

# 2.0



GIFT 2 · UU LIFE PEPTIDES 2.0

# UU LIFE GLOSSARY

*Eighty terms in plain language, grouped the way you meet them:  
molecules, pharmacokinetics, units, study design, hormones, safety  
and sport.*

80 terms

Plain language

Searchable in the app

Educational and informational reference for adults. Not medical advice, not a prescription and not a recommendation to use any substance. Many compounds described are not approved for human use and several are prohibited in sport. Decisions about any compound belong to you and a licensed clinician.

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# UU Life Glossary: 80 terms in plain language

A reference companion to UU LIFE PEPTIDES 2.0. These 80 terms explain the language used in peptide research, laboratory reports and medical literature. The glossary table continues across seven sections. Definitions describe concepts, not treatment instructions. Numerical unit definitions are measurement relationships, not doses.

A mechanism, a purity percentage or a unit conversion does not establish clinical benefit or suitability for human use.

## Molecules and science

| TERM                | MEANING                                                                                                                                                                                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Peptide             | A chain of amino acids joined by peptide bonds. Its sequence and shape help determine what it interacts with and what it does.                                                                                                                                        |
| Amino acid          | A building block of peptides and proteins. Changing even one amino acid can alter a molecule's stability, receptor interactions or biological activity.                                                                                                               |
| Analog              | A molecule structurally related to another molecule, often modified to change its properties. Similarity does not establish equivalent effects, safety or clinical evidence.                                                                                          |
| Fragment            | A shorter section of a larger peptide or protein. It may retain some activities, lose them or behave differently from the original molecule.                                                                                                                          |
| Agonist             | A substance that binds to a receptor and activates it. Activation can vary in strength and does not necessarily reproduce every natural signal.                                                                                                                       |
| Antagonist          | A substance that binds to a receptor and blocks or reduces activation by an agonist. Blocking one pathway can affect several body functions.                                                                                                                          |
| Receptor            | A cellular protein that recognizes particular signals and helps translate them into responses. Receptors can sit on cell surfaces or inside cells.                                                                                                                    |
| Affinity            | How strongly a molecule binds to a particular target under defined conditions. Strong binding alone does not show how much biological response follows.                                                                                                               |
| Selectivity         | A molecule's preference for one target over others. Selectivity depends on concentration and testing conditions, so a selective compound can still affect other targets.                                                                                              |
| Downregulation      | A decrease in receptor abundance, sometimes following repeated stimulation. Responsiveness can also decline without fewer receptors, so a fading effect does not establish downregulation.                                                                            |
| Mitochondria        | Structures inside most human cells that help generate usable energy and coordinate other processes. A mitochondrial mechanism alone does not establish improved exercise performance.                                                                                 |
| Senolytic           | An agent that preferentially eliminates senescent cells, which typically show persistent cell cycle arrest and altered signaling. The term does not establish human rejuvenation. [Gonzales et al., 2021, PMID: 34687726](https://pubmed.ncbi.nlm.nih.gov/34687726/). |
| Telomere            | A protective DNA and protein structure at a chromosome's end. Telomere length varies across cells and is not a complete measure of biological age.                                                                                                                    |
| Mechanism of action | The biological process through which a substance produces an effect. A plausible mechanism helps explain a hypothesis but cannot establish a meaningful human benefit.                                                                                                |

