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Journal of Clinical Medicine. 2019 Mar; 8(3): 370–386.
Published online 2019 Mar 12. doi: 10.3390/jcm8030370
PMCID: PMC6463208
PMID: 30875860

Recovery of spermatogenesis following testosterone replacement therapy or anabolic-androgenic steroid use

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This review examines testosterone therapy (TRT) for hypogonadism continues to rise, particularly among men who only want to father children. Unfortunately, administration of exogenous androgens suppresses the hypothalamic-pituitary-gonadal axis, which can result in azoospermia and testicular atrophy. Although the effects of androgen-induced azoospermia are generally considered reversible, the recovery of spermatogenesis. Therefore, it is important that clinicians incorporate discussions regarding TRT and AAS use regarding potential fertility impairment into their practice. This review aims to provide a comprehensive overview of the current pharmacotherapeutic options available to restore fertility. The available options include: discontinuation of androgen administration, gonadotropin-releasing hormone (GnRH) agonist therapy, human chorionic gonadotropin (hCG) monotherapy, and hCG plus follicle-stimulating hormone (FSH) therapy. The efficacy of each of these options is assessed in the literature, predominantly consisting of retrospective studies and randomized controlled trials. Although the literature is limited by a lack of high-quality evidence, it appears that GnRH agonist therapy and hCG monotherapy are ineffective for restoration of fertility, while hCG plus FSH therapy is effective for restoration of fertility. Although hCG plus FSH therapy is effective, it is unclear which of the two components is the primary driver of the treatment effect. Future research should focus on randomized controlled trials to further assess the efficacy of these treatments, particularly in the subgroup of men who only want to father children.

Keywords: anabolic steroids, hypogonadism, infertility, gonadotropin, testosterone, exogenous androgens, hypothalamic-pituitary-gonadal axis, recovery, review

INTRODUCTION

In recent years, men's medicine has led to a greater public awareness of the age-related decline in serum testosterone (T) and the associated clinical manifestations, collectively termed "andropause" or "male menopause". This has led to a rapid rise in the prevalence of testosterone replacement therapy (TRT). Although the prevalence of TRT in the United States (US) has been stable since 2013, it has increased by nearly 400% from 2000 to 2013 [1]. Although the prevalence of TRT in other countries is not as high as in the US, it is still increasing in many countries [2,3,4,5,6]. Although the prevalence of TRT in the US is high, it is still estimated that only about one-third of men who meet the US criteria for hypogonadism receive treatment [7

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