

INFLUENCE OF ANABOLIC STEROIDS ON AN ORGANISM

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The article is devoted to the influence of anabolic steroids on the human body. The article presents both positive and negative consequences of the use of anabolic steroids.

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Present-day world is marked by a constant rush toward ideals dictated by fast-changing fashion. The fashion invades all spheres of modern life, physical appearance is no exception. A well-groomed athlete with rippling muscles became a role model for youngsters dreaming to one day wake up being a poster child. Seeking fast weight-gaining and body-shaping some youngsters start using steroids (substances that contain hormones) for the purpose of building muscle. It is illegal for athletes to use steroids for advantages in athletics, moreover, in civilized countries steroids are removed from sale as a medication causing harm to a human body. In the Russian Federation storage, sale or use of anabolic steroids is forbidden. Some anabolic are included into the list of strong and toxic agents under Article 234 and other articles of the Criminal code of the Russian Federation. Nevertheless, popularity of these substances only increases.

Steroids combined with active trainings can definitely turn a puny body into athlete within a short space of time. The mechanism is based on the injection of testosterone into a muscle which brings into play the hidden reserves of human organism.

In medical practice steroids were invented as a muscle atrophy treatment for people suffering from pathometabolism. Steroids are, first of all, medical substances, and therefore have various side effects. And if a sick person generally acquires more benefit, than harm, then healthy person would be caused only harm. As a rule, those who distribute anabolic steroids forget about risks or just conceal the facts. They proclaim anabolic steroids to be somewhat like vitamins, drawing all the attention towards benefits.

As late as 50-s, steroids were already an important part of sport routine, that was when anabolic steroids officially had gone on sale. Their worldly success was due to extremely popular back then "bodybuilding" movement. Anabolic were becom-

ing more and more popular among athletes. In 1974 the International Olympic Committee has made a decision to add anabolic steroids to the list of performance-enhancing drugs. The Olympic Games in Montreal, 1976, were the first to introduce anabolic steroids control.

As late as 60-s, the major part of anabolic steroids that are in stock today were on the market. However, some number of new substances appeared lately. Of course certain changes took effect on steroid sector over the past years. Various substances were discontinued; others reappeared in different countries under different names, 80-s brought a couple of new items. Up to now steroids remain the most effective means for advantages in athletics. "Bodybuilding" movement is among other factors that make anabolic steroids so popular.

So what exactly happens when an athlete uses anabolic steroids? Once in the human body, synthetic hormone penetrates certain target-cells. Then, without previously contacting receptors, hormone provokes compulsory growth of cell protein. Due to excessive blockade of a cell with a chemical hormone, hypophysis sends a signal that cell saturation is already finished, and the attack continues.

As a result the hypophysis is forced to regulate natural hormone-cell supplementation, making sure that glandulas stop functioning or continue doing so but in a reduced mode. If a steroid therapy lasts for too long, glandulas can forever lose the capability of their own hormones production. They will acquire connective tissue, and, as a result, atrophy. A complete atrophy of the most important components of endocrine system is the worst scenario.

Let us consider beneficial effect of anabolic steroids on a human body due to which athletes resort to use of anabolic steroid medications:

– physical efficiency increase— anabolic steroids mass effect which is a consequence of other effects. It doesn't depend on whether the person works out or

not, and it will be present anyway. Though, athletes will experience a considerably stronger effect;

- accelerated growth of power indicators—this effect is shown upon condition that heavy trainings and a proper diet are provided. The reason is rather simple: anabolic steroids increase protein synthesis in a human body. Muscular fibrilla contains such proteins as actin and myosin. Actin and myosin can't "thicken" themselves. Separate muscle fibers, however, can. Lengthwise increase also happens though it is much rarer. Some researches indicate anticatabolic effect of anabolic steroids together with heavy training that also leads to strength building;

- accelerated growth of muscle mass—is connected with anabolic steroids ability to stimulate protein synthesis in organism. Naturally, these effects are fully shown upon condition that heavy trainings and a proper diet are provided. But it is necessary to remember that anabolic steroids are designed, first of all, to be used for sick people's treatment. Even though, those people don't train at all, and don't keep to diets, they, nevertheless build up muscle mass. The common misbelieve is that steroids work only in conjunction with the correct training program, healthy nutrition and food additives. Muscles growth will happen all the same, as that is the main purpose of anabolic steroids;

- recovery period reduction—it concerns both posttraining and post-traumatic recovery. AS are used by medics as a part of recovering after the severe injuries, operations, burns and other diseases which are followed by protein loss. Thus the reason is the anabolic effect of a medication;

- strength endurance growth—is a complex factor, its presence is caused by several effects of anabolic steroids. When taking anabolic steroids circulating blood volume increases and blood hemoglobin level increases which finally leads to the increase of endurance;

- fatty interlayer reduction—the effect can be seen upon condition that a proper diet is provided, however, it still remains unclear what is the condition that allows it.

