EDUCATIONAL GUIDE · PART 2

Peptides:
30 Questions Answered

Plain-language answers on what peptides are, how they work, safety, legality, how they're used, and common misconceptions.

Questions & Answers

1. What exactly is a peptide?
A peptide is a short chain of amino acids — the same building blocks as proteins, just smaller. Many act as signals that tell your cells what to do. Your body makes thousands of them naturally, including insulin and GLP-1.

2. How is a peptide different from a protein?
Mainly size and complexity. Peptides are short and simple; proteins are long, folded, and structurally complex. There's no hard cutoff, but chains up to about 50 amino acids are usually called peptides.

3. How do peptides actually work?
Most bind to receptors on cells — like a key fitting a lock — and switch a specific biological process on or off. That targeted signaling is why peptides can have precise effects.

4. Are peptides natural?
Many are identical or very similar to peptides your body already produces. Others are modified in the lab to last longer or act more selectively. "Natural-derived" doesn't automatically mean safe, especially at doses far higher than your body would ever make.

5. Why are most peptides injected instead of taken as a pill?
Because digestion breaks peptides down like any protein in food. Injection bypasses the gut. A few peptides have been engineered into oral or nasal forms, but injection remains the norm.

6. Which peptides have the strongest scientific evidence?
The approved medicines: semaglutide and tirzepatide for weight and blood-sugar management, backed by large randomized trials. Topical GHK-Cu also has solid evidence for skin. Most other wellness peptides rest mainly on animal and lab studies.

7. What is BPC-157 used for?
It's studied for healing — particularly the gut lining, and tendons, ligaments, and muscle. Its most consistent evidence is gut-protective, but almost all of it comes from animal studies, not human trials.

8. What about TB-500?

TB-500 relates to thymosin β4, a natural repair peptide. It's of interest for recovery and tissue healing, with a notable animal study on heart repair. Human data are very limited.

9. What do CJC-1295 and Ipamorelin do?

They prompt your pituitary to release your own growth hormone in natural pulses — CJC-1295 extends the signal, Ipamorelin triggers a clean pulse without raising stress hormones. They reliably raise GH and IGF-1 in studies; long-term outcome data are limited, and neither is approved for wellness use.

10. What is GHK-Cu best known for?

Skin. The copper peptide stimulates collagen and supports repair, with human evidence for topical creams and a long cosmetic safety record. It also affects a surprisingly broad range of genes tied to regeneration.

11. Can Epithalon really slow aging?

It activates telomerase and may support melatonin and sleep rhythms in lab and early studies. But most of that research comes from a single group and hasn't been independently replicated to a high standard, so claims of human anti-aging should be treated as unproven.

12. Is IGF-1 LR3 safe?

This is one to be cautious about. It's a potent growth factor with essentially no human safety data for this variant, it's banned in sport, and because it drives cell growth, there's a theoretical concern about promoting abnormal cell growth. It is not something to use casually.

13. Are semaglutide and tirzepatide peptides?

Yes. They're engineered peptide medicines (GLP-1-class). They're also the clearest success story in the field — proven, approved, and well-studied for weight and metabolic health.

14. What is retatrutide?

An investigational triple-receptor peptide that produced the largest weight-loss figures yet in mid-stage trials (around 24%). It is still in clinical testing and is not approved or legally available as a treatment.

15. Is NAD+ a peptide?

No — NAD+ is a coenzyme involved in energy metabolism, not a peptide. It's often grouped with peptides in wellness settings. Precursors like NMN show modest benefits on things like grip strength in small trials, but the evidence is early.

16. Can peptides help with weight loss?

Yes, dramatically — but specifically the approved GLP-1-class medicines (semaglutide, tirzepatide). They reduce appetite and improve blood sugar through the gut-brain axis. The "research" peptides are not weight-loss drugs.

17. Can peptides build muscle?

GH-stimulating peptides can raise growth hormone and IGF-1, which support muscle and recovery, and repair peptides are studied for connective tissue. But robust human evidence for meaningful muscle gain from these specific compounds is thin, and they're not a substitute for training and nutrition.

18. Do peptides help skin and aging?

Topical copper peptides have genuine human evidence for improving skin firmness and appearance. That's the most solid "anti-aging" peptide claim. Broader systemic anti-aging claims are far less established.

19. Are peptides legal in Canada?

Semaglutide and tirzepatide are legal with a prescription. Retatrutide is investigational. The rest are not approved by Health Canada for human use and are sold only as research chemicals. Being purchasable online doesn't make a product legal or safe to use in your body.

20. Do I need a prescription?

For the approved medicines, yes — and that's a good thing, because it comes with medical oversight. The unapproved peptides generally aren't available by legitimate prescription, which is precisely why their quality and safety are hard to verify.

21. What are the most common side effects?

For the GLP-1 medicines: nausea, vomiting, diarrhea, especially early on. For research peptides: side effects are poorly characterized because the human studies don't exist; reported issues include injection-site reactions and water retention, but the bigger risk is the unknown.

22. Can peptides cause cancer?

No peptide here is known to cause cancer in humans. But growth-promoting compounds — especially IGF-1 LR3 and, to a lesser degree, GH-axis peptides — raise a legitimate theoretical concern, since signals that drive cell growth could promote existing abnormal cells. People with a cancer history should be especially careful.

23. How are peptides administered?

Most by subcutaneous injection; copper peptides topically; NAD+ sometimes by IV; a few orally or nasally. Research peptides usually come as a powder requiring reconstitution, which adds contamination and dosing risk.

24. What is "cycling" and do I need to do it?

Cycling means using something for a set period then pausing, in theory to prevent the body adapting. For the wellness peptides, whether cycling helps is largely unstudied. For approved medicines, follow the prescribed regimen, not online cycling lore.

25. How quickly do peptides work?

For weight-loss medicines, expect gradual change over months. For research peptides, any reported effects on recovery or sleep are anecdotal and variable; there's no reliable timeline because the controlled studies don't exist.

26. Who should not use peptides?

Anyone pregnant or breastfeeding, under 18, or with a history of cancer, diabetes, thyroid, heart, kidney, or liver conditions — without medical guidance. Honestly, no one should start any of these without talking to a doctor first.

27. How do I know if a peptide product is real and safe?

With unregulated products, you often can't. Independent testing has repeatedly found mislabeling, wrong doses, impurities, and contamination in grey-market peptides. A regulated pharmacy and prescription are the only way to be confident — which, for most of these, isn't an option because they aren't approved.

28. Are peptides the same as steroids?

No. Steroids are a different class of molecules. Some peptides influence hormones (like GH), but they aren't anabolic steroids. That said, several are banned in sport for performance reasons.

29. What's the biggest misconception about peptides?

That "peptide" automatically means safe, natural, and proven. In reality, a handful are rigorously proven medicines while many are experimental research chemicals with little human data. Lumping them together is the most common and most dangerous mistake.

30. What's a sensible way to think about all this?

Separate the proven from the experimental. If you have a medical need — like obesity or diabetes — the approved peptide medicines are genuinely transformative and worth discussing with your doctor. If you're drawn to the wellness peptides, go in clear-eyed: the science is early, the products are often unregulated, and a knowledgeable physician is your best safeguard. Curiosity is reasonable; caution is wise.