Peptide Perspectives™

BUILDING STRONGER MUSCLES

Peptides, Growth Hormone & the Future of Muscle Research

MUSCLE IS MORE THAN SIZE

Healthy muscle supports performance, metabolism, injury resilience, and long-term independence.

Muscle Mass
More lean tissue and better body composition.

Strength
Greater force production and physical capacity.

Mobiity & Function
Better movement, balance, and quality of life.



KEY BIOLOGICAL PATHWAYS

Mechanical Loading + Protein → mTORC1 Activation
Increases protein synthesis (the muscle-building switch).

Hypothalamus → Pituitary GH → IGF-1 / AKT-mTOR
Stimulates growth signals that support muscle protein synthesis.

Myostatin
The body's brake on muscle growth.
Follistatin can modulate myostatin activity (research).

Satellite Cells + IGF-1Ec
Activates muscle stem cells to help repair, grow, and remodel muscle tissue.

KEY COMPOUNDS IN MUSCLE RESEARCH

CJC-1295
GHRH receptor agonist; raises GH/IGF-1 in small human studies.
RESEARCH LEVEL: EARLY HUMAN
Muscle strength benefit unproven.

Ipamorelin
Ghrelin receptor agonist; stimulates GH release (with fewer side effects than GHRPs).
RESEARCH LEVEL: EARLY HUMAN
No proven hypertrophy (muscle growth) benefit.

IGF-1 LR3 / DES
Experimental IGF-1 analogues with longer activity and stronger signaling.
RESEARCH LEVEL: PRECLINICAL / EARLY HUMAN
No validated human muscle outcomes.

Follistatin-344
Binds and inhibits myostatin and activin (negative regulators of muscle growth).
RESEARCH LEVEL: PRECLINICAL / EXPERIMENTAL
A tiny gene-therapy trial is *NOT evidence for injected protein.*

MGF / PEG-MGF
IGF-1 splice variant (mechano growth factor) research on muscle repair and growth.
RESEARCH LEVEL: PRECLINICAL
Human efficacy *unproven.*

Tesamorelin ✓
FDA-approved for HIV-related abdominal fat (lipodystrophy).
FDA-APPROVED (SPECIFIC INDICATION)
NOT approved for muscle growth or performance.

Sermorelin
GHRH analogue; stimulates natural GH release.
RESEARCH LEVEL: EARLY HUMAN
No proven strength benefit.

MK-677 (Ibutamoren)
Non-peptide (oral ghrelin receptor agonist); increases GH/IGF-1 and fat-free mass.
RESEARCH LEVEL: HUMAN (LIMITED)
Increased fat-free mass without better strength or function in an older adult trial.

FDA-Approved (Specific Indications Only):
Tesamorelin (HIV-related abdominal fat).

Investigational / Research Compounds:
CJC-1295, Ipamorelin, IGF-1 LR3/DES, Follistatin-344, MGF/PEG-MGF, Sermorelin, MK-677.

WHAT STUDIES MUST MEASURE

Grip Strength
A reliable indicator of overall muscle function.

Chair Stands
How easily you can rise from a seated position.

Gait Speed
A key marker of mobility and healthy aging.

Muscle Imaging
(e.g., DEXA, MRI, or ultrasound) to measure lean muscle mass and quality.

Functional Independence
Real-world outcomes (daily activities, balance, and overall function).

FUTURE FRONTIERS

Aging-Related Muscle Loss
Strategies to preserve or restore muscle with age (sarcopenia).

Targeted Myostatin Therapies
Next-generation approaches to safely reduce myostatin activity.

Preserve Muscle During Weight Loss
Combining peptides, nutrition, and training to protect lean mass.

Rehabilitation & Functional Outcomes
Potential roles in injury recovery, surgery, and regaining function.

Bigger muscles do not automatically mean stronger muscles. Training, nutrition and recovery remain foundations.