Harmful Effects of Steroids as Ergogenic Aid

Posted on September 20, 2018

Introduction

What is an ergogenic aid?

Ergogenic aid can be defined as a substance or a technique that aims to enhance performance. These can be categorized as pharmacologic, nutritional, psychological, or physiologic and vary from the application of accepted methods and techniques like carbohydrate loading to illegal and unhealthy approaches like anabolic-androgenic steroid use. Man, such techniques and the use of steroids have been controversial subjects since their side effects have been very obvious. There are some ergogenic aids that are considered safe by the U.S. Food and Drug Administration. For instance, there are naturally occurring compounds such as hydroxymethyl butyrate (HMB), conjugated linoleic acid (CLA), carnitine, chromium, creatine, etc. The other harmful ergogenic aids include anabolic and other steroids, dehydroepiandrosterone (DHEA), diuretics, blood doping, ephedrine, and human growth hormone (HGH).

What are steroids?

The term ‘steroids’ has different meanings. They are the chemicals or hormones that the body naturally makes in order to put the organs, cells, and tissues in balance. Steroids are also man-made medicines that are used to increase the performance of the mind and body. Some steroids, such as corticosteroids, have a harmful effect on the human body. Even its short-term use causes weight gain, mood swings, nausea, puffy face, unusual growth of hair, disturbance in sleeping, and turning down of the immune system, which causes a person to become more vulnerable to infections and diseases. Long-term effects are even more dangerous, like slow growth of kids, muscle weakness, higher risk of diabetes, and eye problems.

Effects of steroids on athletic performance

Athletes tend to look for magical pills or something that can help increase their physical performance and give them an advantage over their opponents. McClung and Collins (2007) suggest that the use of steroids and supplements for higher and better performance in sports is being carried out led by the belief that the substance actually works for them, and it would be beneficial if the athletes were given anti-drug education. Male athletes are often seen taking androgenic-anabolic steroids, which are the synthetic derivatives of the male hormone testosterone. These steroids have a major effect on

the human body and result in desired athletic performance. Studies suggest that the short-term use of these steroids by athletes results in an increase in strength and body weight. But apart from that, the disadvantages of these steroids are not ignorable. An increase in sexual drive, the occurrence of acne vulgaris, an increase in aggression, and body hair are some of the major effects of steroids (Hartgens, 2004). An increase in levels of liver enzymes is also common in athletes who use steroids, and the occurrence of Cholestatic jaundice is also associated with the usage of steroids and usually resolves during the three months of ceasing the use of drugs. (Maravelias, 2005). When teenagers use steroids, there is a risk of gender mix-ups (diet.com). In women who use anabolic steroids for an extensive period of time, masculinization may be established in them as hirsutism, deepening of the voice, and menstrual abnormalities are also caused, but these may be permanent even after the drugs are withdrawn (Bahrke and Yesalis, 2004). The use of steroids has a relationship with the level of hormones. Clark and Henderson (2003) suggested that high hormone levels were linked with potentially harmful psychological effects for both boys and girls.

Athletes using steroids may be happy and pleased with their body and their performance resulting from the use of steroids, but the development of different kinds of health issues must be taken care of, which may prove harmful for them for the rest of their lives and even prove in shortening their lives. These steroids and ergogenic aids are not tested through screening for safety and efficacy.

How do steroids differ from human growth hormones?

Though many people consider the human growth hormone and steroids to be one and the same thing, they are different in reality. Human growth hormone (HGH) synthesized in the laboratory like steroids, is much the same as HGH produced in the body. It has very few side effects, unlike steroids. It performs a variety of functions that are important for the body, such as helping repair tissue, promoting cell regeneration, helping other enzymes and hormones in their functions, and governing overall brain functioning. Such significant and vital actions are not performed by the steroids; rather, they disturb the overall mechanism of the human body. Steroids just serve one main purpose for athletes, but HGH plays a role in many other functions. Where steroids establish the need for post-cycle therapy, HGH serves as a part of that treatment. The physical effects of steroids can be seen within a few weeks' time, while HGH does not show any notable physical transformation for three to six months. HGH is well-tolerated in both genders, unlike steroids. Easy absorption and no need to be injected happen in the case of HGH, unlike steroids, which are not easily absorbed in the body and also require to be injected.

Medical risks associated with steroids

Cardiovascular system

Many medical risks have been associated with the use of steroids. Changes in the cardiovascular system occur. There's an increased risk of myocardial infarction. It is evident in many case reports published (Gunes, 2004). Many studies also reported normal coronary arterial function experiencing an infarct in steroid users (Kennedy and Lawrence, 1993). Other changes include an increase in blood pressure, increased risk of thrombosis, and alterations in serum lipids (Dhar, 2005). High blood pressure, lower levels of good cholesterol, and high levels of bad cholesterol are also associated with the use of steroids. Heart attacks can also occur since the left ventricle of the heart starts pumping thicker blood and may have problems pumping the blood. Cardiovascular diseases increase in magnitude and extent with an increase in the intake of steroids.

