The Complete Peptide Therapy Guide

PeakedLabs Clinical Education Series
Digital Guide (Paid Product)

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Audience: Adults evaluating peptide therapy with licensed clinicians in the United States

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Medical Disclaimer

This guide is for **educational purposes only** and is **not medical advice, diagnosis, or treatment**. It does not establish a clinician-patient relationship. Peptide therapies can carry meaningful risks, including contamination risk, endocrine disruption, cardiovascular effects, and delayed adverse events. Always review options with a licensed clinician who can evaluate your history, medications, labs, and risk profile.

Several peptides discussed here are **not FDA-approved for general human use** and may appear in FDA compounding risk communications. Product quality and legal status vary by source, route, and indication.

How to Use This Guide

1. Read Chapter 1 first to understand mechanism, regulation, and risk.
2. Use Chapter 2 to compare peptides by outcome goal.
3. Build your baseline testing plan with Chapter 3.
4. Use Chapter 4 to structure a conservative titration conversation.
5. Use Chapter 5 to create a side-effect response plan before starting.
6. Use Chapter 6 to evaluate costs and source quality.
7. Bring Chapter 7 checklists to your clinician appointment.

> ***Key Takeaway***
> *In peptide therapy, outcomes are often front-loaded in marketing and back-loaded in risk. Your advantage comes from tight baseline labs, conservative titration, and strict source verification.*

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Chapter 1: How Peptide Therapy Actually Works

Peptides are short amino acid chains that can act as signaling molecules. In clinical practice, peptide products range from FDA-approved pharmaceuticals (for specific indications) to compounded formulations and “research use only” products that are not authorized for human treatment.

The most important concept is that peptides are **instructions**, not simple “supplements.” They can activate, suppress, or modulate signaling pathways that affect growth hormone dynamics, inflammation, appetite, pigmentation, sexual behavior circuits, and neuroendocrine adaptation. Because these pathways are interconnected, peptide effects are rarely isolated to one tissue.

1.1 Mechanism of Action: From Receptor Binding to System Effects

Most commonly used therapeutic peptides work through one of the following mechanisms:

- **Agonism at GPCRs (G-protein coupled receptors)**: Example: bremelanotide (PT-141) acting at melanocortin receptors.
- **Hypothalamic-pituitary axis modulation**: Example: tesamorelin stimulating GHRH receptor activity and downstream GH/IGF-1 changes.
- **Paracrine repair signaling (preclinical evidence dominant)**: Example: BPC-157 or thymosin-derived compounds in animal models.
- **Neurotransmitter and neurotrophic modulation (limited human evidence for several compounds)**: Example: semax/selank data largely outside U.S. registration pathways.

Peptide effect size depends on:

- Receptor density and sensitivity in target tissue.
- Dose and exposure timing (pulse-like vs sustained signaling).
- Background physiology (sleep, insulin status, thyroid status, sex hormones).
- Source quality (purity, contaminants, aggregation, endotoxin burden).
- Concomitant medications (especially antihypertensives, glucose-active meds, CNS drugs).

1.2 Signaling Pathways You Need to Understand

GH/IGF-1 axis

Growth-hormone secretagogues and GHRH analogs alter pituitary GH pulsatility and IGF-1 generation. This is the key axis for compounds such as tesamorelin and CJC-1295-related regimens.

Clinical implications:

- Potential reduction in visceral adiposity in specific populations.
- Potential short-term improvements in body composition markers.
- Need for glucose and IGF-1 surveillance due to dysglycemia and overexposure risk.

Melanocortin signaling

Bremelanotide (PT-141) is a melanocortin receptor agonist with CNS-mediated effects relevant to sexual desire and distress in indicated populations.

Clinical implications:

- Can improve desire/distress endpoints in selected premenopausal women with acquired generalized HSDD.
- Associated with predictable adverse effects including nausea and transient BP/HR changes.

Inflammation/angiogenesis repair signaling

Compounds like BPC-157, TB-500 fragments, GHK-Cu, epitalon-related molecules are often marketed for tissue repair and “anti-aging.” The evidence here is mixed and frequently preclinical.

