

# [Anabolic during the past 2 decades (arazi et](https://assignbuster.com/anabolic-during-the-past-2-decades-arazi-et/)

Anabolic androgenic steroids (AAS) are defined as syntheticderivatives of the endogenous sex hormone testosterone. These compounds havebeen clinically used to treat many diseases as hypogonadism, anemia, andprotein deficiency as well as severe weight loss associated with chronicdiseases (Kurling-Kailanto et al., 2010).  AAS are also one of the most commonly useddrugs among athletes to improve physical performance, lean body mass, musclesize and strength (Sinha-Hikim et al., 2002; Evans, 2004; Kanayama et al., 2010).

Anabolic androgenicsteroids are usually abused by athletes to achieve rapid increase in musclemass and by non-athletes to improve their personal appearance (Angell etal., 2012). The abuse of AAS may be a serious problem all over the world asthe number of AAS users increased more than 2000% in the world during the past2 decades (Arazi et al., 2017).

Accordingto the National Institute on Drug Abuse, it was reported that nandrolone is oneof the most used anabolic derivative of testosterone, because of its moderateandrogenic potential associated with the good anabolic properties (Andreatoet al., 2013).     Previous studies reportedmany serious side effects resulted from abusing these anabolic drugs which includecardiovascular disorder which can lead to sudden death, acute hepatitis, jaundice, testiculardysfunction with subsequent infertility, hypertension and behavioral disorders (Al-Kennany& Al-Hamdany, 2014). Moreover, reduction of immune cell number andfunction were also reported (Marshall-Gradisnik et al., 2009). Evidenceof side effects affecting the kidney and the renal function is sporadicallyemerging from clinical reports of renal disorders among AASs users, especiallywith high doses and prolonged use (Daher et al., 2009; Herlitz et al.

, 2010).    It was proved that dietsrich in vegetables and fruits reduced the risk of various diseases. The mainrole of these phytonutrients is not only providing the body with fibers, indoles and phenols but also reducing oxidative stress, as they contain naturalnutrient antioxidants like carotenoids, flvanoids, vitamin C, vitamin A and vitaminE (Singh et al., 2012).    Lycopene is consideredthe most prevalent antioxidant carotenoid diet present in the Western countries.

It is present in several red fruits as tomatoes, watermelon and pink grapefruit(Story et al., 2010). Consumption of tomatoes or its products usually leadsto increased blood levels of lycopene and reduction of oxidative damage of DNA, proteins and lipids (Palabiyik et al.

, 2017). Recent studies have reportedthat the supplementation of lycopene rich diets is associated with reduced riskof many chronic diseases, cancer, heart diseases, a reduction in blood pressure, diabetes, ageing and other degenerative diseases in humans (El-Gerbed, 2014).    Considering that anabolicsteroids are widely used in humans to improve athletic performance and knowingthat their overuse may cause lesions in many organs, we have designed this researchto study the histological changes in the kidney of adult male albino rats underthe effect of anabolic steroid (nandrolone decanoate) and role of lycopene inalleviating these changes.