

New findings in the link between selenium and cancer

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Higher levels of selenium are associated with a decreased risk of colorectal cancer, according to new research* published in the *International Journal of Cancer*.

The study, led jointly by Newcastle University, UK, the International Agency for research on Cancer (IARC-WHO) and the Royal College of Surgeons in Ireland, has shown that in Europe we have much lower levels of [selenium](#) in our blood than people living in Canada and USA.

Western Europeans average around 80 micrograms/l – below the 110-170 micrograms/l reported in people in the North American population.

Assessing selenium status from both the total amount of selenium in the blood and the serum selenoprotein P levels, which reflect the amount of

selenium bound up in the carrier protein, the team found that a higher selenium status is significantly associated with a lower risk of [colorectal cancer](#). The results also indicate this could be more relevant for women.

The low selenium levels found in these blood samples are likely to be linked to the low levels of selenium found in European soils and subsequently in the food grown on them.

Now the research team – involving experts from across Europe – are calling for more work to be done to look at the potential benefit of supplementing our diets either by adding selenium to our food or directly to the land.

Newcastle University's Professor John Hesketh explains: "Interest in the question of whether selenium intake affects [cancer](#) risk has waned a little in recent years because of negative results from a trial in the USA and the reported possible link of selenium to greater risk of diabetes if taken in high doses.

"What our study does is put the debate around selenium and cancer back on the table and highlights the need for further research to understand the benefits, if any, of supplementing diets in regions where selenium is naturally low."

Selenium is an essential micronutrient for human health but due to differing soil levels and resultant food content, there is great geographical variation in dietary selenium intake worldwide. As a result, the selenium status of many populations, including those across Europe, is low compared with much of North America.

The study was based on samples collected through EPIC** in which dietary and lifestyle information was collected for over 520,000 participants from 23 centres in 10 Western European countries including

the UK and their subsequent health monitored over time.

Brazil nuts are one of the best natural sources of selenium, but other foods rich in the mineral include shellfish, red meat, offal and Canadian flour.

In Europe, colorectal cancer is the second leading cause of cancer related death. So should we all start taking supplements?

"Our results support a role for selenium in the prevention of colorectal cancer, but this has to be balanced with caution regarding the potential toxic effects of taking too much," says Professor Hesketh. "The difficulty with selenium is that it's a very narrow window between levels that are sub-optimal and those that would be considered toxic.

"In fact, some studies suggest that as little as 200 micrograms of selenium taken on a regular basis could increase the risk of diabetes.

"What our study shows is a possible link between [higher levels](#) of selenium and a decreased risk of colorectal cancer and suggests that increasing [selenium intake](#) may reduce the risk of this disease.

"We think this provides a strong case for a Europe-wide study to investigate the impact of supplementing food with selenium."

More information: Hughes et al. "Selenium status is associated with colorectal cancer risk in the European prospective investigation of cancer and nutrition cohort". *International Journal of Cancer* [DOI: 10.1002/ijc.29071](https://doi.org/10.1002/ijc.29071)

Provided by Newcastle University

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