Clinical implications:

- Mechanistic plausibility in vitro/animal data does not equal clinical efficacy.

- Human dosing, long-term safety, carcinogenicity risk boundaries, and interaction profiles are often undefined.

Neurocognitive modulation pathways

Selank and semax are frequently positioned as nootropic/anxiolytic peptides. Published English-language human data remain limited, and U.S. regulatory recognition is absent.

Clinical implications:

- Patients may report subjective cognitive or anxiety effects.
- Objective, high-quality RCT-level evidence in U.S.-standard pathways is limited.

1.3 Why Real-World Results Vary So Much

Outcomes are not just molecule-dependent. They are protocol- and patient-dependent.

Common hidden variables:

- Sleep debt (blunts GH physiology and recovery signaling).
- High fasting insulin (can blunt body-composition response).
- Subclinical hypothyroidism (slows expected metabolic effects).
- Estradiol/testosterone imbalance (modifies sexual and energy endpoints).
- Under-reporting of side effects due to expectation bias.
- Product mismatch (label says one peptide, vial contains something else or less).

1.4 FDA Status and U.S. Regulatory Landscape (as of March 4, 2026)

In this category set, two molecules have clear FDA-approved branded pathways:

- **Tesamorelin** (EGRIFTA line) for reduction of excess abdominal fat in adults with HIV and lipodystrophy.
- **Bremelanotide** (VYLEESI) for acquired generalized HSDD in premenopausal women.

Most other peptides in this guide are **not FDA-approved for general medical use** and fall into complex risk/legal territory when offered through clinics, compounders, or online vendors.

503A/503B fundamentals

Under U.S. law, compounding has specific statutory pathways:

- **503A**: patient-specific prescriptions, state-licensed compounding practice.
- **503B**: outsourcing facilities, cGMP obligations, broader federal oversight.

FDA has repeatedly emphasized that compounded products are not equivalent to FDA-approved drugs and may present quality/safety risk. FDA communications also identify multiple peptide substances as potential significant safety risks in compounding contexts.

Important peptide-specific FDA risk context

FDA compounding safety communications include risk language for multiple peptides relevant to this guide, including BPC-157, emideltide (DSIP), epitalon, semax, selank acetate, GHK-Cu (injectable routes), ipamorelin acetate, thymosin-beta-4 fragment, AOD-9604, and CJC-1295.

This does **not** mean every vial causes harm. It means regulators judged current safety/quality information insufficient or concerning enough to warrant caution and potential enforcement.

> ***Key Takeaway***
> *"Peptide" is not a safety category. Some peptides are approved drugs with defined labeling. Others are experimental compounds with sparse human data and uncertain manufacturing controls.*

1.5 Evidence Hierarchy for Decision-Making

Use a practical hierarchy when evaluating any peptide claim:

1. FDA-approved label and pivotal trial outcomes for your indication.
2. Randomized controlled human trials.
3. Prospective cohort data.
4. Retrospective case series.
5. Animal/in vitro mechanism data.
6. Anecdotes, forums, influencer reports.

Many peptide decisions fail because people invert this hierarchy.

1.6 Clinical Friction Points You Should Expect

- **Goal mismatch**: Patient goals (fat loss, injury recovery, libido, sleep) may not align with labeled indications.
- **Monitoring burden**: Peptide programs require more labs than most patients expect.
- **Adherence fatigue**: Daily injections and frequent reconstitution can reduce persistence.
- **Cost creep**: Add-on peptides, lab repeats, and follow-ups expand monthly spend.
- **Data ambiguity**: Mild benefits can be confounded by training, diet, placebo response, and sleep changes.

1.7 Practical Risk-Benefit Framing

Before starting any peptide protocol, ask:

- Is this peptide FDA-approved for my exact indication?
- What is the quality of human evidence?
- What is the minimum effective protocol and stop rule?
- What objective markers will define benefit by week 8–12?
- What adverse-effect threshold triggers discontinuation?