# Pharmacokinetics

| TERM             | MEANING                                                                                                                                                                        |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pharmacokinetics | The study of how the body absorbs, distributes, metabolizes and eliminates a substance. It describes exposure over time rather than the resulting benefit.                     |
| Pharmacodynamics | The study of what a substance does to the body. It connects exposure with effects, including desired responses, unwanted responses and receptor activity.                      |
| Half-life        | The time required for a measured concentration to decrease by half during a defined phase. It does not necessarily equal the duration of effects.                              |
| Bioavailability  | The fraction of an administered amount that reaches systemic circulation unchanged. It depends on the substance, formulation and route, rather than route alone.               |
| Absorption       | Movement of a substance from its administration site into circulation. Absorption speed and extent can differ, affecting when concentrations rise and how high they reach.     |
| Distribution     | Movement of a substance between blood and tissues. A blood concentration does not automatically reveal the concentration or biological activity at a target tissue.            |
| Metabolism       | Chemical transformation of a substance by the body, often through enzymes. The resulting metabolites may be inactive, active or responsible for unwanted effects.              |
| Clearance        | The volume of blood or plasma effectively cleared of a substance per unit of time. It describes elimination efficiency, not the amount removed.                                |
| AUC              | Area under the concentration versus time curve, a measure of exposure over a specified interval. Similar AUC values can accompany different concentration peaks.               |
| Cmax             | The maximum concentration in a concentration versus time profile. Reported values depend on whether the profile uses measured samples or a pharmacokinetic model.              |
| Tmax             | The time at which Cmax occurs in a concentration versus time profile. It does not necessarily identify when the strongest biological effect occurs.                            |
| Steady state     | An exposure pattern in which average input matches average elimination under an unchanged regimen. Concentrations can still rise and fall within each administration interval. |

## Units and preparation

| TERM           | MEANING                                                                                                                                                                                                |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| mcg            | Microgram, a unit of mass equal to one millionth of a gram. The abbreviation describes an amount of material, not its biological activity.                                                             |
| mg             | Milligram, a unit of mass equal to 1,000 mcg. Confusing mg with mcg creates a thousandfold error, even when the written number is unchanged.                                                           |
| mL             | Milliliter, a unit of volume equal to one thousandth of a liter. Volume alone cannot identify how much active substance a solution contains.                                                           |
| IU             | International unit, a measure of biological activity defined against a substance-specific standard. Conversion to mg requires an established relationship for that substance and preparation.          |
| U-100          | An insulin concentration designation meaning 100 insulin units per mL, not an administered dose. Corresponding syringe markings are calibrated for that concentration, not universal peptide activity. |
| Concentration  | The amount of substance in a specified volume, commonly expressed as mg/mL or mcg/mL. The same liquid volume can contain very different amounts.                                                       |
| Reconstitution | Adding a specified diluent to a dry preparation to form a solution or suspension. Compatibility, final concentration and storage requirements depend on that preparation.                              |

| TERM                    | MEANING                                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bacteriostatic water    | Sterile water containing an antimicrobial preservative that inhibits bacterial growth. It does not sterilize contaminated material and is not compatible with every formulation. |
| Lyophilized             | Dried by freezing and removing water through sublimation under reduced pressure. This can improve storage stability, but the powder still has formulation-specific limitations.  |
| Diluent                 | A liquid used to dissolve or dilute a preparation. Its ingredients, acidity and compatibility matter because different diluents can change stability or tolerability.            |
| Stability               | The ability of a preparation to retain specified properties over time. Temperature, light, moisture and formulation can affect chemical integrity and physical appearance.       |
| Route of administration | The pathway by which a substance enters the body, such as oral, subcutaneous or intravenous. Route can substantially change absorption, exposure and local effects.              |

## Study design

| TERM                     | MEANING                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RCT                      | Randomized controlled trial, a study assigning participants to comparison groups by chance. Randomization reduces systematic differences, but trial quality also depends on execution.                                                                                                                                                                             |
| Placebo                  | A comparison intervention designed to resemble the treatment without its specific active component. It helps separate treatment effects from expectations and other influences.                                                                                                                                                                                    |
| Blinding                 | Keeping specified people unaware of treatment assignments during a study. Reports should identify who was blinded, such as participants, clinicians or outcome assessors.                                                                                                                                                                                          |
| Cohort                   | A defined group observed over time or reconstructed from records. Cohort studies can identify associations, but differences between groups may complicate causal interpretation.                                                                                                                                                                                   |
| In vitro                 | Research performed outside a living organism, such as experiments in cultured cells. It can reveal mechanisms without establishing effects in a whole person.                                                                                                                                                                                                      |
| In vivo                  | Research performed within a living organism. The term includes animal experiments and human studies, so the species and study design still need checking.                                                                                                                                                                                                          |
| Allometric scaling       | Estimating biological relationships across body sizes or species using mathematical models. It can inform research planning but cannot establish a validated human regimen.                                                                                                                                                                                        |
| Endpoint                 | A predefined outcome used to judge a study's results. A laboratory measurement may change without demonstrating improved symptoms, function or long-term health.                                                                                                                                                                                                   |
| Statistical significance | A result meeting a predefined statistical threshold under a particular analysis. It does not by itself establish a large effect, clinical importance or reproducibility.                                                                                                                                                                                           |
| Evidence grade           | This guide's scale applies to the specific claim. A: approved drug or multiple human randomized trials. B: small, short or single-arm human trials, or consistent case series. C: animal-only data or human data too weak to support the claim. D: in vitro, mechanistic or anecdotal evidence. Approval supports the approved indication, not every proposed use. |
| PMID                     | The unique numerical identifier of a record in PubMed. It makes a reference traceable but does not certify study quality or validate a claim.                                                                                                                                                                                                                      |
| DOI                      | Digital object identifier, a persistent identifier assigned to a publication or other research object. It helps locate the source even when website addresses change.                                                                                                                                                                                              |

