Effect of mental fatigue on inter-set bench press performance

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1 Introduction

- The barbell bench press is acknowledged as an effective exercise for enhancing the upper body muscular development (Ronai et al., 2018).
- After 30 minutes of using social media will produce mental fatigue and to reduce volume-load performed (Gantois et al., 2021).
- It is essential to incorporate metrics such as rating of perceived exertion and velocity loss percentage to evaluate mental fatigue effectscomprehensively (Gantois et al., 2021).

2 Purpose

- To investigate the impact of mental fatigue induced by social media engagement, on inter-set bench press performance, specifically examining mean bar velocity, rating of perceived exertion and total training volume

3 Methods

- Recruit 8 healthy male participants, aged 18 to 30 years
- Each participant with at least one year of strength training experience

Session 1: Familiarization session

1. 5rm barbell bench press test
2. Explain upcoming session 2&3 procedure

Session 2 &3: Experimental session

1. 30 mins intervention

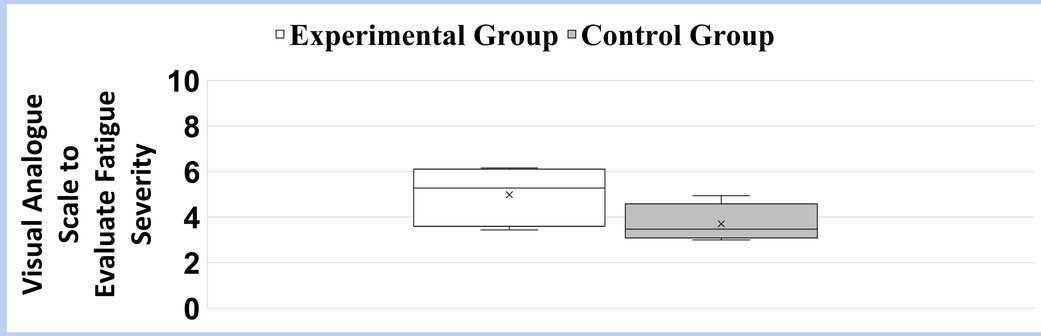
Experimental condition: Use social media

Control condition: Watch documentary

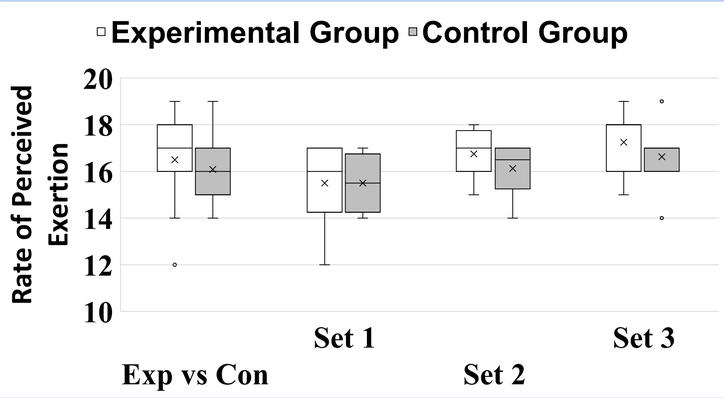
2. Measure mental fatigue by Visual Analogue Scale to Evaluate Fatigue Severity
3. Warm-up
4. Perform 85% intensity bench press
5. 3 mins rest and data collection
6. Repeat until finish 3 set bench press

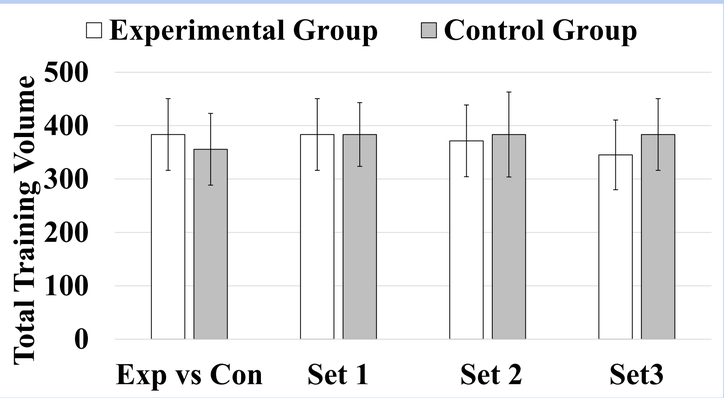
4 Result

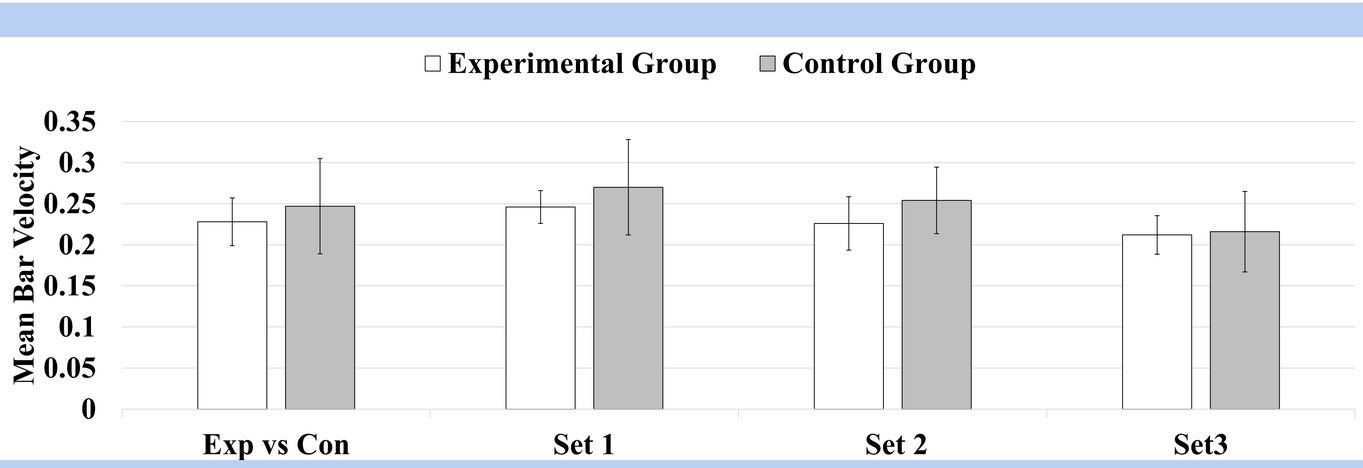
Significant difference for VAS-F ($p < 0.05$, $n = 8$)



No statistically difference for RPE ($p > 0.00333$, $n = 8$), total training volume ($p > 0.05$, $n = 8$), and mean bar velocity ($p > 0.05$, $n = 8$)







5 Conclusion

- The RPE scale has insufficient sensitivity to detect effort changes from mental fatigue. This was likely due to the participants' familiarity with the bench press, which led to consistent exertion perceptions and reduced RPE variation.
- Maximal effort exercises prioritize physiological responses over cognitive responses
- Adenosine accumulation in the cingulate and prefrontal cortices causes physical effects of mental fatigue, which it mainly reduces endurance rather than maximal strength.
- Mental fatigue does not impair the neuromuscular system's ability to produce force for single-repetition submaximal loads.