

## The Effects of Anabolic and Androgenic Steroid on the Heart

Alexander Johnson and Dr. Nahmani

In the last couple decades, anabolic and androgenic steroids have significantly grown in popularity despite them being illegal in the US and it is estimated that 1 – 3% of the US population are using some form of anabolic and anabolic study. This equates to roughly 3 – 4 million people, mostly in the range of 19 – 50 years of age. This trend has also been observed on a global scale with the Annals of Epidemiology estimating that 3.3% of the world's population have tried anabolic and androgenic steroids at least once. While there are medical applications for anabolic and androgenic steroids, a large proportion of users are athletes and fitness enthusiasts who abuse them for their aesthetic or performance benefits. Since anabolic and androgenic steroids promote protein synthesis, they can increase growth of muscle tissues as desired by athletes and fitness enthusiasts however they also simultaneously effect other processes of the body which can be extremely detrimental to an individual's overall health. This study investigated the effects of prolonged anabolic and androgenic steroid abuse focusing specifically on the physiological effects steroid use can have on the heart. In particular, we analyzed primary literature and clinical case studies involving individuals with a history of steroid abuse. While a definite conclusion could not be made associating heart conditions like cardiovascular disease and anabolic and androgenic steroid use, our research suggest that long term steroid abuser, defined as individuals who self-administer anabolic and androgenic steroids to raise their testosterone levels beyond the natural range of 300 – 1000 nanograms per deciliter for prolonged amounts of time exhibit significantly diminished cardiac performance. The two separate case studies that were analyzed involving individuals with a history of anabolic and androgenic steroid abuse provide evidence that their prolonged was detrimental to their cardiac performance. Specifically, both individuals exhibited left ventricle hypertrophy that resulted in ejection fractions around 15%, at least 35% lower than the normal ejection fraction for their respective ages. The evidence presented in this review is not intended to prove that AASs should be banned or made illegal. In fact, AASs have many medical treatment applications. But, based on the apparent effect that AASs abuse can have on the heart combined with the widespread, unsupervised use amongst athletes and non-athletes alike, their recreational use for aesthetic purposes is inadvisable.