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# Increased physical activity reduces breast cancer risk, international study suggests

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Increasing physical activity and reducing time spent sedentary is likely to decrease the risk of breast cancer, a study of more than 100,000 women suggests.



An international team including researchers from Australia, the UK and US have used genetic analysis to establish a causal relationship between overall activity levels and cancer risk.

The study, published in the *British Journal of Sports Medicine*, included data from 130,957 women, 76,505 of whom had breast cancer.

While previous research has shown a correlation between physical activity and lowered risk of breast cancer, proving causation has been difficult.

“There has always been a little bit of uncertainty as to whether physical activity truly causes a lower rate of breast cancer or whether that relationship is confounded by other factors,” said Associate Prof Brigid Lynch of Cancer Council Victoria, the study’s senior author.

“For example, women who tend to be more physically active might have healthier lifestyles in other ways as well.” Lynch said the new study “suggests that it is certainly a causal effect: physical activity does reduce your risk of developing breast cancer”.

“We saw a risk reduction across all breast cancer types,” she said.

The researchers used a technique known as Mendelian randomisation to establish causality, which uses genetic variants as proxies for particular traits – in this case, physical activity and time spent sitting or reclining.

They found that a higher level of physical activity, or general movement, was associated with a 41% reduction in invasive breast cancer risk.

In pre- and perimenopausal women, vigorous physical activity at least three days per week was linked to a 38% lower risk of breast cancer compared to no vigorous activity.

“For every 100 odd minutes [of sedentary time] per day we observed a 20% risk increase in breast cancer overall, and a doubling of risk for triplenegative breast cancer [which is more aggressive and difficult to treat],” Lynch said.

Physical activity is thought to lower breast cancer risk because it decreases the amount of both oestrogen and androgen hormones circulating in the bloodstream. A reduction in inflammation may also be a factor.

“There’s always been a lot of focus on other health behaviours like healthy eating, maintaining a healthy weight, reducing alcohol intake,” Lynch said.

“There’s a big role for physical activity in preventing cancer.”

The research drew data from the UK Biobank as well as 76 other studies conducted as part of the Breast Cancer Association Consortium.

One limitation of the study was that it only included data from women of European ancestry.

“We can’t say for sure that these genetic instruments are applicable across different racial backgrounds,” Lynch said.

But she added that large observational studies in Asia and for women of different ethnicities in the US have found correlations between physical activity and reduced risk.

“We do already recommend that physical activity is one of things you can do to reduce your breast cancer risk,” said Associate Prof Wendy Ingman of the University of Adelaide, who was not involved in the study.

Other factors associated with a reduced risk of breast cancer include minimising alcohol intake, and breastfeeding. “The longer a woman breastfeeds for, the less breast cancer risk she has,” Ingman said.