

## Training and hormones

It's documented in the annals of academia (if one knows where to look) that there is a relationship between exercise and natural anabolic hormones. A lot of them are not strictly applicable to my interests. Some relate to post-menopausal women, some to endurance athletes and others to those with horrible illnesses.

That said, there does appear to be a trend across this broad spectrum. Yes, these hormones do increase as a direct response to exercise.

But I'm not easily satisfied. An extrapolation simply isn't good enough. For example, I'm not a cyclist. I have no desire to pedal around congested B-roads in ridiculous clothes making both a nuisance and an eyesore of myself. It was time to roll my sleeves up. Literally. Blood must flow.

What I wanted to know is this; what's the fastest, most efficient way to increase testosterone and growth hormone? And by how much?

Before all this it's time to revisit the basics. Growth hormone is a bugger to monitor. Levels can be all over the shop. Its release is pulsatile and subjected to so many variables. This includes sleep, hunger, stress, physical activity, disease, you name it.

IGF-1 however, is a far more manageable beast. The liver converts growth hormone into Insulin-like Growth Factor-1. Many of growth hormones properties are derived from IGF-1. Some are still as yet to be unexplained. Blood levels are way more stable than its parent growth hormone. This makes measuring far simpler. If growth hormone goes up, so will IGF-1.

Testosterone too is a slippery devil. In men aged between 30-40 years old (I'm 42) testosterone levels decrease by 20-25% between 8am and 4pm. That's why blokes wake up with an erection. So have testosterone tested in the morning to get a more accurate reading if you're worried about low levels.

To complicate things further, a total testosterone test only tells part of the story. It gives a summary of the main character but very little by way of plot or context. This simply wouldn't do. I wanted to see the full picture.

Free testosterone is very important. That's testosterone that isn't bound up. A huge amount of testosterone is locked away until the body releases it into circulation. Free T only makes up about 2% of total testosterone. The remainder is mostly bound, in pretty equal amounts, to either Sex Hormone Binding Globulin (SHBG) or albumin, a liver protein.

Bioavailable testosterone is the addition of both free T with the small amount of total testosterone that's only weakly bound to albumin. To determine both free and bioavailable T, SHBG must be measured. It's needed to calculate both these values using the vermuelen equation. Here endeth Androgen 101.

Time to put my money where my mouth is. All my research suggested that brief and intense exercise will increase testosterone (in all its forms) and IGF-1. Now I just needed some willing dickhead to test my theory. But if you want something done properly, do it yourself. I was to be the lab rat. I must stress this is not research or a clinical trial. There was a subject pool of one. There was no control group. It wasn't randomised or blinded (technical stuff demanded for proper research). This was a demonstration.

I had my blood taken pre-exercise for total testosterone, SHBG and IGF-1. Free and bioavailable T were calculated.

After a quick warm up, the weight session was restricted to only 20 minutes. Rest intervals between sets were kept to well below 60 seconds. Important warm up sets were performed, but actual work sets were low at only one per exercise. Each rep had to have perfect form. I was (as ever) unconcerned by the weight being lifted, focusing more on technique and targeting the muscles properly. The repetition range was between 8 and 12 with the final rep stopping just short of failure. This means if I pushed myself to a maximal effort I may have been able to complete, at best, nearly another full repetition.

The exercises chosen were all heavy compound movements. They consisted of one arm dumbbell rows, deadlift, bench press and squats. I also did a final set of lateral raises. I know. This is not a compound movement, but there were cameras present. I was keen to demonstrate correct form. So many people fuck up this excellent exercise.

Between 5 – 10 minutes had passed since training finished and my blood was drawn again. The exact same tests were performed. An anxious week passed as I waited for the lab results. I needn't have worried.

IGF-1 increased by 11%. That is more than just statistically significant. That's a lot. Better still, total testosterone soared up by 45%, free T by 47% and bioavailable T by 48%. Bloody hell. This was remarkable. All this hormone enhancement was just by hitting the weights.

This shows the importance of brief and intense training. You can work hard or you can work long. You can't do both. Natural anabolic hormones peak pretty quickly. Then they start to go back down. An engine can't run at full throttle for long without running out of fuel. As the good stuff declines, stress hormones (such as cortisol) increase. This leaves you in a bad place. Now training becomes counterproductive. Overtraining will soon set in. Your muscle growth will stop. Keep this up and they'll even be cannibalised for fuel. You'll get weaker.

In summary, keep weight training brief and intense to optimise these potent hormones.

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