

Patients with rectal cancer who exercise while receiving radiation therapy more likely to have tumors disappear

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A study participant performs a treadmill test monitored by researchers in Kerry Courneya's lab. Courneya's former PhD student Andria Morielli led new research suggesting that rectal cancer patients who exercise while undergoing radiation therapy before surgery may have a better chance of their tumor disappearing altogether. Credit: University of Alberta

Patients with rectal cancer who exercised while undergoing a form of

tumor-shrinking radiation therapy in advance of surgery were more likely to have their tumors disappear, according to a University of Alberta study that begins to paint exercise as more than just a supportive care intervention.

"This study starts to look at exercise as a [cancer](#) treatment, as opposed to just exercise as a supportive care intervention," said cancer researcher Kerry Courneya, professor and Canada Research Chair in Physical Activity and Cancer in the Faculty of Kinesiology, Sport, and Recreation. The study was led by his former PhD student Andria Morielli, who is now a post-doctoral fellow with Alberta Health Services.

"This study sought to determine the feasibility of exercise in [rectal cancer](#) patients during neoadjuvant chemoradiotherapy and is the first to provide evidence of efficacy for exercise," noted Courneya, who is also a member of the Cancer Research Institute of Northern Alberta.

Courneya explained that in many rectal cancer diagnoses, patients begin treatment with chemoradiation therapy with the goal of shrinking the tumor before the surgery.

"Downstaging tumors gives physicians a better chance of surgically removing the tumor without causing serious functional problems for these patients, because not as much healthy tissue is removed."

Previous studies have shown that exercise can improve tumor vascularization, [blood flow](#) to the tumor and oxygenation of the tumor—all of which, according to Courneya, helps improve the effectiveness of treatments like [radiation therapy](#).

"However, no studies have looked at whether exercise might help chemoradiation therapy shrink the tumor more effectively," he said.

For the study, the researchers had rectal cancer patients receiving six weeks of neoadjuvant chemoradiation therapy run through a supervised high-intensity interval training program. Each workout, performed three times a week, consisted of eight consecutive intervals of two minutes of higher-intensity running on a treadmill followed by two minutes of lower-intensity running.

What Courneya's Behavioural Medicine Laboratory found was that while fitness levels didn't increase, 56 per cent of the group that exercised saw the tumor completely disappear with chemoradiation therapy, compared with 18 per cent in the group that didn't exercise.

"Basically, these patients can increase the chances of having what clinicians call a pathologic complete response—the tumor is gone—and increase the effectiveness of the [cancer treatment](#) if they exercise while they're getting those treatments," said Courneya.

Currently, exercise is thought of mainly as a supportive care intervention that helps patients feel better and maintain quality of life but has no implications for their treatment or disease outcomes.

"Now, we're starting to ask if [exercise](#) can actually help with cancer treatments and result in better outcomes for patients in terms of longer survival, less likelihood of recurrence and, in this case, a better tumor response to the treatment."

The research was published in *Clinical Colorectal Cancer*.

More information: Andria R. Morielli et al, Feasibility, Safety, and Preliminary Efficacy of Exercise During and After Neoadjuvant Rectal Cancer Treatment: A Phase II Randomized Controlled Trial, *Clinical Colorectal Cancer* (2021). [DOI: 10.1016/j.clcc.2021.05.004](https://doi.org/10.1016/j.clcc.2021.05.004)

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