

HGH (Human Growth Hormone)

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[Human Growth Hormone \(HGH\)](#)

(somatotropin)

[Human Growth Hormone](#) (Somatotropin) is produced in the body by the pituitary gland. Before this happens, Growth Hormone Releasing Hormone (HGHRH) and Somatostatin (SST) are released by the hypothalamus, and that determines whether more or less [HGH](#) is produced by the pituitary.(1) Many factors influence the release of [HGH](#), however, including nutrition and exercise (6)(7).

Once it is released, [Human Growth Hormone \(HGH\)](#), which is also called Somatotropin (STH) has many functions in the human body. [HGH](#) is a protein that stimulates the body cells to increase both in size, as well as undergo more rapid cell division than usual. In addition, it enhances the movement of amino acids through cell membranes and also increases the rate at which these cells convert these molecules into proteins. Clearly, you can see that this would amount to an anabolic (muscle building) effect in the human body. [HGH](#) also has the ability to cause cells to decrease the normal rate at which they utilize carbohydrates, and simultaneously increase the rate at which they use fats.(1) Fat loss and lean mass increases with [HGH](#) have been found at a dose as low as . 0.028 iu/kg/daily for 24 weeks (4), however, in my estimation, that would be insufficient for a bodybuilder trying to gain muscle. Let ´s use .028iu/kg as a working number; that ´s 2.8iu for a 100kg (220lbs) bodybuilder. That ´s certainly not unreasonable, and I would say that that dose to 2x that dose is the range most bodybuilders and athletes are finding their best results with. Also, that length of time used in the study I just mentioned (24 weeks) is very typical of [HGH](#) use, and in conversations with my friends who have used this compound, have told me that they experience consistent results starting well after the 2-month-mark, and they tend to either run this stuff for 6 months at a time, or year-round (if they have sufficient funds). One of my friends is able to consistently retain a shredded 6-7% body fat all year round with the assistance of [HGH](#), whether he is on steroids or off. He also has noted that his cardio (fast walking, for an hour a day) was much easier while on [HGH](#) than when off, and certainly the research I ´ve done would support his claim that sub maximal aerobic ability is improved with [HGH](#) use (5) (15).

How anabolic is this stuff? Well, even endurance athletes at rest (!) were observed in one study to be in an anabolic state (8). Yeah, so you can basically run marathons and take this stuff, and still build some muscle. Pretty impressive, right?

Growth Hormone is usually secreted in rhythmic pulses while you are sleeping, as two peptides, HGHRH and Somatostatin (SST) are alternately released. As you can guess, HGHRH (Growth Hormone Releasing Hormone) is the one responsible for the Release of Growth Hormone (And who said scientists have funny ways for naming things).(1)

Growth hormone also has the ability to stimulate the production (or reproduction, in the case of an injury) of cartilage. This, however, requires the presence of a mediator substance, Somatomedin ([IGF](#)), which is released from the liver in response to [HGH](#), and the [IGF](#), in turn, actually promotes the growth of cartilage.(1)

Although it requires [IGF](#) to actually grow new cartilage, [HGH](#) is directly able to stimulate the elongation of bone tissue.(1), and [HGH](#) has also been shown to elicit a positive effects on erythropoeisis (9), which is great for both anabolism as well as endurance.

Remember the negative feedback loop I always tell you about? Well, of course, your body has one which can stop the secretion of [HGH](#), and it involves [IGF](#). When your liver receives secreted [IGF-1](#), it sends a message to both your Hypothalamus as well as your Pituitary to stop producing [HGH](#). (1)

As you have probably guessed by now, your body produces the majority of its [HGH](#) during your early years, when you are experiencing growth spurts. As you get older, however, you just produce less of this stuff, and its effects are much less pronounced. This was the driving force behind the (always weird) life-extension crowd embracing [HGH](#) in the early 90's. And, as usual, the driving force behind the athletic world embracing [HGH](#) was Dan Duchaine, which I'm sure comes as no surprise to many. He first wrote a teaser about it in his Underground Steroid Handbook, and then wrote extensively about it for the next couple of decades. At that time, Gorm, was being used. This nasty stuff was [HGH](#) extracted from (are you ready?): the pituitary of dead bodies? That's real "Dawn of the Dead" style science, in my opinion. I guess it's an advance from a couple of centuries ago, when Descartes (the "I think therefore I am" guy) declared the pituitary the part of the human body where the soul resides. Anyway, back to the cadaver-thing, the [HGH](#) extracted from the cadavers was found to be able to (in rare cases) carry a rare brain disease. This of course, infected the kids who received the infected [HGH](#). The use of [HGH](#) from cadavers was subsequently discontinued. Back then (the 80's) there was also a fake version of some purple looking [HGH](#) going around (it was [HCG](#) I believe, mixed with B-12) called "Rhesus Monkey Growth Hormone", which is pretty funny, looking back on it. To this day, however, if you get fake [HGH](#), it's still probably [HCG](#), since both come presented as a powder and bacteriostatic water you need to use to reconstitute it (and then it needs to be refrigerated).

Even if you are using the non-cadaver-derived stuff (and at this point, I'm 100% sure that there's none of the old Gorm left on shelves anywhere), it's possible that you experience some [Side Effects](#) like carpal tunnel syndrome, acromegaly (a thickening or growth of bones, most noticeable in the feet, hands, and forehead), and enlarged organs. Gynecomastia is also possible as a side effect of [HGH](#) use, as well as Fluid retention (16) (the later being initially pointed out to me by a female colleague who had a pre-contest bodybuilder using [HGH](#) as part of his contest prep).

