

Physical activity could combat fatigue, cognitive decline in cancer survivors

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Illinois postdoctoral researcher Diane Ehlers and professor Edward McAuley found that physical activity may have cognitive benefits for cancer survivors struggling with fatigue and 'chemo brain.' Credit: L. Brian Stauffer

A new study indicates that cancer patients and survivors have a ready

weapon against fatigue and "chemo brain": a brisk walk.

Researchers at the University of Illinois, along with collaborators at Digital Artefacts in Iowa City, Iowa, and Northeastern University in Boston, looked at the association between [physical activity](#), fatigue and performance on [cognitive tasks](#) in nearly 300 breast cancer survivors.

"The data suggest that being more physically active could reduce two of the more commonly reported symptoms in breast cancer survivors: fatigue and [cognitive impairment](#)," said study leader Edward McAuley, a professor of kinesiology and community health at Illinois. "Most people think, 'If I exercise, I'll become tired.' In our study, exercise actually was associated with reduced fatigue, which in turn was associated with better cognitive function."

Cognitive impairment, such as memory problems or shortened attention spans, is a common complaint among cancer patients and survivors, and is thought to be similar to decline due to aging. Past Illinois research has explored the effect of physical fitness on age-related cognitive decline, so the researchers wondered whether cancer survivors would respond similarly to exercise.

"Other studies of cancer survivors have relied on small samples of cancer survivors, and used self-reporting measures of physical activity and cognitive function, which can be very biased," said postdoctoral researcher Diane Ehlers, the first author of the study, which is published in the journal *Breast Cancer Research and Treatment*. "What makes our study novel is that we had objective measures for both physical activity and [cognitive performance](#), and a nationwide sample of breast cancer survivors."

The researchers worked with Digital Artefacts—developer of the commercial neuroscience app BrainBaseline - to create an iPad app

tailored to this study. The app included questionnaires and activities designed to measure attention, memory and multitasking skills. The researchers also sent each participant an accelerometer to track daily physical activity.

"We found that higher levels of daily moderate-to-vigorous physical activity were associated with better performance on the cognitive tasks measuring attention, memory and multitasking," Ehlers said. "What was notable was that physical activity's effect on cognitive performance was mediated by fatigue. This provides evidence that physical activity interventions targeting fatigue in cancer patients and survivors might provide promising models for improving cognitive function as well."

Next, the researchers plan to conduct further studies to establish causation and further explore the pathways of how physical exercise improves cognitive performance. They are working with Digital Artefacts to conduct an iPhone-based study and focusing on diverse populations of [breast cancer survivors](#).

"The message for [cancer](#) patients and survivors is, get active!" Ehlers said. "Even if it's 10-minute bouts of brisk walking. It's not a magical cure-all, but we've seen many benefits of physical activity for [cancer patients](#) and survivors."

More information: Diane K. Ehlers et al, The effects of physical activity and fatigue on cognitive performance in breast cancer survivors, *Breast Cancer Research and Treatment* (2017). [DOI: 10.1007/s10549-017-4363-9](#)

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