

# Anabolic-Androgenic Steroids

## Introduction

I chose this topic because I have always been passionately into fitness and nutrition, and I like to radiate that energy and passion with my surroundings. I have been brought up to sports and physical activity, sports challenges, and competitiveness. I actually have experienced friends, colleagues, team-players, gym partners and clients, resorting to anabolic steroids to increase sports performance, athleticism, and weight gain, and in most cases, size. This topic is an interest and definitely a concern of mine. My intentions are to not only gather more information about this issue, but to also spread that information about potential high risks and injuries, to prevent or persuade other people from doing it. A good amount of my friends include bodybuilding as a hobby. There is that innate feeling about ourselves that we can always perform or look better. When those thoughts kick in, and our motivations are not more than the hard work we imply, I feel like we try to find an easier way out. In this case, people find anabolic steroids as a solution. There are many ways to approach these problems. I stand here today to argue that anabolic steroids are not the way to approach and conquer those problems.

## Section 1: Background and Problem Statement

- **Web site #1 Name:** NYU Grad school of Arts and Science: Toxicology
- **Web address:** [http://www.nyu.edu/classes/jaeger/anabolic\\_steroids.htm](http://www.nyu.edu/classes/jaeger/anabolic_steroids.htm)
- **Background Information:**
  - This was a research paper done by a Toxicology Grad student in New York University concerning anabolic drug use. This Web site talks about competition as an introduction to support his claims against steroid use. Competition is in our blood. It has always been, since the start of mankind. The human body drives off of competing and to win, whether it is for food or for a mate. This is also true especially in the athletic field. The author talks about how ingesting substances to create better performances is not new. People have been doing it for centuries. Some people now have resulted to anabolic steroids to imitate non-human like abilities. There are over 100 types of steroids; some are ingested and some are used with a syringe, but in most cases, all of them have similar effects on the cardiovascular system.

- **Web site #2 Name:** Steroids and Students: What Boards need to know
- **Web address:** [www.csba.org/.../06%2005\\_SteroidsAndStudentPolicyBrief.ashx](http://www.csba.org/.../06%2005_SteroidsAndStudentPolicyBrief.ashx)
- **Background Information:**
  - The pdf format starts by stating statistics in California and how the law deals with student-use of steroids and performance-enhancing supplement. It states the 4 requirements on districts that the California needs to impose. These requirements are not being enforced as much. The Web site talks about what kind of drug steroids is and the majority who uses it, which are high school male seniors. The difference between steroids and performance-enhancing supplements are steroids are a whole another level than performance supplements. Athletes take supplements thinking that it has anabolic effects, which makes them perform better. It's like a placebo. Again, the Web site talks about the health effects which are a major issue in California's students. The issue has hit the California's Policies and Board's attention and they are trying to tackle the problem. It talks about the potential things that the board can do to prevent drug-use.
- **Web site #3 Name:** Are Steroids worth the Risk??
- **Web address:** [http://kidshealth.org/teen/drug\\_alcohol/drugs/steroids.html](http://kidshealth.org/teen/drug_alcohol/drugs/steroids.html)
- **Background Information:**
  - The six page article talks acutely about the use of steroids, the effects, the dangers, and other risks mainly for guys, but also for girls. It talks about people stacking and being addicted to the anabolic. Steroids increase the performances, but for most athletes, they are willing to take the extra step to be the best. The cycles or the stacks is very dangerous and is also time-consuming and expensive for the drug users. People who use steroids also appear to be in risk of using other drugs such as alcohol and cocaine. The site also proves information on the effectiveness of anabolic steroids and human growth hormone and most importantly, the strong alternative to steroids. The writer brushes up on how eating right, practicing, and training is a better way of developing and performing better in sports with the lesser risk than drug-use.

