Can Lifestyle Changes Save Lives in Colon Cancer?

Can exercise “therapy” and diet improve survival in patients with colon cancer? It appears so, according to two pivotal studies presented at American Society of Clinical Oncology (ASCO) 2025 annual meeting.

In the CHALLENGE trial, a structured exercise program after surgery and adjuvant chemotherapy cut the risk for colon cancer recurrence in patients with stage III and high-risk stage II disease by more than one quarter and the risk for death by more than one third.

"The magnitude of benefit with exercise is substantial. In fact, it is comparable, and in some cases exceeds the magnitude of benefit of many of our very good standard medical therapies in oncology," study presenter Christopher Booth, MD, with Queen's University, Kingston, Ontario, Canada, told attendees.

Results of the study were published online in The New England Journal of Medicine to coincide with the presentation at the meeting.

The findings are "nothing short of a major milestone," said study discussant Peter Campbell, PhD, with Montefiore Einstein Comprehensive Cancer Center, Bronx, New York.

The other study showed that eating a less inflammatory diet may reduce the risk for death in patients with colon cancer, with the greatest benefits seen in those who embraced anti-inflammatory foods and exercised regularly.

"Putting these two abstracts into perspective, we as physicians need to be essentially prescribing healthy diet and exercise. The combination of the two are synergistic," Julie Gralow, MD, ASCO chief medical officer and executive vice president, told attendees.

Despite the benefits of these lifestyle changes, exercise and diet are meant to supplement, not replace, established colon cancer treatments.

It would be a false binary to frame this as lifestyle vs cancer treatment, explained Mark Lewis, MD, director of Gastrointestinal Oncology at Intermountain Healthcare in Salt Lake City, Utah. With exercise, for instance, "the key is giving enough chemo to protect against recurrence and eliminate micrometastases but not so much that we cause neuropathy and reduce function and ability to follow the CHALLENGE structured program," Lewis said.

Exercise and Survival

Colon cancer remains the second leading cause of cancer death worldwide. Even with surgery and chemotherapy, roughly 30% of patients with stage III and high-risk stage II colon cancer will experience disease recurrence.

"As oncologists, one of the most common questions we get asked by patients is — what else can I do to improve my outcome?" Booth said.

Observational studies published nearly two decades ago hinted that physically active cancer survivors fare better, but no randomized trial has definitively tested whether exercise could alter disease course. That knowledge gap prompted the Canadian Cancer Trials Group to launch the CHALLENGE trial.

Between 2009 and 2023, the phase 3 study enrolled 889 adults (median age, 61 years; 51% women) who had completed surgery and adjuvant chemotherapy for stage III (90%) or high-risk stage II (10%) colon cancer. Most patients were from Canada and Australia and were enrolled 2-6 months after completing chemotherapy.

Half of study participants were randomly allocated to a structured exercise program (n = 445) and half to receive standard health education materials promoting physical activity and healthy eating (control individuals, n = 444).

As part of the structured exercise intervention, patients met with a physical activity consultant twice a month for the first 6 months. These sessions included exercise coaching and supervised exercise. Patients could choose their preferred aerobic exercise and most picked brisk walking.

The consultants gave each patient an "exercise prescription" to hit a specific amount of exercise. The target was an additional 10 metabolic equivalent (MET)–hours of aerobic activity per week — about three to four brisk walks each lasting 45-60 minutes. After 6 months, patients met with their consultants once a month, with additional sessions available for extra support if needed.

Structured exercise led to "substantial and sustained" increases in the amount of exercise participants did, as well as physiologic measures of their fitness, with "highly relevant"

improvements in VO2 max, 6-minute walk test, and patient-reported physical function, underscoring that participants were not only exercising more but also getting fitter, Booth said.

Exercise was associated with a clinically meaningful and statistically significant 28% reduction in the risk for recurrent or new cancer (hazard ratio [HR], 0.72; P = .017), with a 5-year disease free survival rate of 80% in the exercise group and 74% in the control group.

In other words, "for every 16 patients that went on the exercise program, exercise prevented 1 person from recurrent or new cancer" at 5 years, Booth reported.

Overall survival results were "even more impressive," he said.

At 8 years, 90% of patients in the exercise program were alive vs 83% of those in the control group, which translated to a 37% lower risk for death (HR, 0.63; P = .022).

"For every 14 patients who went on the exercise program, exercise prevented 1 person from dying" at the 8-year mark, Booth noted.

