

Do oral contraceptives affect muscle recovery after exercise? No, say researchers

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Recovering quickly from a tough training session or match is crucial for athletes' performance. Therefore, they must be aware of all the factors

that may affect their recovery.

Researchers at Aarhus University have examined whether trained females who use second-generation oral contraceptives experience markedly different muscle recovery after resistance exercise compared to females who do not use hormonal contraception.

The conclusion is that there is minimal difference. This knowledge means that athletes and coaches have one less thing to worry about, says Ph.D. student Mikkel Oxfeldt, who is behind the study together with Associate Professor Mette Hansen from the Department of Public Health.

These findings counter earlier studies that primarily examined untrained individuals and suggested a potential negative impact on recovery..

"The study shows that oral contraceptives are unlikely to have a substantial impact on muscle recovery after intensive exercise for active females. This is reassuring news for athletes and individuals dedicated to intense training," says the researcher.

The study is the first and largest to examine the effect of oral contraceptives on muscle recovery in trained females. It focuses on 2nd generation oral contraceptives, which are the most widely used in Denmark.

More research on the horizon

Despite the widespread use of oral contraceptives, there is still a lack of comprehensive knowledge about their effects on the body's systems, says Mikkel Oxfeldt.

"Moreover, the use of other contraceptives like mini-pills and

intrauterine devices is increasing, yet we have even less information about these types of contraceptives. We aim to expand our understanding in this area in the coming years," he explains.

For this reason, he and the rest of the research group have, in recent years, worked to investigate how female sex hormones, including the [menstrual cycle](#) and the use of hormonal contraceptives, affect females in terms of sport and health.

"The amount of research, and more importantly, the quality of the existing research, is insufficient. Our research group is committed to conducting world-class research to provide females with evidence-based guidance in the context of sports and training," says Mikkel Oxfeldt.

About the survey

- In the study, 20 trained females who use oral contraceptives and 20 trained females who do not perform three strenuous training sessions.
- Blood samples were taken before training and after three, 24 and 48 hours.
- The participants were evaluated for muscle soreness, maximum muscle strength, jumping height, and markers of [muscle](#) damage measured in the blood.
- Participants received all meals throughout the entire trial, and their [dietary intake](#) was carefully controlled to ensure sufficient energy, carbohydrates, and protein..
- Furthermore, it was ensured that all oral [contraceptive](#) users took the same type of pill. This was crucial, as [oral contraceptives](#) can vary greatly in dose and content of synthetic hormones that potentially affect the body's physiology.

The [research](#) is [published](#) in the journal *Medicine & Science in Sports &*

Exercise.

More information: Mikkel Oxfeldt et al, Influence of 2nd Generation Oral Contraceptives on Muscle Recovery following Repeated Resistance Exercise in Trained Females, *Medicine & Science in Sports & Exercise* (2023). [DOI: 10.1249/MSS.00000000000003316](https://doi.org/10.1249/MSS.00000000000003316)

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