

# Does Frowning Modulate Perception of Effort?



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# Introduction

- People frown when they experience high effort.



- Could frowning be a determinant of perceived effort?



# Introduction

- Research on the facial feedback hypothesis shows that facial expressions can amplify or soften elicited feeling states.
- If frowning influences perception of effort, then interventions that target frowning could be used to improve endurance performance.



# Study Aims

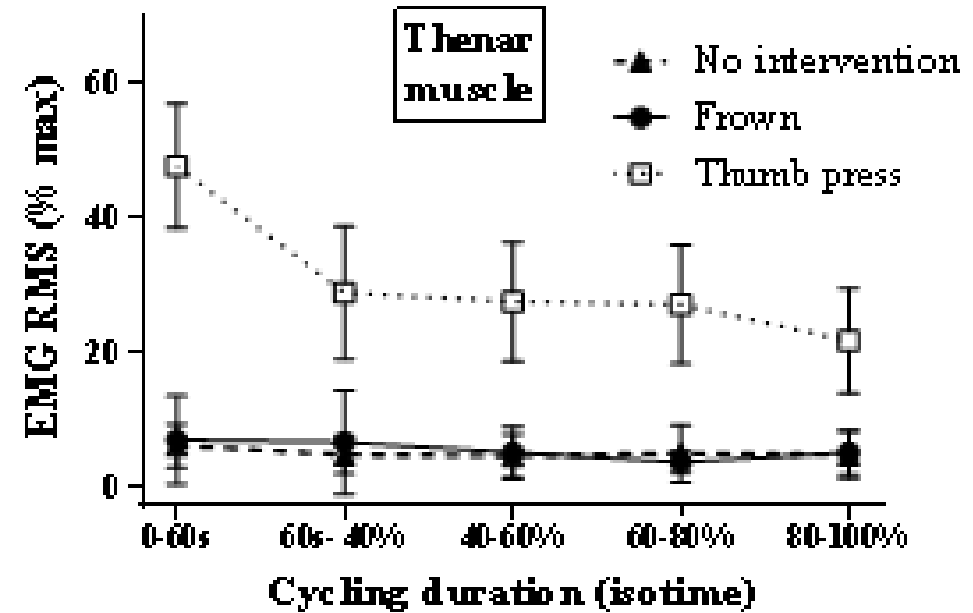
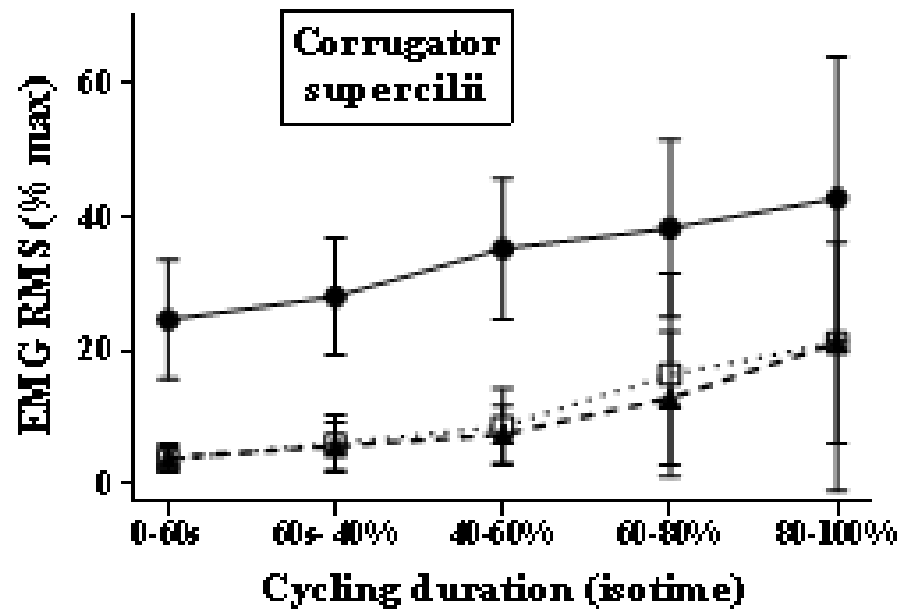
- The facial feedback hypothesis and the psychobiological model of endurance performance were applied.
- We examined whether intentionally frowning during a cycling time-to-exhaustion test increased perception of effort and, consequently, reduced time to exhaustion.
  - Does frowning amplify perceived effort?
- We also examined the effects of frowning on affective states experienced while cycling and after exhaustion.

