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Physical activity is a potential treatment for various types of mental disorders

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Statement of the Problem: The mental disorders affect the brain structure and cause the grey matter loss in different regions of the brain. On the other hand, physical activity (PA) can modify the brain grey matter; this means that the damages to the brain structure could be reversed by the physical activity. In this study we will provide a brain map indicating the regions of brain that are modifiable by the physical activity. The aim of this study is to determine whether the PAs could be an efficient method for the treatment of various types of mental disorders.

Methodology & Theoretical Orientation: We searched Pubmed, Science Direct, and Web of Science in May 2017 to identify the relevant studies. Of these, we selected those studies that investigated the association between brain volumes and physical activities using MRI. Healthy man in any age range and any type of physical activity were included in the study. Our search led to inclusion of various studies with 4684 healthy participants in total. The ROIs of brain areas reported to be under the effect of physical activity were added together to make a single map.

Findings: The results indicate that all the regions of brain grey matter are in association with physical activity except 3 regions including the right superior temporal, temporal pole, and the fusiform gyrus.

Conclusion & Significance: Our results indicate that most of the regions in the brain grey matter are modifiable by physical activity. So PAs can be an efficient and safe treatment for various mental illnesses. Different types, durations and intensities of PAs may have different influences on the brain. In the future, many investigations should be conducted to explore the connections and associations between body organs movement and brain region modifications. Discovering these connections may establish a new treatment method for mental disorders named mental illness movement therapy (MIMOT).

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