If those are unclear, your protocol is underdesigned.

Chapter 2: Comparing the Most-Used Peptides by Goal

This chapter compares commonly used peptides in six goal categories:

- Recovery
- Body composition
- Sleep
- Sexual health
- Longevity/skin aging
- Cognitive performance

For each compound: mechanism, evidence quality, doses reported in clinical literature or real-world use, duration, and expected outcomes.

2.1 Quick Comparison Matrix

Peptide	Primary Goal	FDA Status (U.S.)	Human Evidence Quality	Clinically Defensible Use Case
BPC-157	Recovery	Not FDA-approved	Low (mostly preclinical;	Experimental only

			limited small human reports)	
TB-500 (Tβ4 fragment)	Recovery	Not FDA-approved	Low for injectable TB-500; some human data on related Tβ4 products in other indications	Experimental only
CJC-1295	Body comp/recovery	Not FDA-approved	Low-Moderate (early phase endocrine studies)	Investigational/endocrine research context
Ipamorelin	Body comp/recovery	Not FDA-approved	Low (limited human PK/PD and safety signals)	Experimental only
Tesamorelin	Body comp (VAT reduction in HIV lipodystrophy)	FDA-approved specific indication	Moderate-High for labeled population	Appropriate only when indication matches
AOD-9604	Body comp	Not FDA-approved	Low-Moderate (limited human obesity studies; weak efficacy signal)	Experimental only
DSIP (Emideltide)	Sleep	Not FDA-approved	Low (older small trials)	Experimental only
Epitalon/Epithalon	Longevity/sleep	Not FDA-approved	Low (limited and heterogeneous human data)	Experimental only
PT-141 (Bremelanotide)	Sexual health	FDA-approved specific indication	Moderate-High for labeled population	Defensible when indication matches
GHK-Cu	Skin/longevity	Not FDA-approved as systemic peptide drug	Low-Moderate for topical cosmetic/wound contexts, low for injectable	Topical evidence stronger than injectable

Selank	Cognitive/anxiety	Not FDA-approved in U.S.	Low (limited non-U.S. data)	Experimental only
Semax	Cognitive/neuroprotection	Not FDA-approved in U.S.	Low-Moderate (non-U.S. data, limited global replication)	Experimental only

> ***Key Takeaway***
> *For this peptide set, strongest indication-grade evidence exists for tesamorelin and bremelanotide. Most others remain investigational, with uncertain long-term safety and variable source quality.*

2.2 Recovery Goal: BPC-157 and TB-500

BPC-157

Proposed mechanism

- Preclinical studies suggest effects on angiogenesis-related pathways, nitric oxide signaling, inflammatory cytokines, and fibroblast activity.
- Mechanistic discussions often include VEGF-related and tissue-repair signaling, but human confirmation is limited.

Evidence summary

- Recent orthopedic-focused systematic review data describe predominantly preclinical literature, with very limited low-quality human reporting.
- Existing human reports are largely retrospective or pilot-level and not adequate for efficacy confirmation.

Doses and duration in published/market practice

- No high-quality, validated human dosing standard exists.
- Common real-world protocols (not validated) often range 200–500 mcg daily or twice daily, usually for 4–8 weeks.
- Because dose-response and long-term safety are not established, these numbers should be treated as anecdotal, not evidence-based therapeutic dosing.

Expected outcomes

- Subjective reports: reduced pain, better perceived recovery.
- Objective outcomes: insufficient high-quality human evidence.

Risk notes

- FDA communications identify BPC-157 in compounding safety-risk context.
- Unknown long-term risk profile; peptide impurity and immunogenicity concerns remain relevant.

TB-500 (Thymosin Beta-4 fragment)

Proposed mechanism

- Thymosin-beta-4 biology is associated with actin dynamics, cell migration, anti-inflammatory signaling, and tissue remodeling.
- TB-500 is a fragment concept marketed for systemic recovery effects.

