywords: Peromelia | Overuse Syndrome | Upper Limb Amputee | Physiotherapy | Occupational Therapy

[a] 4th Year Medical Student, Kent and Medway Medical School, Canterbury, United Kingdom

[b] Associate Professor in Medical Education, Kent and Medway Medical School, Canterbury, United Kingdom

Main contact email: l.miller793@kmms.ac.uk