

Steroid abuse by men leads to long-lasting impaired testicular function

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Illegal use of anabolic steroids not only has dangerous side effects during use but also can harm of men's testicular function years after they stop abusing steroids, according to a study published in the Endocrine

Society's *Journal of Clinical Endocrinology & Metabolism*.

Anabolic steroids are synthetic forms of [testosterone](#), and their abuse is prevalent among athletes worldwide. Some people use these steroids without a prescription to improve athletic performance or get a more muscular look. Known side effects of these drugs in men include breast growth, hair loss, shrunken testicles and lower testosterone levels. Also called hypogonadism, low testosterone can cause decreased sex drive, poor erections and a low sperm count.

"It is still debated whether illicit use of [anabolic steroids](#) causes long-lasting testosterone deficiency," said Jon J. Rasmussen, M.D., Ph.D., the study's principal investigator and a scientist at Rigshospitalet in Copenhagen, Denmark.

Researchers at the hospital have identified a hormone made by Leydig cells—cells in the testicles that produce testosterone—as a promising biological marker of testicular function, Rasmussen said. Because blood levels of testosterone can vary greatly during the day and vary by body composition, Rasmussen and his co-workers are investigating a more stable marker than testosterone, called serum insulin-like factor 3 (INSL3).

For this study, supported by Anti Doping Denmark, the research team included 132 participants from another study: men who did recreational strength training. Their ages ranged from 18 to 50 and averaged 32. Three study groups consisted of 46 men currently using anabolic steroids, 42 former steroid users and 44 who had never used these steroids. On average, former users had reportedly not taken anabolic steroids for 32 months.

Among current steroid users, INSL3 was markedly suppressed compared with former users and never-users, Rasmussen said. Compared with

never-users, the former steroid users had lower INSL3 concentrations: 0.39 versus 0.59 microgram micrograms per liter. Furthermore, the longer the duration that the men reportedly used [steroids](#), the lower their INSL3 levels, the researchers found.

"Our results suggest a long-lasting impaired gonadal capacity in previous anabolic steroid users," Rasmussen said.

Although the clinically relevant difference in INSL3 levels is not yet known, because INSL3 measurement is primarily for research, he said their findings indicate that prior steroid users may have an increased risk of hypogonadism later in life.

"The results," Rasmussen said, "raise the question whether some previous anabolic steroid users should receive medical stimulation therapy to increase Leydig cell capacity in the testicles."

This therapy would include drugs used to block estrogen production or its conversion to testosterone, such as aromatase inhibitors and selective estrogen receptor modulators, he noted.

More information: Jon Jarløyv Rasmussen et al. Serum insulin-like factor 3 levels are reduced in former androgen users suggesting impaired Leydig cell capacity . *The Journal of Clinical Endocrinology & Metabolism* doi.org/10.1210/clinem/dgab129

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