Evidence summary

- Human evidence for injectable TB-500 itself is weak.
- Some human studies exist for other thymosin-beta-4 formulations (for example, topical ophthalmic settings), but transferability to injectable TB-500 protocols is limited.

Doses and duration in published/market practice

- No validated, indication-grade dosing standard for injectable TB-500 in mainstream U.S. practice.
- Market protocols often cite 2–5 mg weekly with loading/maintenance cycles, but these are not established by high-quality clinical trials.

Expected outcomes

- Potential symptom-level recovery signals in anecdotal use.
- No robust consensus on objective musculoskeletal outcomes in controlled human trials.

Risk notes

- Fragment identity, purity, and lot-level consistency are major concerns in unregulated channels.
- Clinical uncertainty is high; conservative clinicians typically avoid representing TB-500 as proven therapy.

Recovery peptide decision table

Factor	BPC-157	TB-500
Human efficacy confidence	Low	Low
Mechanistic plausibility	Moderate (preclinical)	Moderate (preclinical/related thymosin biology)
Regulatory clarity	Non-approved, risk communications present	Non-approved, quality/legal ambiguity
Best current stance	Experimental only with strict oversight	Experimental only with strict oversight

> ***Key Takeaway***
> *Recovery peptides are often overmarketed relative to data quality. If used, they should be framed as experimental, with predefined stop criteria and objective rehab metrics.*

2.3 Body Composition Goal: CJC-1295/Ipamorelin, Tesamorelin, AOD-9604

CJC-1295

Mechanism

- Long-acting GHRH analog strategy to increase pulsatile GH signaling and downstream IGF-1 exposure.

Evidence summary

- Early randomized placebo-controlled human work demonstrated sustained increases in GH/IGF-1 after subcutaneous dosing.
- Data support endocrine activity, but not broad claims for dramatic fat loss or muscle gain in general populations.

Doses in literature

- Early human studies include approximately 30–60 mcg/kg dosing ranges with sustained endocrine response.

- Real-world fixed dosing practices are highly variable and often lower than weight-based trial exposures.

Duration

- Trial windows were short (weeks), with limited long-term safety outcomes.

Outcomes

- GH/IGF-1 increases are reproducible.
- Hard body-composition outcomes in broad populations are less robustly established.

Ipamorelin

Mechanism

- Growth hormone secretagogue acting via ghrelin/GHS-R pathway with GH-release potential.

Evidence summary

- Human data exist for PK/PD and GH stimulation effects, but high-quality long-term outcomes are sparse.
- FDA safety communications include concerns and note serious adverse-event reports in some contexts.

Doses in literature

- Published PK/PD trials used controlled infusion paradigms; these are not directly transferable to common wellness injections.

Duration/outcomes

- Endocrine effect shown.
- Long-term body-composition efficacy and safety remain uncertain.

CJC-1295 + Ipamorelin stack

This is a common wellness-clinic pairing, but evidence is often inferred rather than demonstrated in robust stack-specific RCTs.

Practical interpretation:

- Reasonable to expect GH/IGF-1 movement.
- Unreasonable to assume guaranteed lean-mass gain or major fat-loss effect without diet/training/sleep control.

Tesamorelin

Mechanism

- GHRH analog that increases endogenous GH pulse and IGF-1, with demonstrated visceral fat effects in HIV lipodystrophy populations.

Evidence summary

- RCT data in HIV-associated abdominal fat accumulation support reductions in visceral adipose tissue and liver fat over 6 months at 2 mg daily dosing (older formulation literature).
- Clinical label now includes updated formulation details for EGRIFTA WR; indication remains specific.

Dose and duration (label context)

- Current DailyMed label for EGRIFTA WR states 1.28 mg SC once daily after reconstitution, for indicated population.

- Historical trial data and older formulation work commonly used 2 mg daily equivalent regimens in study design.

Expected outcomes in indicated population

- Moderate reduction in visceral fat metrics.
- Potential IGF-1 elevation, glucose shifts, fluid-retention effects.

