

Exercise stimulates the formation of new brain cells

June 28 2007

Exercise has a similar effect to antidepressants on depression. This has been shown by previous research. Now Astrid Bjørnebekk at Karolinska Institutet has explained how this can happen: exercise stimulates the production of new brain cells.

In a series of scientific reports, she has searched for the underlying biological mechanisms that explain why exercise can be a form of therapy for depression and has also compared it with pharmacological treatment with an SSRI drug.

The experiment studies were conducted on rats. The results show that both exercise and antidepressants increase the formation of new cells in an area of the brain that is important to memory and learning. Astrid Bjørnebekk's studies confirm previous research results, and she proposes a model to explain how exercise can have an antidepressant effect in mild to moderately severe depression. Her study also shows that exercise is a very good complement to medicines.

“What is interesting is that the effect of antidepressant therapy can be greatly strengthened by external environmental factors,” she says.

Previous studies have shown that drug abusers have lowered levels of the dopamine D2 receptor in the brain's reward system. It has been speculated that this may be of significance to the depressive symptoms drug abusers often suffer from. These rat studies show that genetic factors may influence how external environmental factors can regulate

levels of the dopamine D2 receptor in the brain.

“Different individuals may have differing sensitivity to how stress lowers dopamine D2 receptor levels, for example. This might be significant in explaining why certain individuals develop depression more readily than others,” she says.

Source: Karolinska Institutet

Citation: Exercise stimulates the formation of new brain cells (2007, June 28) retrieved 19 April 2024 from <https://medicalxpress.com/news/2007-06-formation-brain-cells.html>

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