

3. ANABOLIC-ANDROGENIC STEROIDS AND MALE REPRODUCTIVE HEALTH

Author: Creciun Mariana

Scientific adviser: Ion Dumbraveanu, PhD, Associate Professor, Department of Urology and Surgical Nephrology, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Anabolic-androgenic steroids (AAS) are natural or synthetic versions of testosterone. Because testosterone increases muscle mass, endurance and performance, AAS can be misused by athletes and bodybuilders to help build muscle, reduce body fat, or gain strength and endurance in an attempt to rapidly increase athletic performance. Anabolic steroids may harm male fertility in the same way that testosterone does: by interfering with the hormonal signals that are needed to produce sperm. The physiological functioning of the testicles is essential for male fertility and the development of male secondary sexual characteristics. In men, the primary goals of the testicles can be summarised as: 1) testosterone production and 2) spermatogenesis.

Aim of study. Infertility is a worldwide problem that ranges from 2.5% to 12%. In 50% of cases, infertility problems come exclusively from men. The use of androgenic anabolic steroids (ASA) is estimated at 1% to 5% worldwide, being on the rise, regardless of long-term side effects. According to some data, the quality of human sperm has deteriorated by 50% - 60% in the last 40 years probably also due to the use of anabolic substances.

Methods and materials. This study is a systematic review of publications of the last 10 years on the selected theme using Google Academic, PubMed and Scopus electronic databases with combinations of keywords and MeSH terms (e.g. 'male infertility' OR 'male reproductive function' AND 'anabolic steroids'; 'steroids'). In total, 490 articles were identified, 104 articles met the inclusion criteria. Of these, 73 reports were included in our research.

Results. From 30 publications analysed were established that excessive use of anabolic steroids and other performance-enhancing substances can endanger male fertility. The use of these substances deteriorates sperm quality, affecting both sperm count and the proportion of mobile and normal sperm that are below WHO standard values. From 18 publications it was determined that the effect of anabolic androgens on reproductive function depends considerably on the preparations used, the doses and the period of use. Hormone tests that describe testicular function show typical abnormalities. Another 11 publications analysed were established that in a substantial number of users, sperm examinations showed a complete absence of sperm. Also, in 14 publications was determined AAS suppress the hypothalamic-pituitary-gonadal (HPG) axis by inhibiting feedback, resulting in decreased synthesis of both follicle-stimulating hormone (FSH) and luteinizing hormone (LH), consequently, decreases intratesticular testosterone, cause male infertility. It also has a negative impact on sexual function.

Conclusion. The AAS impact on male fertility is one of the least reported. The immediate cessation of the use of the AAS should be encouraged. Lack of awareness of the long-term adverse effects on fertility was the main factor in regretting the use of AAS in men with anabolic / steroid-induced hypogonadism.