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Link between the stress-recovery balance and mindfulness in young elite BMX riders

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Introduction

The stress-recovery balance refers to the quality of adjustment of recovery strategies that one mobilizes according to his or her stress states (Kellmann, 2010). Maintaining this balance plays an important part for the athletes and the coaches to reach an optimal performance. Currently, the scientific literature tries to develop the knowledge about psychological strategies of recovery among which, mindfulness has captured in interest (Blevins et al., 2021). From a biopsychosocial perspective, the aim of the study was to explore the links between mindfulness and the stress-recovery balance.

Method

24 young elite BMX riders from a National Training Center were followed-up during two weeks of intensive pre-competition training. First, they completed the Mindfulness Inventory for Sport (MIS) and the Five Facets Mindfulness Questionnaire (FFMQ) to assess their mindfulness dispositions. The follow-up of the stress-recovery balance was made by psycho-physio measures: (1) they had to complete every morning the Short Recovery and Stress Scale (SRSS) and the Recovery Stress Questionnaire for Athletes (RESTQ) twice a week, and (2) heart rate variability was measured twice a week. After every training, riders rated their mindfulness states during training. By using the R package labeled lme4, multilevel growth curve analyses were used to examine the linear and/or quadratic trajectories of athletes stress-recovery variables and the scores of dispositional mindfulness and mindfulness states.

Results

Concerning mindfulness dispositions, results showed no significant effect with stress-recovery states, while a significant positive linear interaction effects of time on RMSSD ($\beta = 7.67$, $P < .05$) was found. Regarding mindfulness states, results showed a significant negative linear interaction effects of time on stress ($\beta = -.25$, $P < .05$) and a significant positive quadratic interaction effect of time on recovery ($\beta = .38$, $P < .001$). No significant interaction effect with RMSSD was found.

Discussion

These results offer a better understanding of the links between mindfulness, as a disposition or a state, and stress-recovery balance. The study brings new applied and research perspectives. In particular, mindfulness could be considered as a recovery strategy. Future interventional studies should confirm its effects.

Blevins, P., Moyle, G., Erskine, S., & Hopper, L. (2021). Mindfulness, recovery-stress balance, and well-being among university dance students. *Research in Dance Education*, 1-14. <https://doi.org/10.1080/14647893.2021.1980528>

Kellmann, M. (2010). Preventing overtraining in athletes in high-intensity sports and stress/ recovery monitoring. *Scandinavian Journal of Medicine & Science in Sports*, 20, 95-102. <https://doi.org/10.1111/j.1600-0838.2010.01192.x>

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