

Movement Is Medicine for Cancer Patients and Survivors

Exercise lowers cancer risk, boosts treatment effectiveness and improves quality of life for patients and survivors—and you don’t have to run a marathon to benefit.

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What if a single intervention could lower the risk of developing cancer, help treatment work better, lessen side effects, boost mental health and even reduce the risk of disease recurrence and death? A growing body of research shows that physical activity is just such an intervention, and the data are so compelling that more and more doctors are prescribing exercise for cancer patients and survivors.

Exercise enhances physical fitness and helps maintain a healthy weight. It has other benefits as well, such as improving energy levels, sleep, mood and cognitive function. Conversely, more sedentary time has detrimental effects. Even among people who get enough physical activity on a weekly basis, prolonged sitting is considered a health hazard.

“Exercise is the best medicine someone with cancer can take in addition to their standard cancer treatments,” says Prue Cormie, PhD, an exercise oncology researcher at the Peter MacCallum Cancer Centre in Australia. “If the effects of exercise could be encapsulated in a pill,” Cormie continues, “it would be prescribed to every cancer patient worldwide and viewed as a major breakthrough in cancer treatment.”

Cancer Risk

Nearly a decade ago, the Centers for Disease Control and Prevention (CDC) reported that overweight and obesity are associated with 13 different malignancies, including breast, colon, kidney, liver, ovarian, pancreatic and stomach cancers. Only smoking is a bigger risk factor. Around 75% of Americans are overweight or have obesity, and some experts think this contributes to rising cancer rates among young adults.

Body fat, or adipose tissue, is metabolically active, pumping out hormones and inflammatory cytokines that can spur the development of cancer. But obesity isn't the whole story. Regardless of weight, physical activity improves inflammation, insulin regulation and immune function, deterring the emergence and spread of malignant cells.

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Back in 2016, an international team of researchers reported that leisure-time physical activity was associated with lower risk for many types of cancer—and this held regardless of body size or smoking history. More recently, a 2025 study of more than 85,000 adults in the United Kingdom found that people with the highest level of moderate- to vigorous-intensity physical activity had a 26% lower risk for cancer compared to those with the least. People who engaged in light activity (such as household chores), had higher daily step counts or substituted an hour a day of sedentary time with physical activity also saw benefits. Another UK Biobank study found that even brief bursts of vigorous activity totaling less than five minutes a day reduced cancer incidence among people who did not exercise regularly.

“The idea of accruing short bouts of moderate to vigorous activity through daily living activities makes physical activity much more accessible to people who are unwilling or unable to take part in structured exercise,” says study author Matthew Ahmadi, PhD, of the University of Sydney in Australia.

While brief bursts of activity can be beneficial, more is better. CDC guidelines say adults need at least 150 minutes of moderate-intensity physical activity or 75 minutes of vigorous activity each week, along with strength training on at least two days. The American Cancer Society (ACS) goes further, recommending 150 to 300 minutes of moderate activity or 75 to 150 minutes of vigorous activity per week, along with limiting sedentary behavior and maintaining a healthy weight. ACS researchers estimated that if people reach the 300-minute target, more than 46,000 cases of cancer could be averted each year.

Benefits of Exercise

The benefits of exercise for cancer patients and survivors are clear. In the past, people facing cancer were often advised to rest and limit their activity, but we now know that this was the wrong approach.

Physical activity helps reduce treatment side effects and improve quality of life. Exercise can alleviate fatigue, decrease depression and anxiety, relieve insomnia, reduce the risk of disabling falls, boost the health of the gut microbiome and improve cardiovascular health. Studies have shown that physical activity improves sexual function in men with prostate cancer, relieves peripheral neuropathy pain in women with ovarian cancer and lessens chemotherapy-related cognitive impairment (chemo brain) in those with breast cancer. Exercise can also help breast cancer patients regain a full range of arm motion after surgery, and resistance training was found to improve lymphedema, or post-surgery swelling. One study found that patients who participated in virtual mind-body fitness classes not only reported less fatigue and depression and fewer treatment side effects but also had fewer urgent-care visits and unplanned hospitalizations and shorter hospital stays.

Just 10 minutes of cycling or walking can boost the immune system.

The benefits of exercise extend to people with advanced cancer, who are more prone to frailty. The large PREFERABLE-EFFECT study evaluated a supervised exercise program that included twice-weekly sessions of aerobic exercise and strength and balance training for nine months. At the 2023 San Antonio Breast Cancer Symposium, Anne May, PhD, of University Medical Center Utrecht in the Netherlands, reported that metastatic breast cancer patients who were randomly assigned to the program reported decreased fatigue, less pain and shortness of breath, improved health-related quality of life and better social functioning. This year, she reported that structured exercise led to increased muscle mass and improved physical performance, including balance and strength.

