

# Antibiotics increase the risk of colon cancer

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Sophia Harlid, researcher at Department of Radiation Sciences, Umeå University, Sweden. Credit: Mattias Pettersson.

There is a clear link between taking antibiotics and an increased risk of developing colon cancer within the next five to ten years. This has been confirmed by researchers at Umeå University, Sweden, after a study of 40,000 cancer cases. The impact of antibiotics on the intestinal

microbiome is thought to lie behind the increased risk of cancer.

"The results underline the fact that there are many reasons to be restrictive with [antibiotics](#). While in many cases [antibiotic therapy](#) is necessary and saves lives, in the event of less serious ailments that can be expected to heal anyway, caution should be exercised. Above all to prevent bacteria from developing resistance but, as this [study](#) shows, also because antibiotics may increase the risk of future [colon cancer](#)," explains Sophia Harlid, cancer researcher at Umeå University.

Researchers found that both women and men who took antibiotics for over six months ran a 17 percent greater risk of developing cancer in the ascending [colon](#), the first part of the colon to be reached by food after the [small intestine](#), than those who were not prescribed any antibiotics. However, no [increased risk](#) was found for cancer in the descending colon. Nor was there an increased risk of rectal cancer in men taking antibiotics, while women taking antibiotics had a slightly reduced incidence of rectal cancer.

The increased risk of colon cancer was visible already five to ten years after taking antibiotics. Although the increase in risk was greatest for those taking most antibiotics, it was also possible to observe an admittedly small, but statistically significant, increase in the risk of cancer after a single course of antibiotics.

The present study uses data on 40,000 patients from the Swedish Colorectal Cancer Registry from the period 2010–2016. These have been compared to a matched control group of 200,000 cancer-free individuals drawn from the Swedish population at large. Data on the individuals' antibiotic use was collected from the Swedish Prescribed Drug Register for the period 2005–2016. The Swedish study broadly confirms the results of an earlier, somewhat smaller British study.

In order to understand how antibiotics increase the risk, the researchers also studied a non-antibiotic bactericidal drug used against urinary infections that does not affect the microbiome. There was no difference in the frequency of colon cancer in those who used this drug, suggesting that it is the impact of antibiotics on the microbiome that increases the risk of cancer. While the study only covers orally administered antibiotics, even intravenous antibiotics may affect the gut microbiota in the intestinal system.

"There is absolutely no cause for alarm simply because you have taken antibiotics. The increase in risk is moderate and the affect on the absolute risk to the individual is fairly small. Sweden is also in the process of introducing routine screening for colorectal cancer. Like any other screening program, it is important to take part so that any cancer can be detected early or even prevented, as [cancer](#) precursors can sometimes be removed," says Harlid.

The research was published in *JNCI: Journal of the National Cancer Institute*.

**More information:** Sai San Moon Lu et al, Antibiotics Use and Subsequent Risk of Colorectal Cancer: A Swedish Nationwide Population-Based Study, *JNCI: Journal of the National Cancer Institute* (2021). [DOI: 10.1093/jnci/djab125](https://doi.org/10.1093/jnci/djab125)

Provided by Umea University

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