SENSITIVITY OF DAILY WELLBEING AND NEUROMUSCULAR FATIGUE MEASURES TO TRAINING LOAD AND SLEEP IN HIGH SCHOOL AGE ATHLETES

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INTRODUCTION

- Previous studies have shown the sensitivity of daily wellbeing questionnaires (DWB) and countermovement jumps to training load in elite adult athletes. [1,2]
- Sleep length has previously been shown to affect mood, but no study has yet considered its impact on wellbeing questionnaires alongside training load. [3]
- The purpose of this study was to assess the sensitivity of a DWB, the Perceived Recovery Status scale[4] (PRS) and countermovement jumps (CMJ) to training load and sleep length in high school age athletes.

METHODS

- Fifty-two high school age athletes (age 17.3 ± 0.6 years, height 173.0 ± 18.2 cm, body mass 73.7 ± 12.6 kg) volunteered to participate in this eight week study.
- Prior to their first training session of the day, participants:
  - Completed DWB and PRS
  - Provided details on the previous day's training loads and sleep length
  - Completed 3 maximal CMJs
- Partial correlations were used to assess the linear relationship between DWB, PRS and CMJ with training load and sleep length.
- Correlation coefficients (*r*) were calculated and magnitude based inferences were used to assess for practical significance.

RESULTS

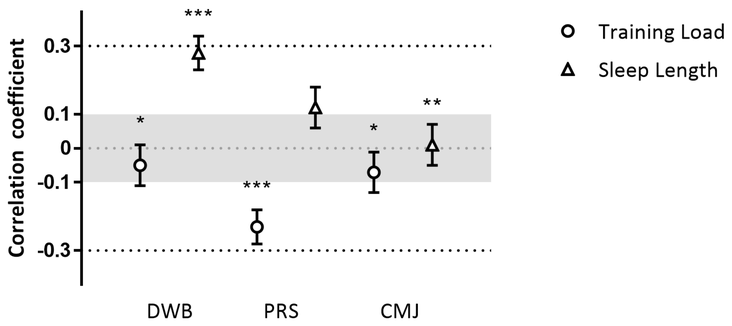

Figure 1: Graphical depiction of correlation coefficients for DWB, PRS and CMJ. Asterixes denote the likelihood that the correlation coefficient is greater than the smallest worthwhile change (shaded area): * likely; ** very likely; * most likely.**

	5	4	3	2	1
FATIGUE	Very fresh	Fresh	Normal	More tired than normal	Always tired
SLEEP QUALITY	Very restful	Good	Difficulty falling asleep	Restless sleep	Insomnia
GENERAL MUSCLE SORENESS	Feeling great	Feeling good	Normal	Increase in soreness/tightness	Very sore
STRESS LEVELS	Very relaxed	Relaxed	Normal	Feeling stressed	Highly stressed
MOOD	Very positive mood	A generally good mood	Less interested in others &/or activities than usual	Snappiness at team-mates, family and co-workers	Highly annoyed/ irritable/down

10 Very well recovered / Highly energetic
9
8 Well recovered / Somewhat energetic
7
6 Moderately recovered
5 Adequately recovered
4 Somewhat recovered
3
2 Not well recovered / Somewhat tired
1
0 Very poorly recovered / Extremely tired

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RESULTS

- There was a *most likely* small positive relationship between DWB and sleep length (*r* = 0.28; ± 0.05).
- There was a *most likely* small negative relationship between PRS and training load (*r* = -0.23; ± 0.05).

PRACTICAL APPLICATIONS

- Subjective measures of wellbeing are more sensitive to training loads and sleep length than neuromuscular measures.
- The PRS is a simple tool for monitoring an individual's response to training.
- The DWB may provide a more complete understanding of the high school athlete's wellbeing but this comes at the expense of its sensitivity to training load.

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