Limitations

- Not a general weight-loss drug.
- Benefits may regress after discontinuation.

AOD-9604 (hGH fragment 176-191 derivative concept)

Mechanism

- Marketed as lipolytic fragment pathway with minimal GH-like anabolic effects.

Evidence summary

- Human obesity studies are limited and heterogeneous.
- Clinical effect size for meaningful fat loss appears inconsistent/weak in higher-quality settings.
- FDA safety-risk communication language exists regarding limited safety data and potential adverse-event concern.

Dosing and duration in studies/market

- Research programs have used varied IV/oral/parenteral dose structures.
- No validated, modern, indication-grade clinical dosing pathway exists in U.S. routine care.

Expected outcomes

- At best, modest and variable in non-labeled settings.
- High uncertainty relative to marketing claims.

Body composition comparison table

Parameter	CJC-1295	Ipamorelin	Tesamorelin	AOD-9604
Main pathway	GHRH analog	GHS-R agonism	GHRH analog	hGH fragment concept
FDA-approved?	No	No	Yes (specific HIV lipodystrophy indication)	No
Evidence strength for fat outcomes	Low-Moderate	Low	Moderate-High in indicated group	Low-Moderate
Typical protocol confidence	Medium for endocrine shift, low for guaranteed physique changes	Low-Moderate	Higher when indication matches	Low
Monitoring priority	IGF-1, glucose	IGF-1, glucose, adverse events	IGF-1, fasting glucose/A1c	Glucose, adverse events

> ***Key Takeaway***
> *If your goal is general body recomposition, expected results are most predictable when physiology is optimized first: insulin control, sleep, protein intake, resistance training, and thyroid/sex-hormone correction.*

2.4 Sleep Goal: DSIP and Epitalon

DSIP (Emideltide)

Mechanism

- Proposed sleep-modulating neuropeptide with historical interest in sleep architecture and stress adaptation.

Evidence summary

- Older human trials (small cohorts) reported mixed changes in sleep parameters at intravenous dosing.
- Modern, large-scale randomized data are lacking.

Doses in literature

- Older studies used approximately 25 nmol/kg IV protocols in controlled settings.
- These are not equivalent to common modern retail peptide routes.

Duration/outcomes

- Short-term administration in trial settings.
- Signal exists, but data quality and applicability are limited.

Risk/regulatory context

- FDA compounding risk communications include emideltide (DSIP), citing limited safety information.

Epitalon / Epithalon / Epithalamin lineage

Mechanism

- Often marketed for circadian optimization, antioxidant action, pineal signaling support, and longevity biology.

Evidence summary

- Preclinical longevity data exist in animals.
- Human data are limited, heterogeneous, and often methodologically weak by modern trial standards.
- Distinguish between synthetic epitalon and legacy peptide preparations in older literature.

Dosing in market practice (not validated)

- Cyclic protocols are commonly marketed (for example, short annual cycles), but high-quality dosing validation is absent.

Expected outcomes

- Subjective sleep and recovery claims are common.
- Strong evidence for clinically meaningful longevity outcomes in modern humans is not established.

Sleep peptide checklist

- Confirm primary sleep diagnosis first (insomnia subtype, sleep apnea, circadian mismatch, medication effects).
- Stabilize foundational interventions before peptide use:
  - Fixed wake time.
  - Light exposure timing.

    - Alcohol/caffeine timing control.
    - CBT-I pathway if chronic insomnia.
- Define objective endpoint:
    - Sleep onset latency.
    - Wake-after-sleep-onset.
    - Total sleep time.
    - Daytime functioning.

> ***Key Takeaway***
> *Sleep peptides should not be first-line therapy when apnea, circadian disruption, or behavioral insomnia remains untreated.*

2.5 Sexual Health Goal: PT-141 (Bremelanotide)

PT-141 overview

PT-141 refers to bremelanotide, the active molecule in FDA-approved VYLEESI for a defined population and indication.

Mechanism

- Melanocortin receptor agonism with central neurobehavioral effects linked to sexual desire.

