

# A Mediterranean diet can lead to a high intake of environmental contaminants

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A Mediterranean diet can provide many health benefits, but you may risk consuming too many environmental contaminants. Organically produced food can be the solution, a new study shows.

Many people swear by a Mediterranean [diet](#), which involves eating a lot of fruits and vegetables, whole grains, nuts, legumes and fish, along with a little wine. Another advantage is that this diet only contains small amounts of saturated fats from dairy products and red meat.

But a new study carried out by scientists at the University of Oslo and universities in other countries made a rather surprising discovery: people participating in the study who lived on a Mediterranean diet containing foods cultivated in the normal manner had three times the intake of [environmental contaminants](#) compared to when they were eating an ordinary, Western diet.

Professor Per Ole Iversen at the Department of Nutrition at the University of Oslo has been involved in the study, together with Project Manager Carlo Leifert, who is a visiting professor at the University of Oslo. According to Iversen, one of the main strengths of the study is that it took account of several factors. The participants were divided into two groups: one ate a Mediterranean diet based on foods cultivated in the ordinary way, while the other group ate a Mediterranean diet based only on organically grown foods. Before and after the period when they kept to a Mediterranean diet, the participants all ate their normal diet.

In the group living on a Mediterranean diet based on organically grown foods, the level of environmental contaminants sank by 90% compared to the group eating a Mediterranean diet with foods cultivated in the ordinary way, says Iversen.

## **Environmental contaminants can affect hormones in the body**

The researchers tested the participants' urine and investigated which contaminants were present in the food they ate.

Leifert, who is an adjunct Professor at Southern Cross University in Australia and visiting professor at the Chinese Academy of Agricultural Science, reveals that several of the environmental contaminants they found are known or suspected to affect hormones in the body. There is growing evidence that such toxins can weaken our immune defense system and perhaps also our fertility. If hormones become imbalanced, they can also have a negative effect on the growth and development of children.

"Fruits, vegetables and whole grains cultivated in the conventional way are some of the main sources of environmental contaminants absorbed through our diet. Since a Mediterranean diet is based on such foods, those eating it had a ten times higher intake of these contaminants than if their diet had been based on foods cultivated organically," explains Leifert.

Both farmed and wild fish can contain environmental contaminants, but usually in small quantities.

## **No warning against the Mediterranean diet**

However, scientists are not yet on the point of issuing a warning against living on a Mediterranean diet devoid of organically grown foods. As Iversen makes clear, the study is not very large and they have not yet been able to monitor the long-term health effects of such a diet.

"For those who eat a non-organic Mediterranean diet, we do not yet know what will be the most decisive in the long term: consuming better and healthier nutrients than if they ate a conventional, North European diet, or absorbing a higher volume of environmental contaminants. We will have to wait for the results of research studies on larger populations," says the professor.

Our intake of environmental contaminants also comes from other sources such as the air we breathe and via cosmetics such as skin creams. This study has not adjusted its results to take account of these factors.

"But it is improbable that the two groups in our study differed with regard to the above two factors because of the way the study was designed," Iversen says.

The University of Oslo scientist says that for the time being, they will continue to promote the official dietary guidelines.

## **A new study of 200 pregnant women**

With support from the University of Oslo and the Eckbo Foundation, Iversen and his fellow researchers will study 150 to 200 pregnant women in Norway. One group will eat organic food up until the birth of their child while the other will eat "as normal." Both groups will be recommended to follow the national dietary guidelines for pregnant women. Iversen and his research team will then test for environmental contaminants in the participants' blood, urine and feces.

"We are keen to find out whether the first group eating organic food will have lower levels of environmental contaminants. We will also test the urine of the babies with this in mind. In addition, the participants will be followed up over a subsequent period of two years," says Iversen.

The study, titled "Diet and food type affect urinary pesticide residue excretion profiles in healthy individuals: results of a randomized controlled dietary intervention trial," was recently published in the *American Journal of Clinical Nutrition*.

## **How the study was carried out**

- 27 British students participated in the study over a period of five weeks.
- Before the start of the study, the participants were at home in England and ate what the researchers call an ordinary, Western diet.
- They had to log what they ate for a week, after which the scientists took a urine sample and tested it for environmental contaminants.
- The students were then sent to a farm in Crete for two weeks and were divided into two groups. One group followed a Mediterranean diet with foods cultivated in the conventional way. The other group also followed a Mediterranean diet, but this time with foods produced organically.
- The food was analyzed to establish the presence of any environmental contaminants.
- Once again, the students provided the scientists with urine samples.
- The students then returned home and ate their normal diet again for a week, after which they delivered a new urine sample.
- The group consuming a Mediterranean diet based on conventionally produced food were shown to have three times the level of environmental contaminants in their urine compared to when they were eating their normal, Western diet.
- The other group, who had eaten an organically produced Mediterranean diet, had 90% fewer environmental [contaminants](#) in their urine compared to the group who had eaten a Mediterranean diet consisting of conventionally produced [food](#).

**More information:** Leonidas Rempelos et al, Diet and food type affect urinary pesticide residue excretion profiles in healthy individuals: results of a randomized controlled dietary intervention trial, *The American Journal of Clinical Nutrition* (2021). [DOI: 10.1093/ajcn/nqab308](#)

Provided by University of Oslo

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