Hepatic system

There is an increased risk of hepatocellular adenomas, peliosis, hepatitis, and liver tumors. Hepatic cancers have been noted to occur more frequently in males than in females due to the use of steroids (El-Serag, 2004). David (1994) suggests the increased risks of tendon tears in athletes taking steroids.

Psychological and behavioral effects

Apart from these medical risks, there also exist some psychological and behavioral effects of steroids. This includes increased aggression, irritability, and arousal. Steroid abuse may lead to extreme mood swings and psychotic episodes. Approximately 60% of steroid users have been reported to experience aggression and irritability (Pope and Katz, 1994). Some studies suggest that these behavioral and psychological changes are recovered once the use of steroids is ended (Fudula, 2003).

Reproductive complications

Many complications occur due to steroid usage, both in males and females. In males, the level of testosterone is increased many times from the normal level. Due to this, testes decrease in size, and sperm production decreases. Moreover, additional testosterone is changed into estrogen, causing the development of breasts in males. Females go through irregular menstruation or even experience infertility due to the use of steroids. Apart from these, due to the increase in testosterone levels, male characteristics start developing in the female body.

Kidney damage

Athletes and bodybuilders who have been taking steroids for at least eight years were discovered to have a unique disease known as focal segmental glomerulosclerosis, which damages the part of the

kidney used to filter the blood. This leads to renal failure, ultimately leading the patients to get a kidney transplant.

Changes to the Brain

Steroids affect the brain and cause mental changes that lead to disturbing behaviors.

Summary

The ergogenic aids and supplements are the substances used for higher and better performance. These substances help athletes, sportsmen, and women maintain their physical structures and increase their performance. With the help of steroids, athletes gain body mass quickly and just as they require. Their level of performance has also increased significantly. However, the negative impacts of these steroids are many. One cannot even say that short-term use may not be dangerous to health. Both short and long-term use of steroids has damaging impacts on an individual's physical and psychological health. The effects of steroids are more harmful than advantageous. Athletes risk their physical and mental health for their performance and physical appearance. People are often mistaken between steroids and the human growth hormone (HGH). They consider them to be the same thing, but actually, they are different in the side effects they might cause, as well as many other properties. HGH is better to take than steroids since the side effects of HGH are much less than the steroids, and it also performs vital functions inside the human body that steroids don't. There are many medical risks associated with the use of steroids, such as devastating changes in the cardiovascular system, hepatic system, brain, kidneys, and reproductive system. Thus, while taking steroids, these effects must be considered and must not be ignored.

References

Bahrke, M. S., & Yesalis, C. E. (2004). Abuse of anabolic androgenic steroids and related substances in sport and exercise. Current opinion in pharmacology, 4(6), 614-620.

Clark, A. S., & Henderson, L. P. (2003). Behavioral and physiological responses to anabolic-androgenic steroids. Neuroscience & Biobehavioral Reviews, 27(5), 413-436.

David, H. G., Green, J. T., Grant, A. J., & Wilson, C. A. (1995). Simultaneous bilateral quadriceps rupture: a complication of anabolic steroid abuse. The Journal of bone and joint surgery. British volume, 77(1), 159-160.

Dhar R., Stout C.W., Link M.S., Homoud M.K., Weinstock J., Estes N.A., III. (2005) Cardiovascular toxicities of performance-enhancing substances in sports. Mayo Clinic Proceedings 80, 1308-1315.

El-Serag, H. B. (2004). Hepatocellular carcinoma: recent trends in the United

States. Gastroenterology, 127(5), S27-S34.

Ergogenic Aids. (n.d.). Retrieved March 26, 2018, from https://www.diet.com/g/ergogenic-aids

Fudala, P. J., Weinrieb, R. M., Calarco, J. S., Kampman, K. M., & Boardman, C. (2003). An evaluation of anabolic-androgenic steroid abusers over a period of 1 year: seven case studies. Annals of Clinical Psychiatry, 15(2), 121-130.

Güneş, Y., Erbaş, C., Okuyan, E., Babalık, E., & Gürmen, T. (2004). Myocardial infarction with intracoronary thrombus induced by anabolic steroids. The Anatolian Journal of Cardiology, 4(4), 357-358.

Hartgens, F., & Kuipers, H. (2004). Effects of androgenic-anabolic steroids in athletes. Sports medicine, 34(8), 513-554.

Kennedy M.C., Lawrence C. (1993) Anabolic steroid abuse and cardiac death. Medical Journal of Australia 158, 346-348.

Maravelias, C., Dona, A., Stefanidou, M., & Spiliopoulou, C. (2005). Adverse effects of anabolic steroids in athletes: a constant threat. Toxicology letters, 158(3), 167-175.

McClung, M., & Collins, D. (2007). “Because I know it will!”: placebo effects of an ergogenic aid on athletic performance. Journal of Sport and Exercise Psychology, 29(3), 382-394.

Pope H.G., Katz D.L. (1994) Psychiatric and medical effects of anabolic-androgenic steroid use. A controlled study of 160 athletes. Archives of General Psychiatry 51, 375-382.