

MINDFULNESS AND SELF-CONTROL STRENGTH IN SPORT: DOES A SHORT MINDFULNESS EXERCISE COMPENSATE FOR THE EGO DEPLETION EFFECT?

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Introduction: In sport and exercise contexts, it is highly important to control one's impulses and behavioural tendencies to meet specific goals. For example, athletes need to overcome fatigue and pain and must ignore external factors like noise from the audience to achieve high-level performance (Englert, 2016). Athletes frequently have to deal with several demands which may deplete their limited self-control resources which may in turn negatively affect their subsequent performance in a wide variety of sports-related tasks (e.g., coordinative, psychological and physical tasks; Birrer & Morgan, 2010). In our study, we investigated the effects of a short mindfulness exercise on physical performance in a state with temporarily depleted self-control strength (*ego depletion*; Baumeister, 2002). Mindfulness meditation may be beneficial for mechanisms involved during self-control exertion, because it supports efficient emotion regulation, attention regulation and executive functioning (Brown & Ryan, 2003; Masicampo & Baumeister, 2007; Jha, Krompinger, & Baime, 2007). We hypothesised that a short mindfulness exercise can compensate - at least partly - for the ego depletion effect procured by a strenuous cognitive task on physical performance.

Method: We applied a mixed between- (ego depletion: yes vs. no) within- (two times of measurement, 7 days apart; mindfulness: yes vs. no; order counterbalanced) subjects design to test our hypothesis in a sample of $N = 34$ sport students (18 women; $M_{\text{age}} = 20.85$, $SD_{\text{age}} = 1.31$). Ego depletion was manipulated via a well-established transcription task. For the manipulation of mindfulness, participants in the mindfulness condition performed a short mindfulness exercise, while participants in the control condition listened to an audio book. As dependent

variable, participants performed a strenuous physical exercise (plank exercise) for as long as possible and we measured the respective duration at both times of measurement.

Results: Depleted participants in the mindfulness condition were able to compensate for the ego depletion effect and held the plank position as long as the non-depleted group. On the contrary, ego depleted participants' performance decreased when listening to the audio book. However, the interaction did not reach statistical significance, $F(1, 28) = 2.28, p = .142, \eta^2_p = .08$.

Discussion: The results, at least to some extent, support our hypothesis, indicating that a short mindfulness exercise can help to compensate for ego depletion related performance impairments in sport.