# Methods

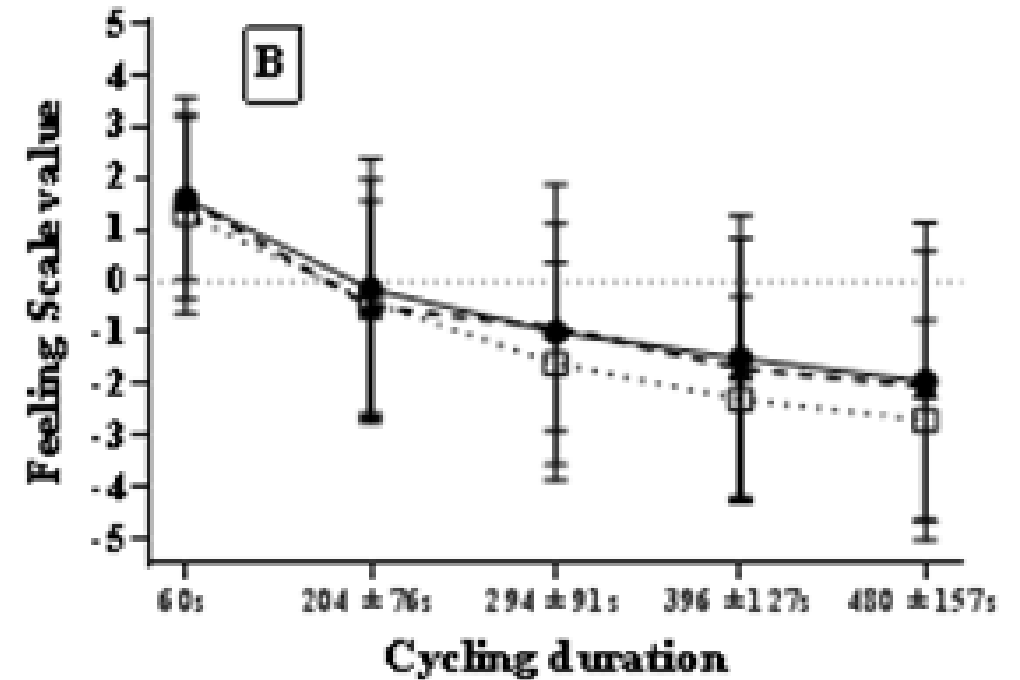
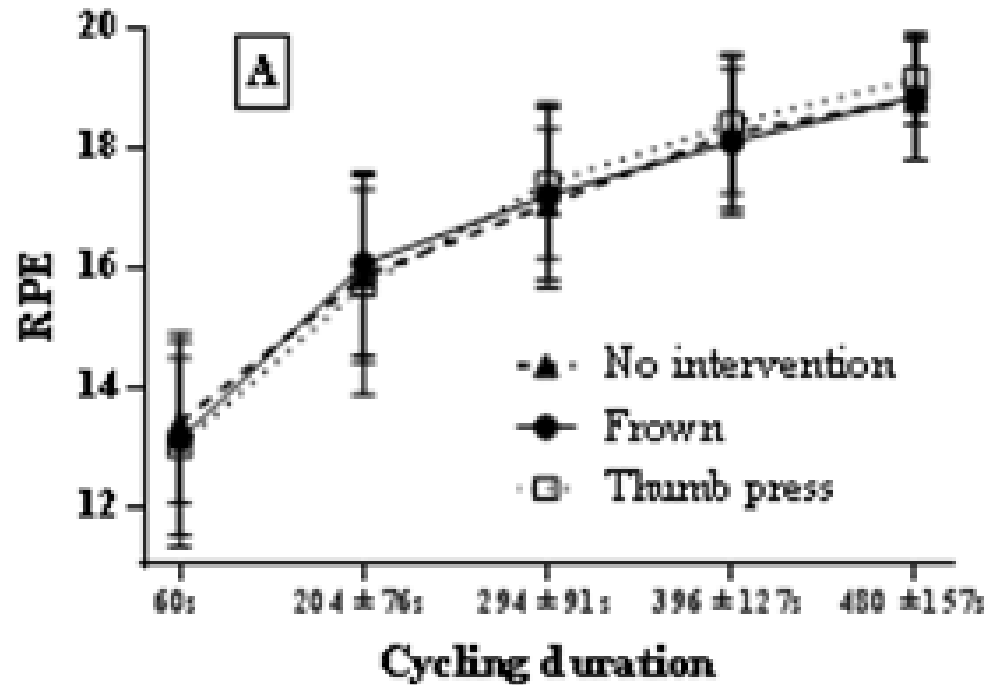
- Ten endurance athletes performed time-to-exhaustion tests in three conditions.
- In one condition, participants frowned throughout the time-to-exhaustion test. There were two control conditions.
- Electromyography biofeedback was used to deliver interventions.
- Perception of effort (RPE) and exercise-related affect (Feeling Scale) were measured throughout the time-to-exhaustion test.



# Manipulation Checks



# Effects During Performance



# Results Summary

- Time to exhaustion was similar in the frowning ( $609 \pm 243\text{s}$ ) and no-intervention conditions ( $603 \pm 175\text{s}$ ), and it was shorter in the thumb-press condition ( $558 \pm 159\text{s}$ ) ( $p = .58$ ).
- Intentionally frowning did not affect perception of effort, affective states experienced while cycling or after exhaustion, or time to exhaustion.



# Discussion

- The findings suggest that frowning may not modulate perception of effort during endurance performance.
- The results are not promising for frowning-based performance-enhancing interventions informed by the facial feedback hypothesis.
- Future research that examines the effects of inhibiting frowning could offer greater clarity.

# Any Questions?



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