## Hormones and axes

| TERM              | MEANING                                                                                                                                                                                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GH                | Growth hormone, a pituitary hormone involved in growth and metabolism. Its secretion occurs in pulses, and some effects are mediated through IGF-1.                                                                                                                        |
| IGF-1             | Insulin-like growth factor 1, a signaling protein produced by the liver and other tissues. It mediates many growth-related effects and is influenced by GH.                                                                                                                |
| GHRH              | Growth hormone-releasing hormone, a hypothalamic signal that stimulates pituitary GH secretion. Its physiological role differs from directly supplying growth hormone to the body.                                                                                         |
| Ghrelin           | A hormone produced mainly in the stomach that participates in appetite signaling and GH release. Its actions extend beyond the sensation of hunger.                                                                                                                        |
| GLP-1             | Glucagon-like peptide 1, an incretin hormone involved in glucose-dependent insulin secretion, appetite signaling and gastric-emptying regulation. Native hormone and drug analogs differ. [Holst et al., 2019, PMID: 31688969](https://pubmed.ncbi.nlm.nih.gov/31688969/). |
| GIP               | Glucose-dependent insulinotropic polypeptide, an intestinal incretin hormone that supports insulin secretion when glucose is elevated. It also participates in nutrient handling. [Holst et al., 2019, PMID: 31688969](https://pubmed.ncbi.nlm.nih.gov/31688969/).         |
| Glucagon          | A pancreatic hormone that helps maintain blood glucose, particularly by increasing liver glucose output. Its physiology also includes roles in amino acid metabolism.                                                                                                      |
| Amylin            | A peptide hormone released alongside insulin by pancreatic beta cells. It contributes to fullness, slows gastric emptying and helps regulate glucagon after meals.                                                                                                         |
| Melanocortin      | A member of a peptide family acting at melanocortin receptors. Different receptors influence pigmentation, appetite and adrenal signaling, so effects depend on the target.                                                                                                |
| Kisspeptin        | A family of signaling peptides that helps activate the reproductive hormone system by stimulating GnRH neurons. Its effects depend on physiological and experimental context.                                                                                              |
| GnRH              | Gonadotropin-releasing hormone, a hypothalamic signal controlling pituitary LH and FSH release. Pulsatile and sustained stimulation can produce substantially different reproductive hormone responses.                                                                    |
| HPG axis          | The hypothalamic-pituitary-gonadal axis, a communication network connecting the brain, pituitary and reproductive organs. Its signals regulate reproductive hormones and respond to feedback.                                                                              |
| Negative feedback | A control process in which a downstream signal reduces upstream stimulation. Hormonal feedback helps regulate an axis and can complicate responses to external substances.                                                                                                 |
| Pulsatility       | Release of a hormone in bursts rather than at a constant rate. Pulse timing and size can influence biological responses and interpretation of blood measurements.                                                                                                          |

