

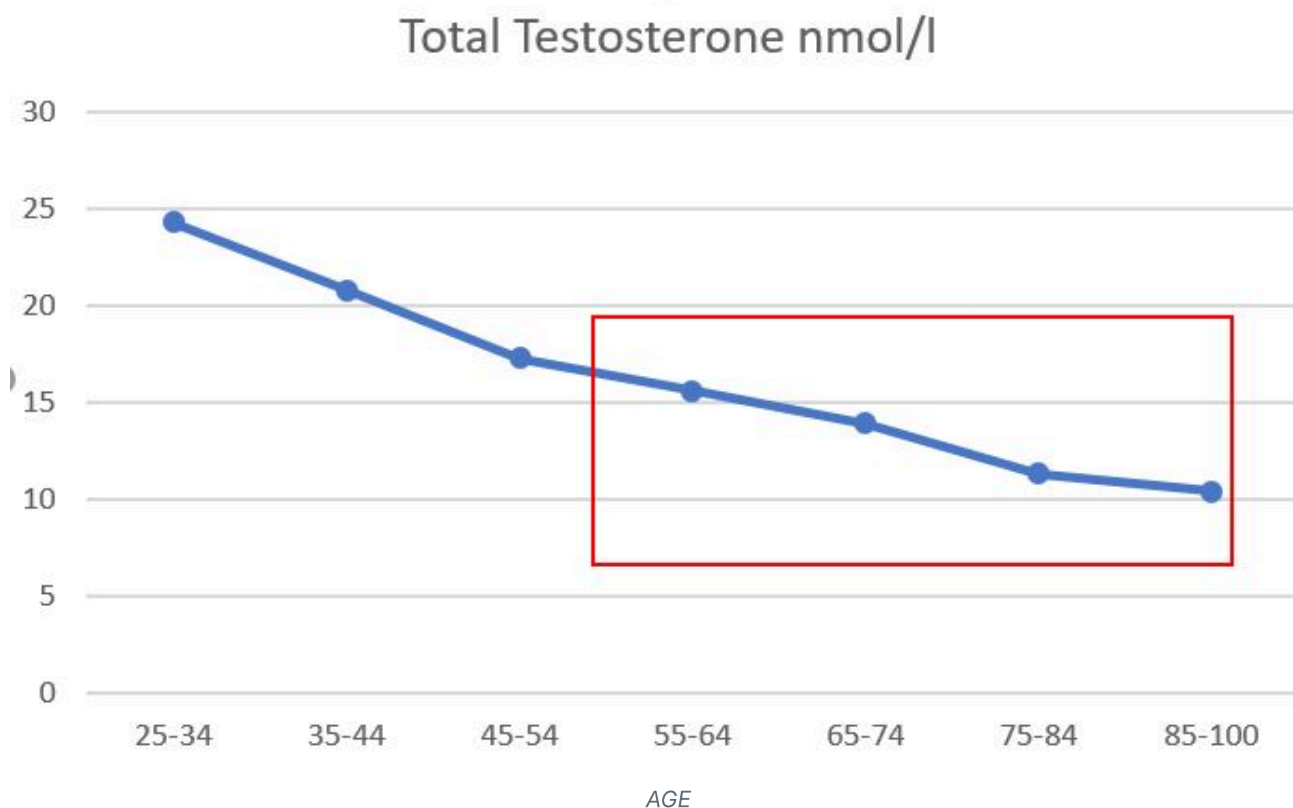
Hormonal Levels and Aging

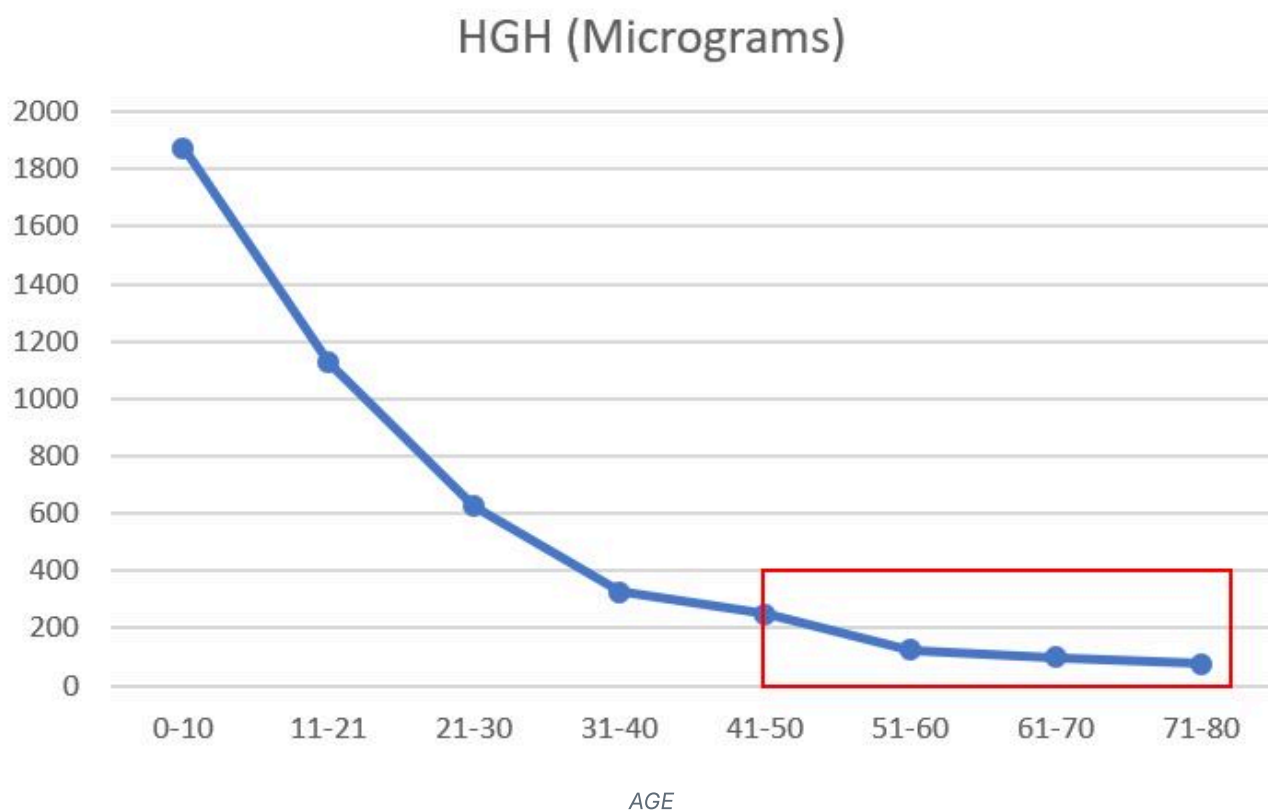
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Two key hormones that assist in gaining muscle mass and losing fat tissue are:

Testosterone and Human Growth Hormone.

Unfortunately, both of these hormones rapidly decrease with age so by the time you are 50+ your levels of both will typically be only a fraction of what they were in your teens & 20's.





There has been much discussion around how to boost these hormones (Weight training, Sleeping, eating, sex, etc).

But realistically once your levels start to drop away there is little you can do to stop this reduction (Training and keeping healthy may slow down the decrease but not stop/reverse the reduction).

Fully body weight training has been shown to cause a spike in Testosterone so the act of working out will improve your testosterone levels (this is a short term spike but over time you may be able to reduce the rate of decline in Testosterone as you age).

Recent research indicates that the endogenous hormone profile (body's own production of hormones) spikes from training intensity rather than volume, this outcome nicely fits into previous articles highlighting that it is training intensity that we should be focusing on as we age, not volume.

It is worth trying to reduce the loss in these hormones because increased endogenous anabolic hormone concentrations could slow the aging process and maintain quality of life in older individuals. Certain age-related disease states that are catabolic in nature, such as osteoporosis or sarcopenia, could be attenuated by an increase in anabolic hormone concentrations.

Other ways of increasing your testosterone levels may include:

- Ensure you are getting enough good proteins and fats in your diet.
- Minimise stress & cortisol levels
- Rest & quality sleep
- Testosterone boosters (See story below)

I was interested in a legal approach to try to increase my testosterone levels at 52 years of age.

Prior to starting HRT (Hormone Replacement Therapy) at 52 years old, I had my testosterone measured and received a value of 14 (nmol/l) which is at the lower end of a typical range (5-38) but typical for someone my age. The topical application seemed an easy way to increase my testosterone levels and required me applying a testosterone gel onto my skin every day for what was planned a 6-month trial.

After about 4-weeks I started to get tendon issues in several of my joints (Elbows, shoulders, knee) and it got so bad that I was hardly training (It is important to note that I hadn't changed my training intensity because I was on HRT).

At about the 8-week mark I decided to stop using this cream and within days my tendon issues started to dissipate and by week 12 they had all but gone away. I asked the company that provided me with the HRT what was going on, but they weren't able (or interested) in discussing what this could have been and so I decided not to continue with this approach.

Post this HRT trial, I had my testosterone retested with the results showing a drop in my natural testosterone levels down from 14nmol/l to 11 nmol/l so I was worse off after this trial than before!!

After week 16 all my "tendon/joint" issues had gone away, and I was back to full training.

This story is not to dissuade you from trying potential hormonal replacement treatments, but to highlight that sometimes there can be unforeseen side-effects that may take you further from your goals, not closer!

Human Growth Hormone – response to exercise and fasting

Research has shown that GH will spike after bouts of exercise as well as placing the body in a fasting state.

There is some confusion over how much benefit can be had from supplementing the body with exogenous GH with several studies showing no significant improvement in strength/skeletal muscle hypertrophy after training and GH supplementation

Intermittent fasting has shown to result in a spike in endogenous GH production. During states of starvation, the actions of GH secretion provide two specific actions: an increase in hepatic glucose production and the utilization of an alternative energy source by increasing fat mobilization and oxidation, leaving body protein from skeletal muscles intact .

GH is not skeletal muscle specific in its receptor target (like testosterone) and as such there can be positive effects to be had beyond muscular hypertrophy (or reduction in Sarcopenia in older adults), including as outlined above, fat mobilisation (reduction in adipose tissue mass), increase in lean muscle mass, increased bone density (eg lumbar vertebra bone density) increased hepatic glucose production, improvements in joint mobility through improved cartilage lubrication & improved skin quality,

For those who supplement with exogenous GH, a potential downside is that GH targets most body tissues and can result in unwanted growth of organs like your liver, heart, etc. This has been one of the strong arguments against the use of GH by the medical fraternity for many years and a major reason why GH is still illegal in most countries around the world (only available through a medical prescription).

In likelihood it is not possible to produce too much GH through natural means (ignoring the effect a tumor on your pituitary gland would have, leading to acromegaly) and as such resistance training and intermittent fasting seem like two effective and safe ways of improving your natural GH production which will have benefits well beyond any muscle building outcomes.

For more information on fasting - check out my previous blog ([Intermittent Fasting](#))

SUMMARY

Our two key muscle building hormones (Testosterone and Growth hormone) both continue to drop as we age (and get very low once we are into our 50's and beyond). Like all the other age related declines that I have been covering over the past few weeks, exercise once again has shown to be effective in reducing this loss in key anabolic hormones. In addition to exercise, the introduction of Intermittent Fasting may also have a positive effect upon natural GH production.

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