Moderate exercise helps colorectal cancer patients live longer by reducing inflammation and improving gut bacteria

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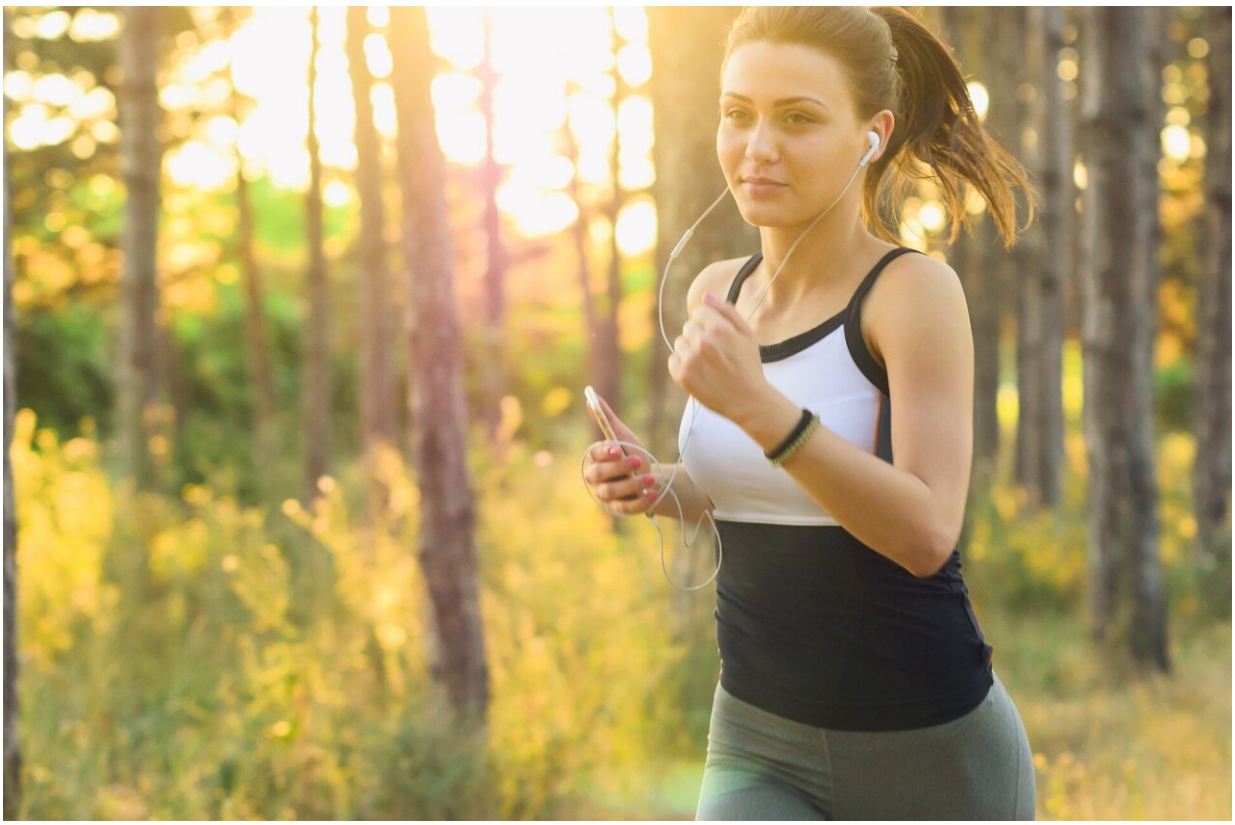

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Regular physical activity can extend colorectal cancer patients' lives. In a first-ever study, scientists looked at the impact of exercise on the gut

microbiome of cancer patients and reported a positive association. The gut microbiome is the largest portion of the body's collection of bacteria and other microbes that live in and on the body, according to the National Cancer Institute. Researchers found physical activity was also beneficial to obese cancer patients, who typically have a less healthy gut microbiome.

The findings are an important step in understanding how a healthy gut improves colorectal cancer outcomes for patients. While other scientists have studied the effect of exercise on the microbiome among healthy individuals, this is the first study looking at the outcome in people with cancer.

The discovery by a team of scientists led by Cornelia Ulrich, Ph.D., MS, executive director of the Comprehensive Cancer Center at Huntsman Cancer Institute at the University of Utah (the U) and a Jon M. and Karen Huntsman Presidential Professor in Cancer Research, was recently published in the *American Journal of Cancer Research*.

The lead author is Caroline Himbert, Ph.D., research fellow with the Ulrich Group. It builds on another study by Himbert published in *Cancer Epidemiology, Biomarkers, and Prevention*, and on research by Jennifer Ose, Ph.D., MS, MPH, an investigator at Huntsman Cancer Institute and assistant professor in the Department of Population Health Sciences at the U, also published in *Cancer Epidemiology, Biomarkers, and Prevention*.

The team found that regular physical activity can aid in creating a healthy gut microbiome, while also reducing inflammation. These findings were reported in patients independent of their body mass index (BMI)—even those classified as severely overweight or obese.

"A patient who is active has a more diverse microbiome and lower

abundances of colorectal cancer-promoting bacteria, and higher amounts of bacteria that protect against colorectal cancer," Himbert says. "Our study suggests that nobody needs to be an athlete to get the benefits. It can be easy activities. Just staying active is very beneficial."

Adults need 150 minutes of moderate exercise a week, according to the Center for Disease Control and Prevention. That's roughly 20 minutes of brisk walking or light jogging a day.

"Inflammation is a key process that drives colorectal cancer. We know a high BMI causes inflammation around the body," Ulrich says. "Obesity is on the verge of becoming the number one cause of cancer in the United States, surpassing smoking. More than 13 cancers are linked to obesity. It's important we understand that moderate exercise can help colorectal cancer patients reduce inflammation, improve their gut health, and live longer—even if they are overweight or obese," Ulrich says.

Not counting skin cancers, colorectal cancer is the third most common cancer in the United States, with 106,180 new cases of colon cancer and 44,850 new instances of rectal cancer this year, according to the American Cancer Society. Having high levels of inflammation, as seen in those with higher BMIs or who are not physically active, increases a person's risk of developing colon cancer.

Ose adds, "If you reduce your BMI, you have lower levels of inflammation. If you have lower inflammation, your risk of death is reduced."

Huntsman Cancer Institute experts recommend people of average risk for colorectal cancer should start regular screenings at age 45, with either a test that looks for signs of cancer in a person's stool or a colonoscopy.

Ulrich leads the ColoCare Study, which includes more than 3,500 people

newly diagnosed with colon or rectal cancer. It takes place at Huntsman Cancer Institute and several other top United States and international research institutions, including the Fred Hutchinson Cancer Center, the Moffitt Cancer Center, University Hospital Heidelberg, Cedars-Sinai Medical Center, Washington University in St. Louis, and the University of Tennessee.

More information: Caroline Himbert et al, Differences in the gut microbiome by physical activity and BMI among colorectal cancer patients, *American Journal of Cancer Research* (2022)

Provided by University of Utah