

# Growing up on a livestock farm halves the risk of inflammatory bowel diseases

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New research conducted at Aarhus University has revealed that people who have grown up on a farm with livestock are only half as likely as their urban counterparts to develop the most common inflammatory bowel diseases: ulcerative colitis and Crohn's disease. The study findings have recently been published in the *European Journal of Epidemiology*.

"It is extremely exciting that we can now see that not only allergic diseases, but also more classic [inflammatory diseases](#) appear to depend on the environment we are exposed to early in our lives," relates Vivi Schlünssen, Associate Professor in Public Health at Aarhus University.

## Greater difference over the past 60 years

The study indicates that people born after 1952 who spent the first five years of their lives on a livestock farm are much better protected against the common inflammatory bowel diseases than the oldest people in the survey. In fact, results from the oldest age group seem to show that it made no difference whether the subjects grew up in town or country.

"This leads us to believe that there is a correlation between the rise in inflammatory bowel diseases and increasing urbanisation, given that more and more children are growing up in urban settings," adds Signe Timm, PhD student at Aarhus University.

"We know that development of the immune system is finalised in the

first years of our lives, and we suspect that environmental influences may have a crucial effect on this development. The place where you grow up may therefore influence your risk of developing an [inflammatory bowel disease](#) later in life."

## **Variation of bacteria may have an effect**

The new study does not reveal why the difference between growing up in a modern city and a rural setting has an effect on the immune system. However, the researchers have a theory that the body may be dependent on exposure to a wide variety of microorganisms to develop a healthy [immune system](#) – in the same way as has been established in studies on allergies and asthma.

"We know that the difference in the microbial environment between city and country has increased over the past century, and that we are exposed to far fewer different bacteria in urban environments today than we were previously. This may in part explain our findings," says Signe Timm.

## **Is the protection hereditary?**

More than 50,000 Danes suffer from [ulcerative colitis](#) or Crohn's disease. These conditions are now often appearing in young people, who have to live with them for the rest of their lives. Over the past 40–50 years, incidence of the diseases has sky-rocketed in Northern Europe – including Denmark – as well as in Canada and the United States, although they are still relatively rare in developing countries.

As a part of her PhD project, Signe Timm will be contacting the 20,000 or so children of the participants in the current study to establish whether the same tendencies can be found in the next generation. She will also be investigating whether the effect of [environmental influences](#) can be

handed down to the next generation as a result of a complex interplay between genes and the environment – i.e. if children can 'inherit', so to speak, the protective effect their parents have obtained from growing up on a farm with livestock.

Provided by Aarhus University

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