



Growth Hormone and Sport

William James *

Center for Innovative Care and Health Technology (ciTechCare), Polytechnic of Lira, Leiria, Portugal.

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Growth hormones

Growth hormones in sports refers to the utilization of growth hormones (GH or HGH) for athletic enhancement, as against somatotropin treatment for medical therapy. Human somatotropin may be a prescription medication, meaning that its distribution and use without a prescription is against the law. There's limited evidence that GH doping improves athletic performance, although the perception that it does is common within the sporting community. Potential side effects of future GH doping could mirror the symptoms found in sufferers of acromegaly, a disease during which the anterior pituitary gland produces excess somatotropin. These symptoms include swelling of the hands and feet, joint pain, fluid retention, and excessive sweating.

Human somatotropin occurs naturally within the physical body where it functions by stimulating growth of essentially all tissues, including bone. Use of exogenous human somatotropin (HGH), via injection, was originally for medical purposes until athletes began abusing HGH with the goal of accelerating their abilities. Before recombinant human somatotropin (rHGH) was developed in 1981, HGH was only available by extracting it from the pituitary glands of cadavers. The arrival of rHGH combined with other peptide hormone advancements has increased the supply of HGH on both the legitimate and black markets. The primary description of the utilization of GM as a doping agent was Dan Duchaine's "Underground Steroid handbook" which emerged from California in 1982; it's not known where and when GM was first used this manner. In 1989 the International Olympic Committee became the primary to brand human somatotropin a banned substance. Although abuse of human somatotropin for athletic purposes is against the law within the U.S., over the past decade it appears that abuse of HGH is present altogether levels of sport. This is often fueled a minimum of partially by the very fact that HGH is harder to detect than most other performance-enhancing drugs, like anabolic steroids.

The neurobiological changes have an impact on cognition and athletic this is often because rHGH has a uniform aminoalkanoic acid sequence to the native isoform of the hormone while GH from cadavers is indistinguishable from endogenous GH. Athletes competing in power sports, bodybuilding, wrestling, mixed martial arts, swimming, baseball, strength sports, track and field, cycling, soccer, weight lifting, skiing and endurance sports are said to abuse human somatotropin, including together with other performance-enhancing drugs like androgenic anabolic steroids including testosterone, certain products which claim to reinforce HGH, and erythropoietin (among others).

Putative benefits

Lean body mass

Studies have found that HGH reduces body fat and increases lean body mass. However, no increase in muscle strength was observed. This might be explained by short-term fluid retention.

Muscle mass

Researchers are still debating whether the more noticeable muscles are larger in size also. It should be clarified, though, that muscle mass isn't an equivalent as muscle strength. Some say that human somatotropin will build muscle mass through raised insulin-like growth factors levels resulting in heightened protein synthesis with none side effects while other researchers argue that there are no such findings on young healthy adults. The second argument is more supported by research discoveries that HGH affects muscle protein synthesis no differently than a placebo does.

Injury resistance

HGH may build up animal tissue within muscles, a minimum of within the short term. If these effects are real they "may promote resistance to injury or faster repair [but] would make the muscle no more capable of force generation". With the discharge of the Mitchell Report on December 13, 2007, 86 players were revealed to possess used performance-enhancing drugs while playing within the Major Leagues. The report stated: "Players who use Human somatotropin apparently believe that it assists their ability to get over injuries and fatigue".