Evidence summary

- Phase 3 program data demonstrated statistically significant improvements in desire/distress endpoints in subsets of premenopausal women with acquired generalized HSDD.
- Effect size is clinically meaningful for some patients, modest for others.

Dose and duration (label)

- 1.75 mg SC at least 45 minutes before anticipated sexual activity.
- Not more than one dose in 24 hours.
- Not more than 8 doses/month.
- Stop if no meaningful improvement after 8 weeks/16 doses (from full labeling guidance).

Common outcomes

- Increased desire score for responders.
- Reduced distress related to low desire.

Common side effects

- Nausea (very common), flushing, headache, injection-site reactions, vomiting.
- Transient blood pressure increases and heart-rate decrease after dose.

Contraindications/cautions

- Uncontrolled hypertension or known cardiovascular disease.
- Careful review of antihypertensive regimen and nausea susceptibility.

PT-141 expectations framework

Question	Practical benchmark
When should you notice effect?	Often within first several uses if responder

What defines success?	Improved desire plus lower distress, not just libido score
When to stop?	No meaningful response by label-based reassessment window
Biggest tolerability limiter?	Nausea

> ***Key Takeaway***
> *PT-141 has one of the clearest evidence and regulatory profiles in this guide, but only for a narrow, labeled population.*

2.6 Longevity Goal: GHK-Cu and Epithalon-family compounds

GHK-Cu

Mechanism

- Copper-binding tripeptide involved in wound healing and tissue remodeling signaling in preclinical and translational work.

Evidence summary

- Topical and dermatologic contexts have some human evidence for cosmetic endpoints.
- Injectable systemic use has much weaker data and more safety uncertainty.
- FDA communications specifically reference injectable-route concerns in compounding contexts.

Dosing and duration

- Topical cosmetics use concentration/formulation frameworks rather than standard mg injection dosing.
- Injectable protocols in online markets are not evidence-based standard-of-care.

Expected outcomes

- Topical: potential modest improvement in skin quality markers in selected settings.
- Injectable: uncertain benefit-risk profile due to limited high-quality data.

Epitalon/Epithalon longevity claims

Mechanism

- Proposed antioxidant, circadian, and telomere-related signaling effects.

Evidence summary

- Animal longevity signal exists.
- Human claims often exceed quality of evidence.

Clinical reality

- No strong modern evidence supports broad “human lifespan extension” claims.
- Best interpreted as experimental geroscience interest, not established anti-aging treatment.

Longevity peptide reality check

- Longevity endpoints require long follow-up and robust design.
- Surrogate markers (subjective energy, skin glow, sleep) are not longevity proof.
- Risk of overtreatment increases when protocols rely on stacked peptides without endpoint discipline.

> ***Key Takeaway***
> *In longevity medicine, peptide enthusiasm currently exceeds evidence maturity for most compounds.*

2.7 Cognitive Goal: Selank and Semax

Selank

Mechanism (proposed)

- Tuftsin-analog neuropeptide hypothesis with anxiolytic and stress-response modulation.

Evidence summary

- Available evidence includes preclinical and limited non-U.S. clinical literature.
- Global replication and high-quality multicenter datasets are sparse.

Dose and duration in market/non-U.S. practice

- Intranasal short-cycle use is commonly described.
- No robust U.S.-standard dose-response framework is established.

Expected outcomes

- Some users report reduced anxiety/reactivity.
- Objective cognitive enhancement evidence remains limited.

Semax

Mechanism (proposed)

- ACTH-derived peptide analog with neurotrophic and inflammatory-modulation hypotheses.

Evidence summary

- Substantial preclinical neuroprotection literature.
- Human evidence outside U.S. frameworks exists but is variable in accessibility and methodological consistency.

Dose and duration

- Often intranasal in short cycles in non-U.S. use patterns.
- No FDA-approved U.S. dosing pathway.

Expected outcomes

- Potential short-term subjective alertness/focus effects in some individuals.
- Hard cognitive-performance endpoint confidence remains modest.

