HAPPYHORMONESMD™
LOOK BETTER, FEEL BETTER, PERFORM BETTER.

Ipamorelin

Growth hormone peptides (GHPs) are a group of compounds designed to stimulate the release of growth hormone (GH) from the pituitary gland. They work by mimicking the body's natural growth hormone-releasing hormones (GHRH) or by acting as growth hormone secretagogues (GHS), signaling the body to increase its own GH production. Increased growth hormone levels can have a range of effects, including muscle growth, fat loss, improved recovery, and anti-aging benefits.

GENERAL GROWTH HORMONE PEPTIDE INFORMATION

Common Types of Growth Hormone Peptides

1. **Growth Hormone-Releasing Hormones (GHRH):** These peptides stimulate GH release by acting directly on the pituitary. Examples include:
    - Sermorelin
    - CJC-1295 (with or without DAC)
    - Tesamorelin
2. **Growth Hormone Secretagogues (GHS):** These act on the ghrelin receptors, promoting GH release indirectly. Examples include:
    - GHRP-6
    - GHRP-2
    - Ipamorelin
    - Hexarelin

Potential Benefits Related to Increasing Growth Hormone Production

Increase collagen production

- Improved skin health
    - Collagen provides structural support to the skin. Increased production can lead to enhanced skin elasticity and reduced appearance of fine lines and wrinkles.
    - Collagen helps retain moisture, contributing to a more hydrated and youthful skin appearance.
    - Enhanced collagen synthesis can improve the skin's ability to repair itself after injuries or surgeries.
- Joint, Bone, and Connective Tissue Support

    - Collagen is a primary component of cartilage. Increased production can strengthen joint cartilage, potentially reducing symptoms of osteoarthritis.
    - Stronger collagen fibers can improve the tensile strength of tendons and ligaments, reducing the risk of injuries.
    - Collagen forms the organic matrix of bones. Enhanced production can contribute to increased bone mineral density and overall bone strength.
    - Increased collagen can accelerate the healing process of bone fractures.
- Muscle Mass and Strength
    - Collagen supports muscle tissues, and increased production can enhance muscle integrity and function.
    - Improved collagen synthesis may reduce muscle soreness and improve recovery times after exercise.
- Cardiovascular Benefits
    - Collagen is essential for the structural integrity of blood vessels. Increased collagen can strengthen vessel walls, potentially reducing the risk of aneurysms and vascular injuries.

Immune Function

- GH promotes the regeneration and maintenance of the thymus gland, which is essential for the development and maturation of T-lymphocytes (T-cells). This is particularly important as the thymus naturally atrophies with age. By stimulating thymic activity, GH peptides can increase the output of naive T-cells, strengthening adaptive immunity.
- GH influences the production of cytokines—signaling proteins that regulate immunity and inflammation. It can modulate the balance between pro-inflammatory and anti-inflammatory cytokines. This modulation helps in regulating immune responses, potentially enhancing defense mechanisms against pathogens while preventing excessive inflammation.
- Increased immunoglobulin levels improve the body's ability to neutralize and eliminate antigens.
- Enhance the cytotoxic activity of Natural Killer (NK) cells, which are crucial for targeting virus-infected and tumor cells.
- Can stimulate the activity of macrophages and neutrophils, key cells in the innate immune system responsible for early defense against infections.

Sleep

- Increased GH levels may promote deeper stages of sleep, potentially leading to more restorative sleep experiences. Some users report fewer awakenings during the night and more consistent sleep patterns.

Cognition

Growth hormone peptides, such as growth hormone-releasing hormone (GHRH) analogs and growth hormone secretagogues, stimulate the secretion of human growth hormone (HGH) from the pituitary gland. HGH plays a significant role not only in physical growth and metabolism but also in cognitive functions. The potential effects of growth hormone peptides on cognition include:

- Enhanced Neurogenesis: HGH can promote the growth of new neurons and support neuronal survival, particularly in the hippocampus—a brain region critical for learning and memory. This may lead to improvements in cognitive abilities such as memory consolidation and recall.
- Improved Synaptic Plasticity: Growth hormone influences synaptic plasticity, the ability of synapses to strengthen or weaken over time. Enhanced synaptic plasticity facilitates better communication between neurons, which is essential for learning and memory formation.
- Neuroprotective Effects: HGH has been shown to exert neuroprotective actions by reducing neuronal apoptosis (programmed cell death) and oxidative stress. This may help preserve cognitive function by protecting brain cells from damage.
- Modulation of Neurotransmitters: Growth hormone peptides can affect the levels of neurotransmitters like serotonin, dopamine, and gamma-aminobutyric acid (GABA), which are involved in mood regulation, attention, and anxiety. This modulation may lead to improved focus, mood stability, and reduced anxiety levels.
- Enhanced Cerebral Blood Flow: HGH may increase cerebral blood flow, ensuring that the brain receives adequate oxygen and nutrients. Improved blood flow can enhance cognitive performance by supporting neuronal metabolism.
- Cognitive Function in GH Deficiency: In individuals with growth hormone deficiency, HGH supplementation has been associated with improvements in cognitive functions such as attention, memory, and executive functions. This suggests that normal HGH levels are important for optimal cognitive performance.
- Potential Benefits in Aging: Some studies suggest that HGH may counteract age-related cognitive decline by promoting neuronal health and function. However, more research is needed to fully understand its efficacy and safety in this context.

