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No evidence to support a link between crop protection products and Parkinson's disease in consumers

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Parkinson's disease is often linked to the use of crop protection products. The Belgian news website Vilt spoke to neurologist Wim Vandenberghe of UZ Leuven in Belgium and to Professor Hans Kromhout of Utrecht University in the Netherlands, who specialises in occupational hygiene and epidemiology. The conversation painted a somewhat more nuanced picture, as is evident from an article on Vilt.be.

The exact number of people with Parkinson's disease in Western Europe is difficult to determine, as studies use different definitions (for example, only diagnosed patients versus all suspected cases). Based on recent epidemiological studies and national estimates, it is assumed that there are approximately 1.5 to 2 million people living with Parkinson's disease in Western Europe (source: ourworldindata.org). Depending on the age distribution and how the disease is recorded, this means that between 0.3 and 0.6 per cent of the total population in each country suffers from this disease.

Smoking reduces the risk of Parkinson's

However, the total number of patients is rising steadily. The finger of blame is all too quickly pointed at crop protection products. According to both experts, this is unjustified. "The focus is currently very much on pesticides, but there are a whole host of other factors that may cause Parkinson's," says Professor Hans Kromhout. "Moreover, the rise in the number of people with Parkinson's is due to the fact that the population is ageing and patients are living longer thanks to better treatment." After all, Parkinson's is a disease of old age, and the more elderly people there are, the more Parkinson's patients there will be. However, there is another remarkable finding: people who smoke are thought to be four to six times less likely to develop the disease than non-smokers. As fewer and fewer people are smoking, this could be a contributing factor to the rise in the number of Parkinson's patients.

Parkinson's and crop protection products

According to experts, there is a link between crop protection products and Parkinson's disease. However, this relates to people who have been in intensive contact with crop protection products over several years, such as farmers or their staff who fill the sprayers and apply the products. In France, Parkinson's is therefore recognised as an occupational disease amongst farmers. However, this does not necessarily mean that there is also a link between crop protection products and

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Organic?
According to Wim Vandenberghe, there is no evidence that consuming conventional or organic food affects the risk of Parkinson's disease. That said, Hans Kromhout points out that it is questionable whether all consumers actually have a choice. "In both Belgium and the Netherlands, organic fruit and vegetables are much more expensive than conventionally grown produce. And not everyone can afford that."

Smokers are four to six times less likely to develop Parkinson's than non-smokers.
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People who are heavily exposed to crop protection products are at greater risk of developing Parkinson's disease.
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Parkinson's in consumers. The level of exposure for a grower who sprays such products on their land is, of course, many times higher than that of a consumer who eats non-organically grown fruit and vegetables.
A recent study by the Dutch Radboudumc in Nijmegen has produced a striking result. Contrary to expectations, there are no more Parkinson's patients in areas with large areas of intensively sprayed crops, such as flower bulbs or fruit, than in urban environments.

Effect of new pesticides unknown

Then there is the question of which crop protection products play a role in the development of Parkinson's. Products whose toxicity is well established, such as paraquat, rotenone and benomyl, have been banned in the EU for decades. Elsewhere, such as in the US, paraquat is still in use, for example. According to neurologist Wim Vandenberghe of the Belgian UZ Leuven, it is less clear to what extent newer products are toxic. Kromhout adds: "The patients we are seeing now were exposed to products from 30 or 40 years ago. We do not yet know whether the substances used by current generations will also have this kind of effect."

Food is safe

In the article, Kromhout points out that foodstuffs treated with crop protection products are not harmful. After all, all food placed on the market must meet very strict safety standards. He notes that the use of crop protection products is much higher in the case of non-edible agricultural products. "In rose cultivation in Ethiopia, for example, substances are used that have long been banned in Europe, but if you want to export the roses to Europe, you have no choice. After all, if those roses contain certain insect pests, they are not allowed to be imported into Europe. So everything has to be thoroughly sprayed. But even then, I'd be more concerned about the ingredients in your dog's or cat's flea collar than about the bouquet of Ethiopian roses you put on the table at home."

Research needed but difficult

For most people with Parkinson's, it is unclear what caused the disease. More research into the causes of Parkinson's and the impact of, for example, organically versus conventionally grown food would therefore be desirable. However, this requires long-term research involving large groups of people. "The levels of crop protection products in food are so low, and you need such large populations, that it is very difficult to investigate this," says Professor Hans Kromhout of Utrecht University (Netherlands). "If you really want to demonstrate whether eating organic food reduces the risk of Parkinson's, you need to find a large group of people who eat exclusively organic food. But these are very specific groups. They are often highly educated people with high incomes. This introduces many other confounding factors that influence the results. For example, such people tend to smoke less, which actually increases their risk of Parkinson's.

Advice for farmers

Occupational health expert Hans Kromhout says that professional users can significantly reduce their exposure by taking care when working. "You can protect yourself very effectively against exposure to crop protection products by wearing protective clothing and avoiding the use of certain products," he says. "You should also avoid spraying when the wind is blowing very strongly. This also applies, incidentally, to other people who come into contact with such products, such as people who control rats and mice or metalworkers. This is because biocides are added to metalworking fluids to prevent bacterial growth."