Structured Exercise Programs May Help Combat “Chemo Brain”

Patients who followed an exercise regimen while receiving chemotherapy reported fewer problems with thinking, memory and mental fatigue.

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Plymouth Meeting, PA — New research in the March 2026 issue of JNCCN—Journal of the National Comprehensive Cancer Network suggests that exercise may help people with cancer stay mentally sharp and better able to handle daily tasks, work, and social activities through chemotherapy treatment delivered on an every two-week cycle.

This first-of-its-kind, nationwide, multicenter, Phase III trial randomized patients to receive an exercise prescription, Exercise for Cancer Patients (EXCAP), which included individually-tailored walking and simple resistance band exercises, along with their usual chemotherapy treatment. By the end of the study, patients receiving 2-week chemotherapy cycles who followed the EXCAP exercise prescription while receiving chemotherapy reported less cognitive impairment than those who received chemotherapy without an exercise plan. The effects were not as significant in patients receiving chemotherapy in 3- to 4-week cycles.

“This means that a safe, simple exercise program could be an important part of supportive care for people going through chemotherapy,” stated co-lead author Karen M. Mustian, PhD, MPH, Wilmot Cancer Institute, University of Rochester Medical Center. “Cancer care providers should consider incorporating structured, home-based exercise prescriptions, such as walking and resistance band exercises, into routine chemotherapy care. Providers should educate patients on these benefits, monitor cognitive and fatigue symptoms throughout treatment, and, as part of optimal supportive care, refer patients to exercise oncology specialists when needed, to tailor prescriptions for individual capabilities.”

The study enrolled 687 patients from 20 community oncology practices across the United States who are part of the University of Rochester Cancer Center (URCC) NCI Community Oncology Research Program (NCORP) Research Base. Enrolled patients did not have distant metastases, and the majority were women, had undergone surgery, and/or had breast cancer. Patients were receiving chemotherapy for the first time and enrolled onto the trial between 2009 and 2014.

The EXCAP participants received individualized walking and resistance band instructions in a teach-back method to ensure correct technique. They were also instructed to record daily steps

via a pedometer and keep a daily diary of time spent doing resistance band activities. Patients receiving two-week chemotherapy cycles who received the EXCAP prescription demonstrated significantly less overall cognitive decline, perceived cognitive impairment, and mental fatigue than those undergoing usual care. They were also able to maintain daily walking through chemotherapy, while those who were not part of the exercise program reduced walking by 53%.

“It was striking to find that without a structured exercise plan, patients receiving chemotherapy often reduce their daily walking by half and experience notable increases in problems with thinking, memory, and mental fatigue,” added co-lead author Po-Ju Lin, PhD, MPH, RD, also with the Wilmot Cancer Institute, University of Rochester Medical Center. “Non-pharmacologic interventions, such as exercise, cognitive training, and mindfulness, are important for managing cognitive impairment during chemotherapy because they are safe, accessible, and can often be delivered at low cost or even at home, making them easier for patients to use, compared with expensive or clinic-based treatments.”

The researchers acknowledged that during chemotherapy “patients often walk less because treatment can cause extreme tiredness, muscle weakness, nausea, or other side effects.” They noted that the two-week chemotherapy cycle might be the “sweet spot” for recovering enough to participate in EXCAP, as the benefits were not shown in patients on 3- and 4-week cycles. Future studies that expand on the patient population may further generalize these findings.

“Many patients who need chemotherapy worry that they’ll experience ‘chemo brain,’” commented Lindsay L. Peterson, MD, MSCR, a medical oncologist at Washington University School of Medicine in St. Louis who treats patients at Siteman Cancer Center, based at Barnes-Jewish Hospital and WashU Medicine and who was not involved in this research. “This study offers encouraging news: there may be something patients can do to reduce their risk of cognitive impairment during chemotherapy—exercise!”

Dr. Peterson, who serves as Chair of the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) Panel for Survivorship, continued: “Participants receiving chemotherapy every two weeks who were randomized to an individually tailored exercise program experienced less cognitive impairment compared with those in the control arm, reporting better cognitive function and less mental fatigue. For many patients, maintaining the ability to think clearly, remember details, and stay mentally engaged during treatment is essential to preserving independence, continuing to work and care for their families, and sustaining overall quality of life. These findings reinforce the recommendation in the NCCN Guidelines for Survivorship that survivors with cancer-related cognitive dysfunction engage in routine physical activity. Importantly, the NCCN Guidelines also provide detailed information to keep people safe during exercise. Interventions that are accessible and low cost, such as structured physical activity, give us a powerful opportunity not only to support long-term survivorship, but to help patients remain as cognitively sharp and mentally resilient as possible throughout treatment.”

To read the entire study “Effects of Exercise on Cognitive Impairment in Patients Receiving Chemotherapy: A Multicenter Phase III Randomized Controlled Trial,” visit JNCCN.org. For patient

and caregiver information on appropriate exercise practices during and after cancer treatment, check out the NCCN Guidelines for Patients: Survivorship Care for Healthy Living.

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