Considerations and Limitations

- Individual Variability: Cognitive responses to growth hormone peptides can vary based on factors like age, baseline HGH levels, and overall health status.
- Insulin decreases production of growth hormone. Eating increases insulin production, so growth hormone peptides should be taken at least 1 hour after eating.
- Your body produces the most growth hormone during sleep, so it is generally given at bedtime. However, some users report that it negatively affects their sleep. If this occurs, administer in the morning.

- Clinical Evidence: While animal studies and some human research indicate potential cognitive benefits, comprehensive clinical trials in humans are limited. The long-term effects and safety profiles require further investigation.
- **Desensitization:** Prolonged and continuous use of peptides can lead to receptor desensitization, making the peptide less effective over time. To potentially prevent this, it's recommended to take breaks in usage. For instance, you might use the peptide from Monday to Friday, taking a break over the weekend. Alternatively, you could cycle the usage by taking the peptide daily for six weeks, followed by a six-week break.
- Because growth hormone peptides increase natural production of growth hormone, they can be less effective in older adults due to decreased functioning of pituitary gland.

Peptide	Sermorelin	Ipamorelin	CJC-1295 w/DAC	Tesamorelin	Hexarelin
Receptor Type	GHRH	GHS-R, Ghrelin	GHRH	GHRH	GHS-R, Ghrelin
Advantages	- No GH spikes - Improves deep sleep - ↓ scarring after heart attack	↓ arrhythmias after heart attack	- Prolonged GH release - ↓ injection frequency	↓ visceral fat and triglycerides	↓scarring after heart attack
Long/Short Acting	Short (1/2-life 11-12min)	Long (1/2-life 2hrs)	Very Long (1/2-life 6-8 days)	Medium (1/2-life 26-38min)	Long (1/2-life 55-70min)
Time to Peak	Peak – 5-20 min	Peak – 5-20 min	Peak – 30-60min	Peak – 15-30min	Peak – 15-30min
↑Cortisol ↑Prolactin	No	No	No	No	Yes
↑IGF-1	↑	↑↑	↑↑↑↑↑	↑↑↑	↑↑↑↑
Muscle Growth	+	++	+++++	+++	++++
Fat Burning	+	++	++++	+++++	+++
Healing/Recovery	+	++	+++++	+++	++++
↑Collagen Production	↑	↑↑	↑↑↑↑↑	↑↑↑↑	↑↑↑
Joint Pain/Water Retention	+	++	++++	+++	+++++

Ipamorelin

What is Ipamorelin?

Ipamorelin is a selective growth hormone secretagogue (GHS-R) and ghrelin receptor agonist. It stimulates GH release without significantly affecting other hormones like cortisol or prolactin. Lower incidence of side effects like increased appetite or cortisol levels.

Potential Benefits

All of the benefits of increasing growth hormone mentioned above.

May help reduce the time it takes to fall asleep, possibly due to its interaction with ghrelin receptors that influence sleep-wake cycles.

Ipamorelin may have a lower tendency to cause receptor desensitization compared to other GHSs, maintaining its effectiveness over time.

Ipamorelin does not significantly increase cortisol or prolactin

Muscle

- Users may experience an increase in muscle mass due to enhanced protein synthesis and muscle fiber growth. Improved muscle fiber quality and density contribute to overall muscle strength.
- Accelerated repair of microtears in muscle fibers leads to less delayed onset muscle soreness (DOMS).
- Increased utilization of fatty acids for energy may enhance endurance during prolonged physical activity.
- During periods of caloric restriction or intense training, ipamorelin may help preserve muscle mass by reducing protein breakdown.

Potential Side Effects

Redness, swelling, or discomfort at the injection site.

Mild nausea or digestive discomfort.

Water retention

Some users report temporary feelings of dizziness or fatigue.

Headaches

Joint Pain - possibly due to increased fluid retention or changes in connective tissue.

Numbness and tingling of hands or feet

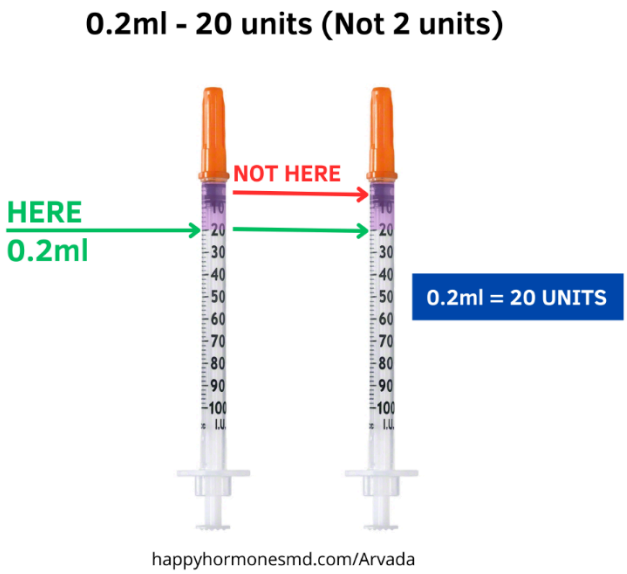
Elevated appetite or cravings. Ghrelin mimetics like ipamorelin can stimulate appetite as ghrelin is known as the "hunger hormone."

