Medical Xpress

The effect of acute exercise in humans on cancer cell growth

July 15 2021

Credit: Unsplash/CC0 Public Domain

New research presented at The Physiological Society's Annual Conference Physiology 2021 shows that molecules released into the bloodstream during exercise (such as small proteins) can act directly on bowel cancer cells to slow down their growth.

Previous research has shown that regular physical activity reduces the

risk of developing bowel cancer. This is mainly thought to happen because physical activity can help individuals to maintain a healthy body weight.

This new research shows that being physically active may reduce the risk of getting bowel cancer, even if the physical activity does not lead to weight loss.

These are preliminary findings, but having a better understanding of the mechanisms linking physical activity and cancer risk will help develop the most effective exercise programs for preventing cancer development.

It could also help develop drugs that can mimic some of the benefits of exercise.

Furthermore, this research could ultimately lead to exercise being part of standard care as part of bowel cancer screening programs, which could reduce the number of people who develop cancer.

The study was done on 16 male participants who had lifestyle risk factors for bowel cancer (all participants were 50 years or older, had overweight or obesity, and did not regularly exercise).

The researchers collected blood samples from participants before and after 45 minutes of 'moderate' intensity indoor cycling, and before and after a non-exercise 'control' experiment.

They assessed whether exercise altered the concentration of specific proteins in the blood.

Finally, they then added the liquid portion of each blood sample that contains the proteins (known as serum) to bowel cancer cells in a

laboratory and monitored cancer cell growth over 48 hours.

The main limitation of this research is that the cancer cells were grown in a dish under tightly-controlled laboratory conditions. Cancer tumors in humans are more complex and interact with the environment around them, such as surrounding blood vessels and immune cells. This means that the findings may not necessarily apply to real-life cancer tumors—this is something the researchers will investigate in the future.

Sam Orange, the presenter and lead author of this research said: Following on from this research, we want to understand a few more things, including which specific molecules in the blood are responsible for reducing the growth of the bowel cancer cells, and whether exercise performed at a high-intensity has a more pronounced effect on bowel cancer cell growth than exercise performed at a moderate-intensity.

More information: www.physoc.org/events/physiology-2021/

Provided by The Physiological Society