

Growth Hormone and IGF-1

Growth hormone arrives in bursts, mostly while you sleep. And unlike almost every other hormone on this site, raising it is not obviously a good idea.

By **Shaaf Hussain** · Author & Founder | Level 1 · Awareness | Educational — not medical advice

<https://longevitydecoded.net/growth-hormone-and-igf1-article.html>

WHAT YOU'LL UNDERSTAND BY THE END

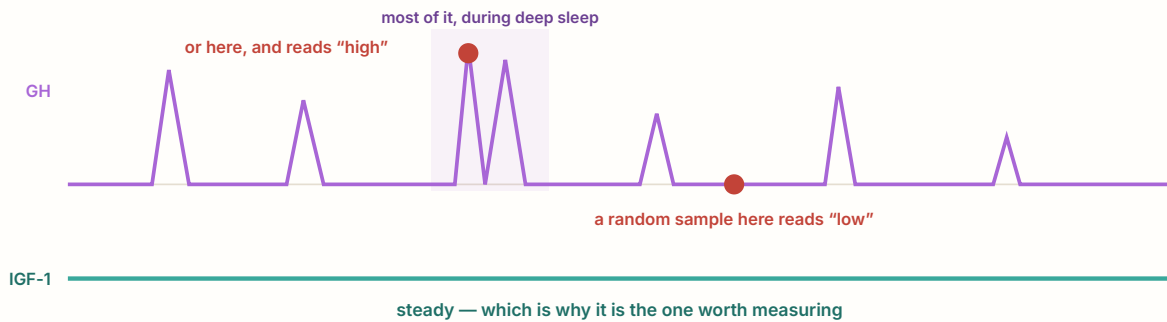
How GH and IGF-1 relate, why a single GH measurement is nearly meaningless, and the genuine tradeoff between growth signaling and long-term health.

Growth hormone is released by the pituitary in **sharp pulses** rather than continuously, and the largest of them occur during deep sleep early in the night. It is one of the more direct links between the sleep school and this one.

Much of what GH does, it does indirectly. It instructs the liver — and local tissues — to produce **IGF-1**, which carries out many of the downstream effects.

A MEASUREMENT PROBLEM

Why the pulses matter for testing



Illustrative. Same person, same day — the pulse pattern is the point.

Pulses versus a steady level. Only one of these can usefully be sampled at random.

Because GH comes in bursts, a random blood sample may land on a peak or in a trough. The same person, on the same day, can be measured as high or low depending on the minute. **A single random GH level is close to uninterpretable**, which is why endocrinology uses stimulation and suppression testing instead.

IGF-1 is steadier, so it is the more practical measure — but it has to be interpreted against age, since it falls naturally across the lifespan, and it is lowered by poor nutrition and liver disease independently of GH.

BEYOND HEIGHT

What it actually does in adults

In childhood the role is obvious. In adults GH and IGF-1 contribute to body composition, connective tissue and bone maintenance, and metabolic regulation. Genuine adult deficiency is a real medical condition with real consequences, and it is treated.

Levels also fall with age — which is where the marketing begins, and where this lesson has to become careful.

WHY MORE IS NOT OBVIOUSLY BETTER

The tradeoff nobody mentions

Almost everything else on this site is about restoring something toward normal. Growth signaling is different, because the evidence points in two directions at once.

- **Too much is clearly harmful.** Acromegaly — sustained GH excess — causes cardiac, metabolic and joint disease, and shortens life. This is not theoretical.
- **Too little in genuine deficiency is also harmful,** and treating diagnosed deficiency helps.
- **Lower growth signaling is associated with longer life.** Reduced GH/IGF-1 signaling extends lifespan across a wide range of model organisms, and human populations with genetic GH-receptor deficiency show unusually low rates of some diseases.
- **Growth signaling and cancer biology overlap.** IGF-1 promotes cell growth and discourages cell death — useful for repair, and the same properties that make elevated levels a concern.

WHERE THIS LEAVES AN HONEST READER

The evidence does not support the simple story that raising GH or IGF-1 is anti-aging. If anything, the longevity evidence points the other way, while the quality-of-life evidence in genuine deficiency points toward treatment. Both can be true, because they are answering different questions about different people.

That is an uncomfortable place to end, and it is the accurate one. A field with a real tradeoff at its center should not be summarized as though it had a direction.

On the products: GH itself is a prescription medicine. Secretagogues and related peptides are discussed here only as general categories — this lesson gives no protocols, sourcing, preparation, dosing or cycling for any of them, and material obtained outside medical supply carries real risks of contamination and incorrect dosing on top of the biological questions above.

The one intervention that genuinely raises GH, costs nothing and carries no risk is the one this lesson opened with: **sleeping properly**. The largest natural pulses happen in early deep sleep, and short or fragmented sleep reduces them.

WHAT THE EVIDENCE ACTUALLY SAYS

HUMAN EVIDENCE

GH is secreted in pulses with the largest occurring during early slow-wave sleep; IGF-1 is comparatively stable. Established endocrinology.

HUMAN EVIDENCE

A single random GH measurement is not diagnostically useful, which is why stimulation and suppression testing is standard. Clinical practice.

HUMAN EVIDENCE

Sustained GH excess causes cardiovascular, metabolic and joint disease and reduces life expectancy. Well documented.

ANIMAL EVIDENCE

Reduced GH and IGF-1 signaling extends lifespan across multiple model organisms — one of the more reproducible findings in aging biology, though translation to humans is not established.

UNCERTAIN

The optimal IGF-1 level for a healthy adult. Higher levels associate with some cancers, lower levels with frailty in older people — genuinely unresolved rather than merely unclear.

CONNECTED SYSTEMS

Where this connects

HORMONES & HEALTHY AGING

The Integrator: Why GH Pulses but IGF-1 Doesn't

SLEEP, STRESS & RECOVERY

Sleep Architecture

THE WHOLE LESSON IN ONE LINE

Growth hormone pulses mostly during deep sleep and acts largely through IGF-1 — and unlike most of this site, the evidence on raising it points in two directions at once, which is a tradeoff rather than a recommendation.

Educational content only — not medical advice, diagnosis, or treatment. This lesson explains general endocrine biology for a non-specialist audience. It does not diagnose any condition and does not recommend, endorse or provide dosing for any hormone, medication, peptide or supplement. Hormonal symptoms are non-specific and hormone results cannot be interpreted without clinical context — both require a qualified clinician, and hormone therapy of any kind is a prescription decision requiring monitoring. Obtaining hormones or peptides outside medical supervision carries real risks including contamination, incorrect dosing and unmonitored harm. Discuss any changes to your health, medications, or supplements with a licensed professional who knows your situation.

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