- muscles vascularity augmentation—stem from circulating blood volume increase, elevated blood pressure and as a result augmentation in the lumen of vessels. Consequently, a blood flow to the functioning muscles enlarges;

- positive psychological effects—namely: vitality increase, general psychological exhilaration, motivation augmentation to training, the increased ability to state and achieve goals, etc.

These must be all the positive aspects of anabolic steroids. Now let us consider negative impact of anabolic steroids on a human body, the reason why anabolic steroids have been forbidden, why there is so much discussion around this matter:

- cancellation effect—the medication stops working as soon as one is no longer taking it. As a matter of fact, all the results that an athlete acquired vanish, which means one is forced to continue taking anabolic steroids again and again that is fraught with awful consequences for the organism;

- effect on CNS: the cyclic intake of steroids followed by dose interruptions causes the constant change in sentiment leading to generally unstable brain activity. Some professional literature can provide a set of specific examples when the excessive use of anabolic steroids led to changes in central nervous system functioning as well as in behavioural reactions of athletes (the increased aggression including illegal intentions, the periods of hypererethism and a deep depression, different psychoses, etc.). Unfortunately for those athletes not only their sport career would completely come to an end, but they would also acquire some kind of disability. Also there are some descriptions of sexual crimes committed under AS;

- effect on endocrine system is caused by the fact that testosterone and anabolic steroids possess hormonal activity. For the most part, it is referred to male reproductive function. High doses of anabolic steroids taken for the long period of time suppress both synthesis and secretion of own testosterone. Anabolic steroids also influence suprarenal cortex that regulates an electrolytic exchange as well as an exchange of water in one's organism;

- water-salt retention—is characterized by water electrolytic misbalance in organisms. Potassium and sodium content in the organism increases which causes water delay and tissues edema, consequently, the body weight increases;

- increased pain tolerance—is the well-known fact. Pain plays a signal role in a human body. It never appears without a reason. Pain signals some dangerous influence of external factors. Using anabolic steroids a person exterminates one of his senses. Certainly, pain will appear, but only provoked by rather serious injuries;

- effect on urinogenital system—leads to nephroliths forming. Among the athletes, who use anabolic steroids, tumor of kidneys is frequently diagnosed;

- effect on cardiovascular system—is a pressure boosting among athletes and those who aren't doing

any sports but who were taking anabolic steroids. A certain stress on heart and vessels is the reason of such consequences. That can be caused by the fact that many athletes are heavy weighted, they consume a large amount of food; undergo heavy trainings at which require breath holding. 25 % of the patients taking anabolic steroids have heart diseases and hypertension, and 1–2 %—myocardium damage;

– effect on hepatocellular system—negative impact on a liver. The acute liver failure which is a typical diagnosis among athletes who were taking anabolic steroids for a long time, it is often accompanied by an occlusion of cholic ways or a cholestasia. Some authors described the emergence of liver malignant neoplasms after continuous anabolic steroids intake. Other common diagnoses are liver adenoma, hepatocellular carcinoma, angiosarcoma and other serious illnesses which can cause lethal outcome;

– effect on digestive tract—many injectable anabolic steroids can cause dyspeptic syndrome. Some athletes who were taking anabolic steroids have vomiting, nausea attacks, heaviness in the stomach. It should be noted that digestive tract illnesses include both malignant transformation of colonic polyp and glandular cancer under long-term use of high doses of anabolic steroids;

– effect on supporting-motor apparatus—involves excessive traumatism caused by discrepancy of muscles growth and sinews to which they are attached. Adult athletes suffer from muscle, sinews and sheaves rupture; joints and connective tissue injuries. In childhood and teens age anabolic steroids usage causes irreversible abnormal changes: early long bone osteofikation, the accelerated epiphyseal plates skin over, evolution abnormality;

– skin oiliness changes—is shown in the form of acne. Acne rash that is already available also increases and gets worse. Women can lose their usually soft gentle skin for a long time as skin under steroids becomes coarse-porous and rough. There also may appear stretch marks and cracks on shoulders, chest,

inside of forearms and buttocks if an athlete is taking steroids;

– baldness—under long usage of high doses of anabolic steroids there may occur some hair loss, especially if there originally was an underlying risk for it. It is worth noticing that this side-effect is irreversible, and the hair restoration is, therefore, impossible;

– weakening of immunity system under the influence of anabolic steroids is scientifically proved. Owing to the immunoweakening action of anabolic steroids the resilience to tuberculosis, AIDS and banal catarrhal diseases decreases.

All mentioned above is not a complete list of what anabolic steroids can cause, as it appears impossible to research the phenomenon to the full extend. But even this small list can terrify anyone who cares about one's health even a little bit. Despite a legislative prohibition of taking, sale or storage of anabolic steroids, their popularity grows, especially among youth, which causes concern. Athletes are ready to violate of the law for such advantages. The most important thing is to inform everyone of incredible harm that anabolic steroids can cause.

Summing up the result, it should be noted that diligence and everyday work on itself make it possible to achieve the desired results without harming oneself.

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