Study on the Regulation of Brain Structure and Cognition Function in Different Sports Patterns

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Background

After the age of 20, the brain's high-level functions, such as working memory and control inhibition ability, decline year by year. This decline is usually associated with the atrophy of the brain's structure, such as the lateral prefrontal cortex and hippocampus. The present study indicates that physical activity can improve brain cognition by influencing the level of neurotransmitters in the body and delaying the atrophy of certain functional regions.

Objective

In this paper, we discuss the relation of different sports and brain structure and function, analyze the classification of aerobic, anaerobic-anaerobically and coordinating sports, and discuss the benefits of sports intervention from the view of functional MRI, neuroendocrine and event related potential.

Methods

Through a large number of literature collection, the words "exercise, sport, cognitive function, brain plastic" and other words, were searched in the web of science, PubMed, CNKI Chinese databases, and the relevant inclusion criteria were established based on research requirements, and the final document was screened.

Results

① The volume of hippocampal gyrus, prefrontal lobe and basal ganglia of athletes with high physical fitness level or regular physical activity was larger; ② Physical activity has a positive relationship with cognitive function related to brain structure. ③ Sports activities can promote the executive function of healthy people at different ages, children and elderly people with cognitive impairment. The above changes may be related to the increase of blood volume in brain functional areas and insulin-like growth factor endocrine substances promoted by sports activities.Physical activity can enhance the performance of healthy people in different age groups, children and elderly with cognitive impairment.These changes might be associated with the increase of cerebral

function area and the promotion of insulin-like growth factor secretion by exercise.