"Notably, this difference in survival was not driven by difference in cardiovascular deaths but by a reduction in the risk of death from colon cancer," he said.

Besides a slight uptick in musculoskeletal aches, no major safety signals emerged in the exercise group.

It's important to note that the survival benefit associated with exercise came after patients had received surgery followed by chemotherapy — in other words, exercise did not replace established cancer treatments. It's also unclear whether initiating an exercise intervention earlier in the treatment trajectory — before surgery or during chemotherapy, instead of after chemotherapy — could further improve cancer outcomes, the authors noted.

Still, "exercise as an intervention is a no brainer and should be implemented broadly," said ASCO expert Pamela Kunz, MD, with Yale School of Medicine, New Haven, Connecticut.

Marco Gerlinger, MD, with Barts Cancer Institute, London, England, agreed.

"Oncologists can now make a very clear evidence-based recommendation for patients who just completed their chemotherapy for bowel cancer and are fit enough for such an exercise program," Gerlinger said in a statement from the nonprofit UK Science Media Centre.

Booth noted that knowledge alone will not be sufficient to allow most patients to change their lifestyle and realize the health benefits.

"The policy implementation piece of this is really key, and we need health systems, hospitals, and payers to invest in these behavior support programs so that patients have access to a physical activity consultant and can realize the health benefits," he said.

"This intervention is empowering and achievable for patients and with much, much lower cost than many of our therapies. It is also sustainable for health systems," he concluded.

Diet and Survival

Diet can also affect outcomes in patients with colon cancer.

In the same session describing the CHALLENGE results, Sara Char, MD, with Dana-Farber Cancer Institute in Boston, reported findings showing that consuming a diet high in proinflammatory foods was associated with worse overall survival in patients with stage III colon cancer. A proinflammatory diet includes red and processed meats, sugary drinks, and refined grains, while an anti-inflammatory diet focuses on fruits, vegetables, whole grains, fish, and olive oil.

Chronic systemic inflammation has been implicated in both colon cancer development and in its progression, and elevated levels of inflammatory markers in the blood have previously been associated with worse survival outcomes in patients with stage III colon cancer.

Char and colleagues analyzed dietary patterns of a subset of 1625 patients (mean age, 61 years) with resected stage III colon cancer enrolled in the phase 3 CALGB/SWOG 80702 (Alliance) clinical trial, which compared 3 months of adjuvant chemotherapy with 6 months of adjuvant chemotherapy, with or without the anti-inflammatory medication celecoxib.

As part of the trial, participants reported their diet and exercise habits at various timepoints. Their diets were scored using the validated empirical dietary inflammatory pattern (EDIP) tool, which is a weighted sum of 18 food groups — nine proinflammatory and nine anti-inflammatory. A high EDIP score marks a proinflammatory diet, and a low EDIP score indicates a less inflammatory diet.

During median follow-up of nearly 4 years, researchers noted a trend toward worse disease-free survival in patients with high proinflammatory diets (HR, 1.46), but this association was not significant in the multivariable adjusted model (HR, 1.36; P = .22), Char reported.

However, higher intake of proinflammatory foods was associated with significantly worse overall survival.

Patients who consumed the most proinflammatory foods (top 20%) had an 87% higher risk for death compared with those who consumed the least (bottom 20%; HR, 1.87). The median overall survival in the highest quintile was 7.7 years and was not reached in the lowest quintile.

Combine Exercise and Diet for Best Results

To examine the joint effect of physical activity and diet on overall survival, patients were divided into higher and lower levels of physical activity using a cut-off of 9 MET hours per week, which roughly correlates to 30 minutes of vigorous walking five days a week with a little bit of light yoga, Char explained.

In this analysis, patients with less proinflammatory diets and higher physical activity levels had the best overall survival outcomes, with a 63% lower risk for death compared with peers who consumed more pro-inflammatory diets and exercised less (HR, 0.37; P < .0001).

Daily celecoxib use and low-dose aspirin use (< 100 mg/d) did not affect the association between inflammatory diet and survival.

Char cautioned, that while the EDIP tool is useful to measure the inflammatory potential of a diet, "this is not a dietary recommendation, and we need further studies to be able to tailor our findings into dietary recommendations that can be provided to patients at the bedside."

Gralow said this "early but promising observational study suggests a powerful synergy: Patients with stage III colon cancer who embraced anti-inflammatory foods and exercised regularly showed the best overall survival compared to those with inflammatory diets and limited exercise."

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