Cognitive peptide framework

Dimension	Selank	Semax
Main marketed effect	Anxiolytic/stress tolerance	Focus/neuroprotection
U.S. FDA approval	No	No
Human evidence quality	Low	Low-Moderate
Best use stance	Experimental with objective tracking	Experimental with objective tracking

Objective cognitive tracking suggestions

- Baseline and follow-up:
  - Digit span/working memory score.

- Reaction time test.
- Sustained attention task.
- Anxiety score (GAD-7 or similar).
- Sleep quality score.

> ***Key Takeaway***
> *If outcome cannot be measured objectively, nootropic peptide use quickly becomes expectation-driven rather than evidence-driven.*

2.8 Consolidated Dose/Duration/Outcome Table (Educational)

Important: Table values below include label-based dosing for approved products and published or commonly reported ranges for non-approved compounds. For non-approved peptides, values are not treatment recommendations.

Peptide	Typical Dose Context	Typical Cycle/Duration	Outcomes Most Commonly Reported	Evidence Confidence
BPC-157	No validated human standard; market use often 200–500 mcg 1–2x/day	4–8 weeks (common market cycle)	Subjective pain/recovery changes	Low
TB-500	No validated human standard; market use often mg/week range	6–12 weeks (common market cycle)	Subjective soft-tissue recovery	Low
CJC-1295	Human studies around ~30–60 mcg/kg patterns	Weeks in trials	GH/IGF-1 increase	Low-Moderate
Ipamorelin	Infusion-based PK/PD studies; wellness dosing not validated	Variable	GH pulse stimulation	Low
Tesamorelin (label)	EGRIFTA WR: 1.28 mg SC daily	Ongoing with monitoring	VAT reduction in indicated HIV population	Moderate-High (indication-specific)
AOD-9604	Heterogeneous research dosing	Variable	Inconsistent body-fat outcomes	Low-Moderate
DSIP	Older IV trials around 25 nmol/kg	Short trial windows	Mixed sleep effects	Low
Epitalon/Epithalon	No modern validated standard	Cyclic use commonly marketed	Subjective sleep/recovery/anti-aging claims	Low

PT-141 (label bremelanotide)	1.75 mg SC as needed, ≥45 min before sex; max 1/24 h, 8/month	Reassess after initial weeks per label	Desire/distress improvement in responders	Moderate-High (indication-specific)
GHK-Cu	Topical use has more human data than injection	8–12+ weeks in cosmetic studies	Skin-quality/cosmetic improvements (modest)	Low-Moderate (topical)
Selank	Intranasal short-course patterns in non-U.S. use	1–4 weeks common	Subjective anxiolysis/focus	Low
Semax	Intranasal short-cycle patterns in non-U.S. use	1–4 weeks common	Subjective focus/mental clarity	Low-Moderate

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Chapter 3: Lab Markers to Baseline Before Starting

If you skip baseline labs, you lose three things: safety signal detection, dose precision, and outcome attribution. A peptide plan without baseline biomarkers is guesswork.

3.1 Core Baseline Panel (Requested Markers)

Use this as your minimum baseline set before any endocrine-active peptide protocol:

- IGF-1
- GH (contextual, limited as random value)
- Total testosterone, free testosterone, SHBG
- Estradiol (sensitive assay where appropriate)
- Prolactin
- Fasting insulin
- HbA1c
- CBC
- CMP
- Lipid panel
- Thyroid: TSH, free T4 (often free T3 and thyroid antibodies based on context)
- Liver enzymes (ALT, AST, ALP, bilirubin)

3.2 Why Each Marker Matters

Marker	Why It Matters for Peptide Therapy	Action Trigger
IGF-1	Tracks GH-axis exposure and overresponse risk	Persistently high or rapidly rising IGF-1
GH	Random GH has low interpretability; IGF-1 is more useful longitudinally	Use selectively, not as sole control variable