## Section 2: Research

- **Web site #1 Name:** NIDA: National Institute on Drug Abuse
- **Web address:** <http://www.nida.nih.gov/ResearchReports/Steroids/AnabolicSteroids.html>
- **Summary of the research:**
  - This Web site goes in depth of information for anabolic-steroids. There is an index that answers the “who, what, how, and why” about steroids. The actual proper term is “anabolic-androgenic steroids.” Steroids are a synthetic substance that promotes growth of skeletal muscle, which are the anabolic effects. “Anabolic” refers to muscle-building, and “androgenic” refers to increased male sexual characteristics. “Steroids” refers to the class of drugs. Steroids were founded in the 1930s by scientists, when they discovered that steroids produced growth of skeletal muscles on laboratory animals. Steroids, such as Tetrahydrogestrinone (THG) and Androstenedione (Andro), were bought without prescriptions from commercial stores and fitness stores. Steroids could be taken orally or through a syringe. A list of examples of commonly abused steroids would be anadrol, oxandrin, deca-durabolin and dianabol.
- **Web site #2 Name:** ANABOLIC-ANDROGENIC STEROIDS: Mechanism of Action and Effects on Performance
- **Web address:** <http://www.sportsci.org/encyc/anabster/anabster.html>
- **Summary of the research:**
  - This Web site is clean-cut and on the point about how anabolic works. The main cause is the Male hormones from the steroids that have androgenic and anabolic effects on the body. Steroids work by stimulating the receptor molecules in muscle cells. They also inhibit catabolic effects on the muscles and increases protein metabolism for fuel, for the muscles. Catabolic effect deprives the muscles from protein, hence starts to break them down. This site breaks the anti-catabolic effect of steroids, which contributes a major part of enhancement from steroid use. A small part of the Web site’s research is about the psychological effects due to the cause of steroids. Researchers call the psychological stage a “psychosomatic stage.” During this stage, the drug-user experiences optimal sensations of well-being, called euphoria, increased aggressiveness and tolerance to stress.

- **Web site #3 Name:** NYU Grad School of Arts and Sciences: Toxicology
- **Web address:** [http://www.nyu.edu/classes/jaeger/anabolic\\_steroids.htm](http://www.nyu.edu/classes/jaeger/anabolic_steroids.htm)
- **Summary of the research:**
  - This Web site contains information from an NYU grad student about Anabolic Steroids for non-therapeutic use. It goes over an introduction about steroid use, briefly goes over the medical uses and expands on the adverse effects of anabolic use on cardiovascular, immunological and hepatotoxicity. In general, anabolic steroids build skeletal muscle, but it also thickens the ventricle wall on the heart muscle. When the ventricles are stiff during the diastole cycle, the ventricles does not fully relax, therefore not being able to fill up fully with blood causing the organs to dam up. As a result, the hypertrophied heart's development is stimulated causing impaired diastolic function or diastolic heart failure. Anabolic steroid also decreases HDL (high density lipoprotein) "good cholesterol" and LDL (low density lipoprotein) "bad cholesterol," leading to the build-up of lipid deposits in the arteries.

### Section 3: Statistics

- **Web site #1 Name:** NIDA Info Facts on Steroids (Anabolic-Androgenic)
- **Web address:** <http://www.nida.nih.gov/infofacts/steroids.html>
- **Summary of the statistics:**
  - This particular part of the Web site specifically talks about drug-abuse, the harmful effects of the brain, and the adverse effects on our health. The Web site also talked about the widespread of anabolic steroids. It's called "Monitoring the future Survey." It is an annual survey used to assess drug use among the nations 8<sup>th</sup> to 12<sup>th</sup> grade students. Steroid use within those grade ranges has been stable from 2007 to 2008, but fortunately, it has declined from 2001. Males consistently have been reported higher rates of use than females. The survey done in 2008 on 12<sup>th</sup> graders, reports 2.5% male anabolic steroid use versus .6% of female drug use.
- **Web site #2 Name:** Health People
- **Web address:** <http://www.cdc.gov/nchs/data/hp2000/hp2k95.pdf>

- **Summary of the statistics:**
  - The section of this long 213-page pdf document consists of Substance abuse, concerning about alcohol and other drug abuses. It states that about 3% the proportion of male high school seniors use anabolic steroids. So, let's put it into perspective, let's say there are about 200 male seniors, which means 6 men can potentially be in danger due to anabolic drug-use.
- **Web site #3:** Steroids and Students: What Boards need to know
- **Web address:** [www.csba.org/.../06%2005\\_SteroidsAndStudentPolicyBrief.ashx](http://www.csba.org/.../06%2005_SteroidsAndStudentPolicyBrief.ashx)
- **Summary of the statistics:**
  - This Web site talks about the background and the issue on steroid use in the state of California. According to CIF, in 2003, close to 30,000 students had used steroids and 9,000 of those students have used steroids in the past month. This issue is dominant in high school athletes. The estimated amount of athletes using steroid is 20,135, which is a tremendous amount of steroid users. As a result, it caught the Board's attention and improvised more policies.

