

Acute coordinative exercise improves attentional performance in adolescents.

Budde H, Voelcker-Rehage C, Pietrabyk-Kendziorra S, Ribeiro P, Tidow G.

Abstract

Teachers complain about growing concentration deficits and reduced attention in adolescents. Exercise has been shown to positively affect cognitive performance. Due to the neuronal connection between the cerebellum and the frontal cortex, we hypothesized that cognitive performance might be influenced by bilateral coordinative exercise (CE) and that its effect on cognition might be already visible after short bouts of exercise. One hundred and fifteen healthy adolescents aged 13-16 years of an elite performance school were randomly assigned to an experimental and a control group and tested using the d2-test, a test of attention and concentration. Both groups performed the d2-test after a regular school lesson (pre-test), after 10 min of coordinative exercise and of a normal sport lesson (NSL, control group), respectively (post-test). Exercise was controlled for heart rate (HR). CE and NSL enhanced the d2-test performance from pre- to post-test significantly. ANOVA revealed a significant group (CE, NSL) by performance interaction in the d2-test indicating a higher improvement of CE as compared to NSL. HR was not significantly different between the groups. CE was more effective in completing the concentration and attention task. With the HR being the same in both groups we assume that the coordinative character of the exercise might be responsible for the significant differences. CE might lead to a pre-activation of parts of the brain which are also responsible for mediating functions like attention. Thus, our results support the request for more acute CE in schools, even in elite performance schools.

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