## Safety and regulation

| TERM              | MEANING                                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COA               | Certificate of analysis, a document reporting selected tests for a particular sample or batch. Its value depends on traceability, methods and what was actually tested.         |
| HPLC              | High-performance liquid chromatography, a method that separates components of a sample. A reported purity percentage depends on the method and does not establish sterility.    |
| Mass spectrometry | An analytical technique that measures ions by their mass-to-charge ratio. It can support molecular identity, but one matching mass does not establish complete product quality. |
| Endotoxin         | An inflammatory component of the outer membrane of Gram-negative bacteria. It may remain after bacteria die, so sterility and endotoxin testing answer different questions.     |
| Sterility         | The absence of viable microorganisms. Chemical purity, a clear appearance and an antimicrobial preservative do not independently demonstrate that a preparation is sterile.     |

| TERM           | MEANING                                                                                                                                                                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Immunogenicity | The ability of a substance to provoke an immune response, including antibodies. Such responses may change effectiveness, alter exposure or contribute to adverse reactions.                                                                                                                               |
| Adverse event  | An unfavorable medical occurrence during treatment or a study, whether or not treatment caused it. Determining causality requires additional assessment and comparison.                                                                                                                                   |
| Off-label      | Use of an approved drug outside its approved labeling, such as another indication or route. It differs from using an entirely unapproved drug. [FDA terminology](https://www.fda.gov/patients/learn-about-expanded-access-and-other-treatment-options/understanding-unapproved-use-approved-drugs-label). |
| Compounded     | Prepared by combining, mixing or altering drug ingredients for medical needs. In the United States, compounded drugs are not FDA-approved. [FDA compounding explanation](https://www.fda.gov/drugs/human-drug-compounding/compounding-and-fda-questions-and-answers).                                     |
| GRAS           | Generally recognized as safe under specified conditions of food use in the United States. That recognition does not establish suitability for injection or therapeutic effectiveness. [FDA GRAS definition](https://www.fda.gov/food/food-ingredients-packaging/generally-recognized-safe-gras).          |

## Sport and testing

| TERM                    | MEANING                                                                                                                                                                                                                                                                                                               |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WADA                    | World Anti-Doping Agency, the international organization that develops the World Anti-Doping Code and associated standards. These provide the framework used by participating sports organizations. [World Anti-Doping Code](https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf).        |
| Prohibited List         | WADA's annually updated standard identifying prohibited substances and methods. The 2026 list prohibits GH, IGF-1 and GH-releasing factors at all times. [2026 Prohibited List, section S2](https://www.wada-ama.org/sites/default/files/2025-09/2026list_en_final_clean_september_2025.pdf).                         |
| Prohibited at all times | A classification covering both competition and periods outside competition. Being between events does not remove the prohibition for a substance in this category. [WADA classification](https://www.wada-ama.org/sites/default/files/2025-09/2026list_en_final_clean_september_2025.pdf).                            |
| In-competition          | A defined regulatory period surrounding a competition, including associated sample collection. Its boundaries follow applicable anti-doping rules rather than simply the minutes spent competing. [WADA definition](https://www.wada-ama.org/sites/default/files/2025-09/2026list_en_final_clean_september_2025.pdf). |
| TUE                     | Therapeutic use exemption, authorization for a prohibited substance or method when specified medical criteria are met. A prescription alone does not constitute a TUE. [International Testing Agency explanation](https://ita.sport/athlete-hub/tues/).                                                               |
| Strict liability        | The anti-doping principle that establishing certain violations does not require proof of intent or negligence. Fault can still matter when determining the consequences. [World Anti-Doping Code, Articles 2.1 and 2.2](https://www.wada-ama.org/sites/default/files/resources/files/2021_wada_code.pdf).             |

## REFERENCES

- Holst JJ et al. Physiology of the Incretin Hormones, GIP and GLP-1-Regulation of Release and Posttranslational Modifications.. *Comprehensive Physiology*, 2019. PMID 31688969 DOI 10.1002/cphy.c180013 (Review supporting GLP-1 and GIP terminology, physiological signaling, secretion and processing. Used for biological definitions, not evidence of benefit from a particular peptide regimen.)
- Gonzales MM et al. A geroscience motivated approach to treat Alzheimer's disease: Senolytics move to clinical trials.. *Mechanisms of ageing and development*, 2021. PMID 34687726 DOI 10.1016/j.mad.2021.111589 (Review supporting senolytic terminology and features of cellular senescence. Describes animal efficacy findings and translation toward human trials. It does not establish human rejuvenation. Animal efficacy findings are grade C under this guide's scale.)

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