## Section 4: Consumer Information

- **Web site #1 Name:** FDA. US Food and Drug Administration
- **Web address:** <http://www.fda.gov/Drugs/DrugSafety/DrugSafetyPodcasts/ucm174113.htm>
- **Summary of the information:**
  - The Web site talks about the FDA's recommendation on the consumers taking supplements containing steroids or steroids-like substances. The FDA issued a public note warning consumers about the issue. The supplements are not FDA approved, and they fear that some supplements may not contain actual steroids, but may have synthetic steroids that can cause the same amount of risks. The FDA recommends to immediately stop substance use and to check with their physician. The FDA believes that some injuries that might be associated with the supplements are liver injury, kidney failure, stroke, and hormone-associated adverse effects, such as blood clots, including pulmonary embolism and deep vein thrombosis.
- **Web site #2 Name:** Anabolic Steroids
- **Web address:** [http://teens.drugabuse.gov/facts/facts\\_ster1.php](http://teens.drugabuse.gov/facts/facts_ster1.php)

- **Summary of the information:**
  - The Web site talks about the use of steroids and how are they used. Steroid users can be taken orally or injected directly to the muscles. Steroid abusers have generally taken 10 to 100 times higher than the amount prescribed by a medical doctor for therapy reasons. The most common street names are roids or juice. The Web site talks about the rare cases of fatal deaths due to steroid use. Steroids are not friendly to the heart. They increase stiffness of the ventricles which can lead to other heart problems or failure.
- **Web site #3 Name:** Anabolic Steroids
- **Web address:** <http://www.nlm.nih.gov/medlineplus/anabolicsteroids.html>
- **Summary of the information:**
  - The Web site shortly talks about the man-made substances that produce male hormones. The drug also can cause future muscle loss and hormone problems. The Web site states how bodybuilders and athletes use steroids to grow muscles and improve athletic performance, but can cause unattractive to life threatening risks such as, acne, cysts, breast growth, voice deepening, heart problems, and liver diseases.

## Section 5: Solutions to the Problem (or Issue)

- **Web site #1 Name:** Combating Anabolic Steroid Use
- **Web address:** <http://www.nscs-lift.org/Publications/combating.pdf>
- **Summary of the information:**
  - This Web site is a step process constructed by the National Strength and Conditioning Association to develop a plan for athletic coaches to identify and resolve the problematic use of anabolic steroids among athletes. It thoroughly goes over the definition of steroids, effects, health risks, growth hormones, etc. It also covers and displays the problems and the addiction or motivation of the drug use. It states the guidelines and rationale of drug-testing and the consequences. This 17-page paper is an outline on steps of identifying, and rehabbing anabolic users. It is intended for not only the coaches, but also to parents and the athletes themselves. The step process is very clever, requiring athletes to pledge about anabolic awareness and prevention, thus, encouraging them to stay away from the steroids. Not only that, it also requires the parents

to help support their athletic children to prevent drug use by signing a document.

- **Web site #2 Name:** Solutions to all Drug & Chemical Dependency Issues
- **Web address:** <http://www.solutions-foundation.org/drug-pages-steroid.html>
- **Summary of the information:**
  - This is a quick and efficient way of learning about steroids and its symptoms. Its states the entire general and gives an idea to a person who has no information about it. The only problem with it is that it's not as thorough. It's very brief and to the point. It talks about the routes of intake and the adverse effects. The good part about it is that it offers help to people that are in need of rehabilitation.

### Conclusions:

The most interesting part of my topic that I have learned, in regards to the effects of steroids to the cardiovascular system, is the diastolic heart failure caused by Anabolic-Androgenic Steroids. Steroids not only increase skeletal muscle, but it also increases the thickness of ventricles. The cardiac cycle has two parts; the systole and diastole. The systole occurs when the ventricles contract, pumping blood out of the heart and into the arteries. The ventricles then relaxes, which is called the diastole phase, and refills blood for the next pump. Due to the thickness of the ventricles from steroid-use, the ventricles could not relax and does not properly fill in blood. As a result, it dams up other organs, mainly the lungs, causing diastolic dysfunction or diastolic heart failure.

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