

Exercise is unrelated to risk of early menopause

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The amount of physical activity that women undertake is not linked to their risk of early menopause, according to the largest study ever to investigate this question.

Until now, there have been conflicting findings about the relation between [physical activity](#) and menopause, with some studies suggesting that women who are very physically active may be at lower risk of a menopause before the age of 45, while others have found evidence of the opposite effect.

However, the study that is published today (Wednesday) in *Human Reproduction*, one of the world's leading reproductive medicine journals, has analysed data from 107,275 women, who were followed prospectively from the time they joined the Nurses' Health Study II in 1989 until 2011, and found no association between physical activity at any age and early natural menopause.

Dr. Elizabeth Bertone-Johnson, Professor of Epidemiology at the University of Massachusetts, USA, who directed the research, said: "Our study provides considerable information in helping us understand the relationship between activity and timing of menopause; this is because of its size, its focus on early menopause specifically, and because of its prospective design, which limited the likelihood of bias and allowed us to look at physical activity at different time periods.

"Several previous well-designed studies have found suggestions that more physical activity is associated with older age at menopause, but even in those studies the size of the effect was very small. Our results, in conjunction with other studies, provides substantial evidence that physical activity is not importantly associated with early menopause."

Female US registered nurses aged 25-42 were enrolled in the Nurses' Health Study II in 1989 and they completed questionnaires about lifestyles and medical conditions every two years thereafter. They were asked about the time they spent in recreational physical activities such as walking, running, cycling, racquet sports, swimming laps, aerobic activities, yoga, weight training and high intensity activities such as lawn

mowing. The researchers also collected information on factors such as race, ethnicity, age, education, height, the age when the women had their first periods, whether or not they had been pregnant and how often, use of oral contraceptives and hormone therapy, whether or not they smoked, weight and body mass index (BMI), diet and use of dietary supplements.

In order to assess the frequency, duration and intensity of the activities, the researchers multiplied the hours per week of each activity by its metabolic equivalent (MET) score to create total MET hours per week. One MET equals one kilogram calorie per kilogram per hour (kcal/kg/h), which is the amount of energy expended by sitting quietly for an hour.

During the 20 years of follow-up, 2786 women experienced natural menopause before the age of 45. The researchers found no significant difference in the risk of early menopause between, for instance, women reporting less than three MET hours a week of physical activity and women reporting 42 or more hours a week (the equivalent to four or more hours of running or eight or more hours of brisk walking per week). The amount of physical activity that the women reported in their teenage years was also unrelated to the risk of early menopause.

The first author of the paper, Mingfei Zhao, a graduate student at the University of Massachusetts, said: "While our results do not suggest that more physical activity is associated with lower risk of early menopause, we would encourage premenopausal women to be physically active, as exercise is associated with a range of health benefits, such as a lower risk of heart disease, diabetes, breast cancer and other conditions. Our results in no way suggest that premenopausal women should not be physically active."

Researchers are still investigating other factors that might play a role in women experiencing an early menopause. Dr. Bertone-Johnson said:

"Our work has suggested that environmental factors are associated with [early menopause](#). We found higher intake of calcium and vitamin D from dairy foods to be associated with lower risk. Higher intake of vegetable protein was associated with lower risk as well, though animal protein was not. Cigarette smoking is associated with higher risk, as is being underweight. We are currently investigating other factors as well."

Limitations of the study include the fact that [women](#) self-reported their physical activity and menopausal status, and the majority of the participants were white. However, the researchers say that the repeated assessment (every two years) of physical activity and menopausal status would have reduced the likelihood of any bias from self-reporting. They also think it unlikely that the physiological relation between [activity](#) and [menopause](#) varies by ethnicity.

More information: Mingfei Zhao et al, Physical activity is not related to risk of early menopause in a large prospective study, *Human Reproduction* (2018). [DOI: 10.1093/humrep/dey267](https://doi.org/10.1093/humrep/dey267)

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