“The results from our study are important since lean body mass is linked to better treatment tolerance, prognosis and overall health, and increased muscle strength correlates with improved quality of life and lower mortality risk,” May says.

Physical activity has been shown to slow the growth of tumors, and exercise may boost immune function and enhance the effectiveness of cancer therapy. In one study, men with prostate cancer who participated in a yoga program before and after surgery showed improvement in several measures of inflammation and immune function. Another study showed that exercise was associated with changes in gene expression in breast cancer patients, especially in pathways involved in inflammation and immune regulation. Other researchers at the University of Turku in Finland found that breast cancer and lymphoma patients who exercised for just 10 minutes showed increases in cancer-fighting CD8 T cells and natural killer cells.

“Cancer treatments can make you tired and lower your motivation for exercise, which is why it is comforting to know that just 10 minutes of cycling or walking to a supermarket, for example, can be enough to boost the body’s immune system,” says lead author Tiia Koivula, PhD.

Relapse and Survival

Looking at treatment efficacy, the LEANer (Lifestyle, Exercise and Nutrition Early After Breast Cancer) trial found that women starting treatment for Stage I to III breast cancer who participated in a home-based exercise and nutrition program while undergoing presurgery chemotherapy were nearly twice as likely to experience a pathologic complete response, meaning no remaining evidence of disease.

Two decades ago, observational studies first showed that physical activity was associated with reduced mortality in people with breast or colon cancer, and the evidence has continued to build.

Results from the CHALLENGE trial, presented at the 2025 American Society for Clinical Oncology annual meeting, were so impressive that they prompted a standing ovation. The study enrolled 889 colon cancer patients who had undergone surgery and completed chemotherapy. They were randomly assigned to either participate in a structured exercise program or receive health education materials. At five years, people in the exercise group had a 28% lower risk of cancer recurrence, new malignancies or death and a 37% improvement in overall survival.

Investigator Christopher Booth, MD, of Queen’s University in Ontario, noted that the benefit was comparable to or exceeded that of many standard medical therapies. “As oncologists, one of the most common questions we get asked by patients is ‘What else can I do to improve my outcome?’ These results now provide us with a clear answer: An exercise program that includes a personal trainer will reduce the risk of recurrent or new cancer, make you feel better and help you live longer,” he says.

In another study, Jessica Lavery, MS, of Memorial Sloan Kettering Cancer Center, and colleagues looked at the relationship between exercise and mortality among 11,480 participants in the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial. Those who got the recommended amount of exercise saw a 21% reduction in cancer mortality and a 25% reduction in all-cause mortality compared with those who did not. People who exceeded the recommendation further lowered their risk of death, but even those who didn’t reach the target saw some benefit.

“[E]xercise is medicine, and these results support this,” Stacey Kenfield, ScD, and June Chan, ScD,

of the University of California, San Francisco, wrote in the Journal of Clinical Oncology. “This underscores that exercise (in addition to standard therapies) is one of the best daily pills cancer survivors can take to optimize their longevity.”

Get Going

Despite these benefits, getting enough exercise can be a challenge. One study of more than 10,000 cancer survivors found that over a quarter did not meet the ACS goal for adequate physical activity. Even though exercise ultimately boosts energy, fatigue can make it hard to get started. Busy lives, work or family commitments and emotional stress can be added barriers. The cost of equipment, training or a gym membership can also be prohibitive.

But you don’t need an elaborate workout regimen to benefit from physical activity—every little bit of movement helps. Some people like participating in classes or team sports, while others prefer solo activities. One study found that cancer survivors who participated in a community-based pickleball program not only increased their physical activity and fitness but also reported more social support.

Gentle exercises, such as yoga, tai chi or qigong, may be especially suited for older people, those who are recovering from surgery and those struggling with treatment side effects. Don’t forget that routine daily activities, such as gardening, shopping or walking the dog, count toward the total activity tally. For those who don’t have much time to exercise, brief “movement snacks” can be a good option ([see Solutions](#), for some ideas).

Almost everyone can find a level and type of activity that’s safe and beneficial, but some cancer patients may have limitations. Those with cancer in the bones, for example, might need to avoid high-impact activities that could lead to fractures. Those with peripheral neuropathy, or nerve damage, in the feet should be careful when doing activities that require balance.

Beyond the individual level, structural changes are needed at the community, provider, health system and policy levels to help cancer patients and survivors up their activity. ACS guidelines recommend that fitness assessment and physical activity counseling should start as soon as possible after diagnosis. Yvonne Wengström, PhD, and colleagues at the Karolinska Institute in Stockholm stress the importance of offering support and information “in a careful way that does not stigmatize those who cannot perform physical activity and who may already feel that their lifestyle has caused their cancer.”