Dosage Guidelines

Ipamorelin 2mg/ml

For Muscle Growth: 0.4mg (0.2ml or 20 units) SQ every **AM, Mon-Fri,** before workout in a fasted state.

General Dose: 0.4mg (0.2ml or 20 units) SQ every **PM** before going to bed, at least 1 hour after eating.



Cost

Ipamorelin is currently only available as a research peptide.

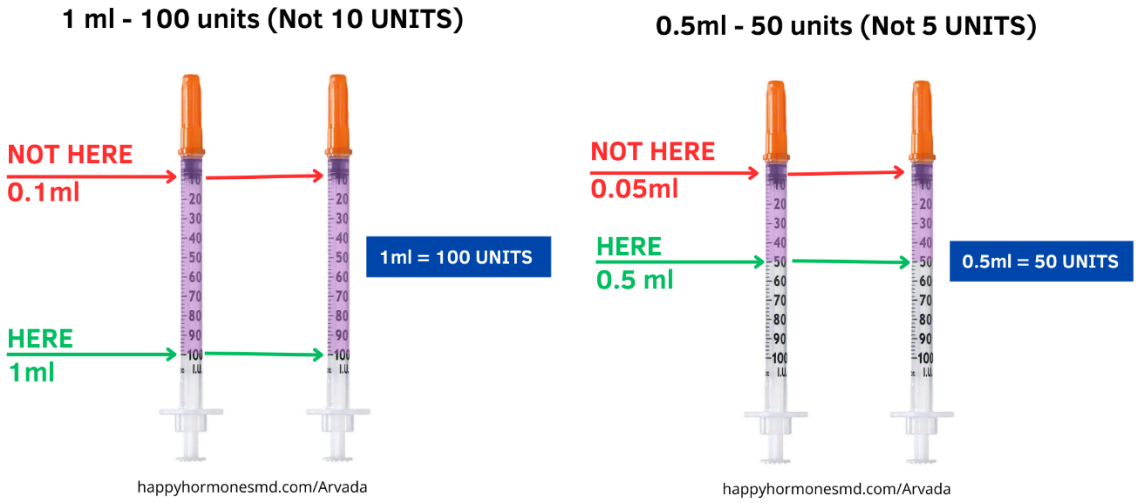
Ipamorelin 5mg Vial (2mg/ml): $242 (Includes shipping and bacteriostatic water for reconstitution). **One vial = 10 doses**

Reconstitution Instructions

IMPORTANT:

- **Follow the instructions below regarding the amount of bacteriostatic water to use when reconstituting the peptide. DO NOT follow the instructions that come with the peptide.**
- **DO NOT throw away the vial of bacteriostatic water!!! It is a multi-use vial and can be used for your next order!**

Ipamorelin 5mg Vial (2mg/ml): Inject **2.5 ml of bacteriostatic water** into the vial of powder **(2ml = 200 units and 0.5ml = 50 units)**. You will need to inject 2 full 1ml syringes and one 0.5ml syringe of water into the vial.



See the **document** titled *"Reconstituting Medications in Powder Form"* in the Education Folder in the patient portal.

See the following **Instructional videos** in the Education Folder in the patient portal:

- *"Reconstituting Powdered Medications"*
- *"Injection Video – Introduction"*
- *"Injection Video – Drawing Up the Medication"*
- *"Injection Video – Administering the Medication"*

Storage and Stability

- Vials are shipped as **lyophilized powder**, requiring no refrigeration during shipping.
- In Lyophilized Form:
    - Stable for up to 3 years in the freezer and 2 years in the refrigerator.
    - Protect from light.
- Once Reconstituted:
    - Stable for 6 weeks.
    - Must be refrigerated and kept away from light.
    - Avoid placing vials in the refrigerator door to prevent degradation from frequent temperature changes.

Important Disclosures

- These statements have not been evaluated by the US Food and Drug Administration (FDA).
- Not intended to diagnose, treat, cure, or prevent any disease.
- Compounded drugs and research peptides are not FDA-approved but are produced under strict quality control measures.

Quality Assurance

- All peptides are subjected to third-party testing with publicly available Certificates of Analysis (COA).
- Testing includes:
    - RP-HPLC (Reversed-Phase High-Performance Liquid Chromatography)
    - Mass Spectrometry (MS)
    - Sterility Testing
    - Additional tests meeting or exceeding U.S. Pharmacopeia (USP) and USP-National Formulary (NF) regulations.
- The manufacturer ensures quality, safety, and efficacy, complying with regulatory standards.
