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Investigations of Obesity Impacts on Male Fertility: A Narrative Review

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Abstract

Obesity is one of the most eye-popping challenges in today's life and many deal with this issue and its peripheral repercussions that infertility is one of them. This review aims to investigate the impacts of obesity and overweight on male fertility. What obesity in men results in are secondary hypogonadism, influencing semen quality, sperm quality and spermatogenesis, causing erectile dysfunction and sleep apnea, increasing scrotal temperature, affecting offspring health, and in vitro fertilization. Secondary hypogonadism prompts by few mechanisms due to adipose increase. The main mechanisms causing this issue are inflammation, Insulin resistance, and leptin resistance. Moreover, sperm and semen quality and its related factors mostly decline by Body mass index elevation. Spermatogenesis due to cell regeneration and apoptosis imbalance gets disrupted by adipose accumulation. Waist circumference increase lead to erectile dysfunction as testosterone level declines and systemic inflammation happens. Sleep apnea in obese men results in hypoxia, fluctuating nightly testosterone, and affecting LH level. Increasing scrotal temperature causes a decrease in sperm count. Offspring health approximately for the next 2 generations get influenced by transferred epigenetic changes. Scrutinizing IVF results in a few studies revealed that clinical pregnancy rate decline and live birth rate decrease while BMI increase.

Keywords: obesity, male infertility, overweight, BMI, hypogonadism, sperm quality, semen quality, spermatogenesis