Now for some really interesting stuff:

Although [HGH](#) can easily produce very nice, high quality weight and muscle gains, it's a very poor compound for inducing strength gains(2)(3)(4). That's very counterintuitive, and certainly many strength athletes have experienced great results in strength as well as muscle size and fat loss from [HGH](#). Generally, many studies have focused on [HGH](#) vs. [HGH](#) and exercise, and without the exercise LBM increases but not usually maximum voluntary strength output. It should also be noted that most athletes utilizing [HGH](#) are using it in a "cocktail" with (at least) [Anabolic Steroids](#), and usually with [IGF](#), thyroid meds, and other goodies such as an Aromatase Inhibitor.

Let's discuss exactly why this is.

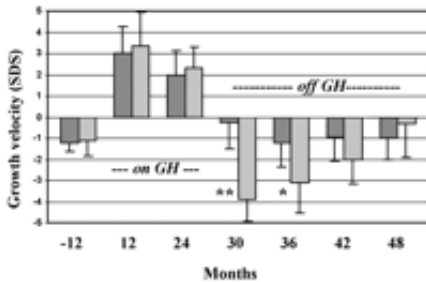
Most people who are taking the plunge into [HGH](#) use have reached a dead end with their use of anabolics, and need to push through that wall. I'm sure you've heard about the synergistic combination of using [HGH](#) along with [Anabolic Steroids](#), [IGF](#), [Insulin](#) and T3 (* usually [Synthroid](#), a thyroid medication). The reason is that when these hormones are used correctly together, they'll produce a large amount of synergy, the [insulin](#) is able to shuttle nutrients into your muscle, the thyroid hormone increases your fat-burning capability, the [IGF](#) will cause muscle growth as well as helping to grow new cartilage (thus preventing injury), and the [Anabolic Steroids](#) like testosterone, specifically (in addition to being anabolic) can increase [IGF-1](#), in muscle tissue(11), and maybe even increase your body's ability to use it. Also, usually, an increased amount of [IGF](#) usually tells your body to stop producing [HGH](#), but testosterone actually blunts this part of the Negative Feedback Loop (12)! And the addition of an Aromatase Inhibitor will also stop conversion of testosterone into estrogen; estrogen reduces [IGF](#) levels.(13)(14) Finally, the [HGH](#) does, well everything I just spent the last few pages telling you about!

Thus, [IGF](#), Testosterone (and of course other steroids), [Insulin](#), thyroid meds, and [HGH](#) will all combine to produce a pretty damned effective fat-burning and muscle building cycle! You know what else? [HGH](#) is virtually undetectable on any sort of currently used drug-screening tests. [HGH](#), [Insulin](#), Thyroid meds, and [IGF](#) may also

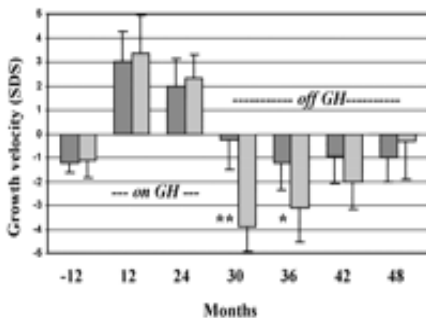
be used pretty safely by those who may be subject to drug screening tests, or as a non-HPTA suppressive "bridge" between cycles.

Finally, I'll tell you how I'd take [HGH](#), personally. There was a study done on continuous [HGH](#) use vs. every other day injections (ED vs. EOD for the sake of brevity), with a equal total weekly dose. Although it's counterintuitive, every other day injections produced better total growth in the kids in this (2 and 4 year long) study. Take a look at these graphs:

Growth velocity of children treated with alternate day [HGH](#) (the darker bars) or with a daily [HGH](#) regimen before, during, and 2 yr after stopping therapy. Values are the mean \pm SD. *, $P < 0.05$; **, $P < 0.01$.(10)



Here's another:



Pretreatment and cumulative 4-yr growth velocity of children treated with alternate day [HGH](#) (the darker bars) or with a daily [HGH](#) regimen. Values are the mean \pm SD. *, $P < 0.00$ (10)

Shooting [HGH](#) every other day more accurately replicates the pulsile frequency of [HGH](#), and thus gave better results for growth (height) deficient children, [HGH](#) pulsatility is necessary for proper function of the [HGH](#) receptor.(10) Dosing in the EOD nature reduces incidence of any sort of withdrawal problems associated with normal [HGH](#) use, including regression or retardation of growth after cessation of therapy.

Therefore, I feel very comfortable speculating that the use of [HGH](#) in this manner, which more closely simulates the natural secretion pattern of it, allows the [HGH](#) receptors and the rest of the body to more efficiently recover from it, and this will result in much more muscle growth over time (although height was examined in the previous study). My recommendations therefore are 2 shots per day of .028iu/kg of bodyweight, taken every other day, for a minimum of 3months, and preferably for 2-3x that long, and preferably with the other synergistic compounds we've just taken a look at.

Buying [HGH](#) (Somatotropin)

You should be paying between \$1.75-2.75 per IU of [HGH](#), and since you are going to (necessarily) be buying it in bulk, you should be paying closer to the lower end of that.