Policy changes include health insurance and Medicare coverage for counseling and structured

exercise. As the CHALLENGE trial showed, a structured exercise program “is empowering and achievable for patients, with much lower costs than many of our therapies, and is sustainable for health systems,” says Booth.

That study also showed that simply telling people to exercise is not enough. “Facilitating physical activity engagement requires a multifaceted approach,” Jasmine Yee, PhD, of the University of Sydney, and colleagues wrote in a JAMA Oncology editorial. “Creating safe, accessible and enjoyable spaces for physical activity engagement, including walkable urban environments and active transport options, can further encourage physical activity. Although such initiatives may appear costly, promoting and normalizing physical activity may help improve health outcomes and lower health care costs.”

Fitness Tips

- Stretch and warm up before exercising to avoid injury.
- Build up slowly—for example, by walking a few more minutes or lifting a bit more weight.
- Vary your activities to prevent boredom, taking advantage of the weather and seasons.
- Boost your activity by taking the stairs instead of the elevator or parking farther away and walking.
- Break up long periods of sitting with a short walk or a “movement snack.”
- Use a wearable device, such as a Fitbit, to track your activity.
- Listen to your body: It will tell you when you can step up the pace or need to slow down or take a break.
- Get enough sleep, eat a healthy diet and drink plenty of water before, during and after exercising.
- Check in with your health care team before starting or changing your exercise routine.

What About Weight-Loss Meds?

GLP-1 agonists can reduce cancer risk and improve treatment outcomes.

Knowing that obesity contributes to more than a dozen malignancies, an obvious question is whether weight-loss drugs can reduce the risk. Early studies suggest that they can—and they may

also improve outcomes for cancer patients and survivors.

Glucagon-like peptide-1 (GLP-1) receptor agonists mimic natural hormones that suppress appetite, regulate insulin and slow emptying of the stomach. They also have anti-inflammatory effects. The most widely used meds, semaglutide (Ozempic or Wegovy) and tirzepatide (Mounjaro or Zepbound), are once-weekly injections, but next-generation oral meds are in the works. Around 12% of Americans reported using GLP-1 meds in a 2024 KFF Health survey.

Older GLP-1 agonists—initially approved to treat diabetes—have been in use for more than a decade, enabling scientists to look for links to cancer. Researchers at Case Western Reserve University compared the incidence of 13 obesity-associated malignancies among more than 1,650,000 people who were prescribed various diabetes medications between 2005 and 2018. They found that people who used GLP-1 agonists had a significantly lower risk for 10 of these cancers compared with insulin users. For example, gallbladder cancer was reduced by 65%, liver cancer by 53%, colorectal cancer by 46% and multiple myeloma by 41%.

In a study presented at the 2025 American Society of Clinical Oncology annual meeting, researchers analyzed medical records from more than 170,000 adults with diabetes and obesity who used either GLP-1 agonists or another class of diabetes drug. Overall, people who used GLP-1 meds had a 7% lower likelihood of developing obesity-related cancers, with the largest risk reductions seen for colon cancer (16%) and rectal cancer (28%). What's more, GLP-1 agonist users had an 8% lower risk of death.

In another large study, Hao Dai, PhD, of Indiana University School of Medicine, and colleagues looked at health records from more than 86,000 people with obesity. Those who used GLP-1 agonists had a 17% lower risk for obesity-associated cancers over 10 years of follow-up. The risk reduction was greatest for ovarian cancer (47%), endometrial cancer (25%) and meningioma (31%). The exception was kidney cancer, with a nonsignificant 38% increased risk.

Turning to cancer treatment, Sai Yendamuri, MD, of Roswell Park Comprehensive Cancer Center, and colleagues assessed outcomes among lung cancer patients with overweight or obesity. GLP-1 agonists were associated with delayed recurrence after surgery and improved progression-free and overall survival in those treated with immune checkpoint inhibitors.

It is not yet clear whether the benefits of GLP-1 agonists are primarily attributable to weight loss, but one study found that people who used the drugs had a 39% lower risk for obesity-related cancers compared with a 22% lower risk for those who underwent bariatric surgery.

It's biologically plausible that GLP-1 agonists have more direct effects. Laboratory studies have shown that they inhibit proliferation of prostate, endometrial and ovarian cancer cells. One study found that tirzepatide slowed breast cancer growth in mice. A small trial of 20 people with obesity showed that semaglutide improved natural killer cell immune function—even in people who didn't lose much weight. Liver cancer is a special case, as the drugs fight fatty liver disease, a leading cause of cirrhosis and hepatocellular carcinoma.

While it's too soon to recommend GLP-1 agonists for cancer prevention or treatment, the many people at risk for or living with cancer who are taking these meds to manage diabetes or obesity could see extra benefits.

"Given that more than 137 million individuals in the U.S. are currently eligible for GLP-1 therapies, even modest changes in cancer risk could have substantial public health implications," Dai and colleagues wrote.

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