

Aspirin reverses obesity cancer risk

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Coated aspirin tablets. Image: Wikimedia Commons.

Research has shown that a regular dose of aspirin reduces the long-term risk of cancer in those who are overweight in an international study of people with a family history of the disease.

The study, conducted by researchers at Newcastle University and the University of Leeds, UK, is published today in the *Journal of Clinical Oncology*.

They found that being overweight more than doubles the risk of [bowel cancer](#) in people with Lynch Syndrome, an inherited genetic disorder which affects genes responsible for detecting and repairing damage in the DNA. Around half of these people develop cancer, mainly in the bowel and womb.

However, over the course of a ten year study they found this risk could

be counteracted by taking a regular dose of [aspirin](#).

Professor Sir John Burn, professor of Clinical Genetics at Newcastle University who led the international research collaboration, said: "This is important for people with Lynch Syndrome but affects the rest of us too. Lots of people struggle with their weight and this suggests the extra cancer risk can be cancelled by taking an aspirin.

"This research adds to the growing body of evidence which links an increased inflammatory process to an increased risk of cancer. Obesity increases the inflammatory response. One explanation for our findings is that the aspirin may be suppressing that inflammation which opens up new avenues of research into the cause of cancer."

The randomised controlled trial is part of the CAPP 2 study involving scientists and clinicians from over 43 centres in 16 countries which followed nearly 1,000 patients with Lynch Syndrome, in some cases for over 10 years.

937 people began either taking two aspirins (600 mg) every day for two years or a placebo. When they were followed up ten years later, 55 had developed bowel cancers and those who were obese were more than twice as likely to develop this cancer - in fact 2.75 times as likely. Following up on patients who were taking two aspirins a day revealed that their risk was the same whether they were obese or not.

The trial was overseen by Newcastle Hospitals NHS Foundation Trust and funded by the UK Medical Research Council, Cancer Research UK, the European Union and Bayer Pharma.

Professor John Mathers, Professor of Human Nutrition at Newcastle University who led this part of the study said: "For those with Lynch Syndrome, we found that every unit of BMI above what is considered

healthy increased the risk of bowel cancer by 7%. What is surprising is that even in people with a genetic predisposition for cancer, obesity is also a driver of the disease. Indeed, the obesity-associated risk was twice as great for people with Lynch Syndrome as for the general population.

"The lesson for all of us is that everyone should try to maintain a healthy weight and for those already obese the best thing is to lose weight. However, for many patients this can be very difficult so a simple aspirin may be able to help this group."

Professor Tim Bishop from the University of Leeds who led on the statistics for the study added: "Our study suggests that the daily aspirin dose of 600 mg per day removed the majority of the increased risk associated with higher BMI. However, this needs to be shown in a further study to confirm the extent of the protective power of the aspirin with respect to BMI".

However, Professor Burn advises: "Before anyone begins to take aspirin on a regular basis they should consult their doctor as aspirin is known to bring with it a risk of stomach complaints including ulcers.

"But if there is a strong family history of cancer then people may want to weigh up the cost-benefits particularly as these days drugs which block acid production in the stomach are available over the counter."

The international team are now preparing a large-scale follow-up trial and want to recruit 3,000 people across the world to test the effect of different doses of aspirin. The trial will compare two aspirin a day with a range of lower doses to see if the protection offered is the same.

Information on the next trial can be found at <http://www.capp3.org>

Mechanism

The researchers believe the study shows that aspirin is affecting an underlying mechanism which pre-disposes someone to cancer and further study is needed in this area. Since the benefits are occurring before the very early stages of developing a tumour - known as the adenoma carcinoma sequence - the effect must be changing the cells which are predisposed to become cancerous in later years.

One possibility is that a little recognised effect of aspirin is to enhance programmed cell death. This is most obvious in plants where salicylates trigger this mechanism to help diseased plants contain the spread of infection.

"We may be seeing a mechanism in humans whereby aspirin is encouraging genetically damaged stem cells to undergo programmed cell death, this would have an impact on [cancer](#)," says Sir John.

More information: Obesity, Aspirin, and Risk of Colorectal Cancer in Carriers of Hereditary Colorectal Cancer: A Prospective Investigation in the CAPP2 Study, *Journal of Clinical Oncology*, 2015.

Provided by University of Leeds

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