

Oestrogen in birth control pills has a negative impact on fish

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Doctoral student Lina Nikoleris during her research

A new doctoral thesis from Lund University in Sweden shows that hormones found in birth control pills alter the genes in fish, which can cause changes in their behaviour. The thesis also shows that nurse midwives, who are the main prescribers in Sweden, lack information about the environmental impact of hormonal birth control methods, which may affect the advice they provide.

The hormone ethinyl-estradiol (EE2) is an active substance in many [birth control pills](#) which affects aquatic organisms when released as waste into the water. In her thesis, Lina Nikoleris studies how fish are affected by EE2.

"Even low concentrations of EE2 have an impact on fish – both their behaviour and their genetics. We have seen a change in the genetic balance in fish, and that they have a harder time catching food. Previous studies have shown that the fish also develop problems with procreation. This can lead to the complete disappearance of an entire fish population, and consequences for entire ecosystems", says Lina Nikoleris.

Fish have more oestrogen receptors than humans, which makes them especially vulnerable to oestrogen in water. The thesis studies three different fish species: salmon, trout and roach, which are economically important fish that live in both sea and freshwater.

Lina Nikoleris has also studied nurse midwives' knowledge of the environmental impact of hormonal birth control, the information they receive, and the impact it has on the consultation they provide.

The results show that the midwives find that they do not have sufficient knowledge, and any information they have mainly comes from pharmaceutical companies. In Sweden birth control is subsidised but the system can be difficult to grasp, and it mainly includes hormonal birth control methods.

Overall, the knowledge about hormone-free alternatives is scarce.

"The impact that human beings have on the environment is an important issue, so I do not only want to study the ecological aspect of how [fish](#) are affected by hormones, but also look at the way we use hormonal birth control. Technical solutions are not enough to purify our water – we must also make sure that prescribers and women receive all the relevant information when selecting a method of [birth control](#)", says Lina Nikoleris.

Provided by Lund University

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