A medium amount of physical activity can lower the risk of Parkinson's disease

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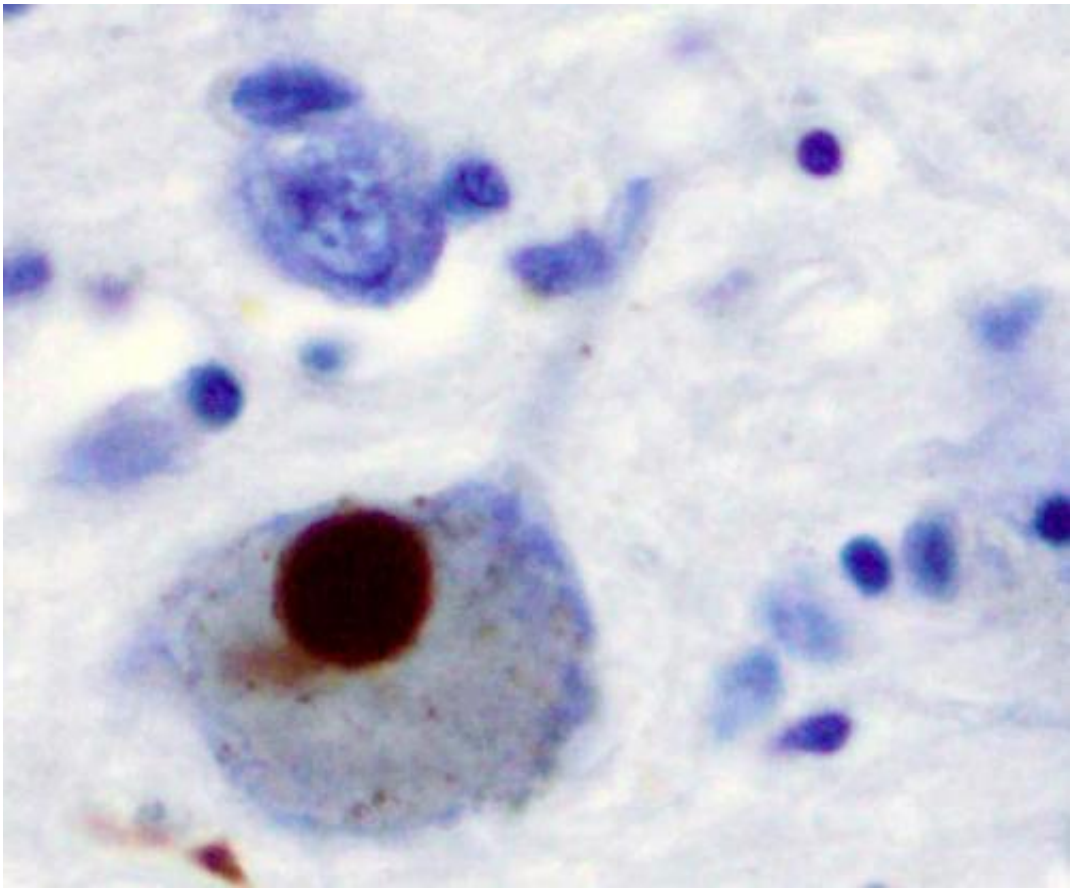

Immunohistochemistry for alpha-synuclein showing positive staining (brown) of an intraneural Lewy-body in the Substantia nigra in Parkinson's disease. Credit: Wikipedia

A new study, published online in *Brain: A Journal of Neurology* today,

followed 43,368 individuals in Sweden for an average of 12.6 years to examine the impact of physical activity on Parkinson's disease risk. It was found that "a medium amount" of physical activity lowers the risk of Parkinson's disease.

Karin Wirdefeldt of the Karolinska Institutet in Stockholm and her colleagues used the Swedish National March Cohort to analyse comprehensive information on physical activity of all kinds. They assessed household and commuting activity, occupational activity, leisure time exercise, and total daily physical activity according to data provided by 27,863 females and 15,505 males as part of an extensive questionnaire. For the purpose of this study, physical activity was quantified into metabolic equivalent (MET) hours per day, based on estimated oxygen consumption associated with those activities.

All participants were free of Parkinson's disease on 1 October 1997, the start of the follow-up period. Study participants were followed from this baseline until date of diagnosis with Parkinson's disease, date of death, date of emigration, or the end of the follow-up period on 31 December 2010, whichever came first. In that time 286 cases of Parkinson's disease were identified.

In the study's multivariable-adjusted model, compared with participants who spent less than two hours per week on household and commuting activity, those who spent more than six hours per week on the same types of activities had a 43% lower risk of developing Parkinson's disease. Compared with a low level of total physical activity, a medium level of total physical activity (a mean of 39.1 MET hours per day) was associated with a 45% lower Parkinson's disease risk in males. Leisure time exercise was not associated with Parkinson's disease risk when analysed alone.

Karin Wirdefeldt, researcher at the Department of Medical

Epidemiology and Biostatistics and Department of Clinical Neuroscience, who headed the study, said: "Our study has a number of strengths. This was a prospective study including both males and females, and all information on physical activity was assessed before the disease occurrence, making recall bias and reverse causation less likely."

"Another major strength of this study is that we considered the entire spectrum of daily energy output, rather than purely focusing on dedicated exercising. Further, we conducted a rich set of sensitivity analyses to test the robustness of our findings."

"We found that a medium level of daily total physical activity is associated with a lower risk of Parkinson's disease. The protective effect of physical activity was further supported when we summarized all available evidence from published prospective cohort studies. These findings are important for both the general population and for the healthcare of patients with Parkinson's disease."

More information: 'Physical activity and risk of Parkinson's disease in the Swedish National March Cohort' by Fei Yang, Ylva Trolle Lagerros, Rino Bellocco, Hans-Olov Adami, Fang Fang, Nancy L. Pedersen, Karin Wirdefeldt, *Brain*, DOI: 10.1093/brain/awu323

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