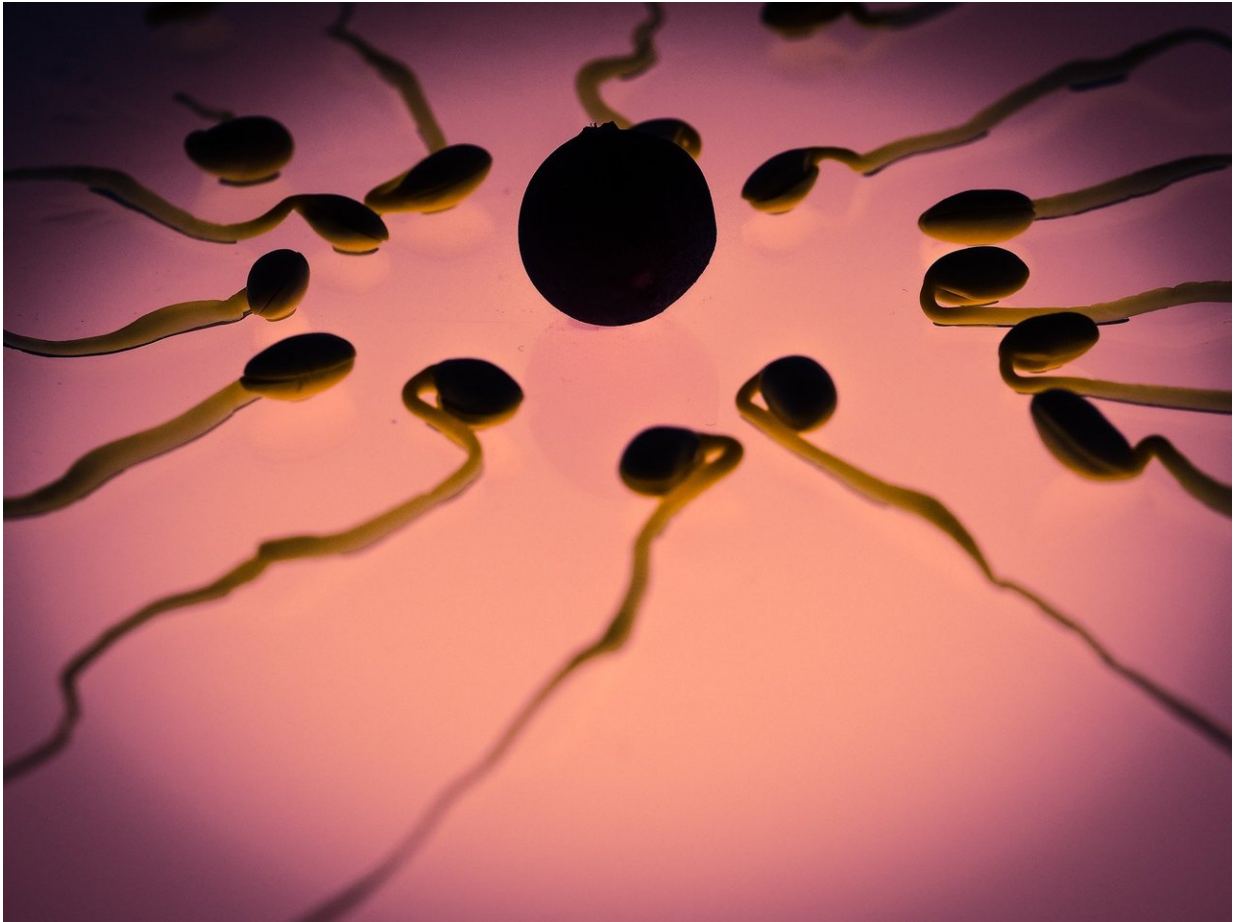


Collecting sperm from COVID-19 patients

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How does COVID-19 affect sperm and thus the next generation's immune system? Researchers from the University of Bergen are collecting sperm to find the answer.

So far, 50 COVID-19 patients between 30 and 40 have delivered a [sperm](#) sample. Students are next in line. The plan is that participants will return after 12 months for more testing.

The project aims to see how the [infection](#) affects the development of the [immune system](#) and, follow-up studies will reveal how COVID-19 will affect the immune system of their future children.

"The immune system is trained by infections of all kinds. We want to study how it is affected by COVID-19 and also if the infection has implication for future generation's immune systems. That is why we decided to study sperm in addition to whole blood," says Professor Cecilie Svanes, at Centre for International Health, University of Bergen.

This is the first study of its kind on human beings. The COVID-19 pandemic gives researchers a new and unique opportunity to study immune-training and how the infection may have effect on the next generation. Svanes is leading the study together with Professor Rebecca Cox at The Influenza Centre, University of Bergen.

Infections train the immune system

All kinds of infections stimulate reactions in our immune system. The researchers want to find out if COVID-19 trains the immune system in a good or bad way.

"Previous testing on animals have shown that infections can affect a future generation's immune system in both a negative and a positive way," Svanes says.

Infections by micro-worms, so-called helminths, were found to have a positive effect on the immune system among mouse offspring. Sepsis, on the other hand, had a negative effect on the next generation of mice.

The researchers in the study believe the link between infection, sperm and offspring is the result of epigenetic changes, affecting how the hereditary material is "read and understood" and how the body builds the proteins involved in the immune system. The researchers are studying the messenger-RNA, which translates the DNA to proteins.

"If one compares the hereditary material with a cookbook, the epigenetics is about which of the recipes are to be read. We believe that an infection can affect this process," Svanes explains.

Should maybe wait to have children

The researchers cannot wait for the COVID-19 patients to have children, so that they can study any effects of the father's infection on the offspring's immune response. They study and compare sperm and blood from the patients with that taken from a large [control group](#) without COVID-19.

The control group are participants in the large European RHINESSA-study, where the participants from seven different countries have been followed over 20 years. The database contains information on how lung health, asthma, allergies and associated diseases have developed over time

"If we find considerable negative changes in sperm, there is a possibility that we will advise people to wait with having children, for, for example, one year after a COVID-19 infection," says Cecilie Svanes.

Provided by University of Bergen

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