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The Effects of Exercise on the Psycho-cognitive Function of Brain-Derived Neurotrophic Factor (BDNF) in the Young Adults

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ABSTRACT

The benefit of exercise in inducing brain-derived neurotrophic factor (BDNF) functions in relation to cognition had been reported. Nevertheless, the ambiguity remains with regards to the types of exercise and the duration of exercise required for one to have beneficial effects. In this study, we aimed to analyse the effects of varying modes of exercises and the duration required to improve BDNF functions, specifically in the young adults. The types of exercises evaluated in the meta-analysis include (1) single bout of acute aerobic exercise, (2) repeated and frequent sessions of aerobic exercise (program exercise) over a course of several weeks, and (3) resistance training. Only a single bout of acute aerobic exercise ($z=4.92$, $p=0.00001$) is sufficient to cause an increase in BDNF following exercise intervention, while program exercise ($z=1.02$, $p=0.31$) and resistance training ($z=0.92$, $p=0.36$) demonstrated inconsistencies, some exhibited significant increase in BDNF levels while others exhibited similar results with the control groups.

Keywords: brain-derived neurotrophic factor, BDNF, meta-analysis, exercise

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