Testosterone/Estradiol/SHBG	Influences energy, libido, body comp outcomes	Mismatch between symptoms and hormone pattern
Prolactin	Elevated levels can blunt libido, mood, gonadal axis	Repeat/confirm and evaluate pituitary context
Fasting insulin + HbA1c	Baseline metabolic risk, dysglycemia susceptibility	Rising fasting insulin/A1c on therapy
CBC	Detects baseline hematologic risk and inflammatory clues	New anemia/leukocytosis/thrombocytosis
CMP	Kidney/electrolyte/hepatic safety context	Creatinine, sodium, potassium, LFT shifts
Lipids	Cardiometabolic tracking during body comp interventions	Worsening apoB/TG/HDL trend
Thyroid panel	Thyroid dysfunction can mimic treatment failure	Untreated hypothyroid/hyperthyroid state
Liver enzymes	Screens baseline and on-treatment hepatic burden	ALT/AST rise beyond expected variation

3.3 Typical Adult Reference Ranges (U.S. Lab-Conventional)

Important: Ranges vary by lab method, sex, age, and assay platform. Use your lab's own reference interval for interpretation.

Marker	Typical Adult Reference Range (Approximate)
IGF-1	Age-dependent; roughly ~70–350 ng/mL across adulthood
GH (random)	Often <1–5 ng/mL (high variability, pulse-dependent)
Total testosterone (adult male)	~240–950 ng/dL (assay dependent)
Total testosterone (adult female)	~8–60 ng/dL (LC/MS preferred)
Estradiol (male)	~10–40 pg/mL
Estradiol (premenopausal female)	Cycle-phase dependent (~30–400+ pg/mL)
Prolactin (male)	~4–15 ng/mL
Prolactin (female, nonpregnant)	~4–23 ng/mL
Fasting insulin	~2–20 µIU/mL (functional targets often lower)
HbA1c	Normal <5.7%; prediabetes 5.7–6.4%; diabetes ≥6.5%
TSH	~0.4–4.5 mIU/L
Free T4	~0.8–1.8 ng/dL
ALT	~7–56 U/L

AST	~10–40 U/L
ALP	~44–147 U/L

3.4 Baseline Timing and Repeat Schedule

Recommended practical cadence:

- **Week -2 to 0 (pre-start):** full baseline panel.
- **Week 4–6:** early safety check (glucose, IGF-1, key symptom-driven labs).
- **Week 8–12:** efficacy + safety review panel.
- **Every 3–6 months:** maintenance monitoring if continuing therapy.

Adjust cadence for:

- Prior endocrine disease.
- Diabetes risk or active dysglycemia.
- Polypharmacy.
- Cardiovascular risk profile.
- Higher-dose or multi-peptide stacking.

3.5 Testing Services and Access Options

In the U.S., common access models include:

- **Physician-ordered testing** through hospital or outpatient systems.
- **Direct-to-consumer lab ordering platforms** (state-dependent availability).
- **Clinic-bundled peptide programs** (labs included or add-on).

Examples of widely used channels include Labcorp OnDemand, Quest Health, and broker platforms using major CLIA labs. Service design, physician-fee structure, and state coverage vary.

Lab-service due-diligence checklist

- Confirm which laboratory actually runs the assay (Quest/Labcorp/hospital lab).
- Confirm method for sensitive hormones (for example, LC/MS where appropriate).
- Confirm exact biomarker list before purchase (many panels omit prolactin or IGF-1).
- Confirm physician review policy for critical results.
- Confirm turnaround time and redraw policy.

> ***Key Takeaway***
> *Expensive peptide therapy without high-quality baseline labs is poor risk management. Spend on testing before you spend on vials.*

3.6 Red-Flag Baseline Patterns to Fix First

Delay peptide initiation and address first if you see:

- Uncontrolled hypertension.
- Poor glycemic control (elevated fasting glucose/A1c with high insulin).
- Marked thyroid dysfunction.
- Significant liver-enzyme elevation.
- Prolactin outlier with symptoms.
- Untreated sleep apnea or severe sleep disruption.

Many peptide “non-responders” are actually physiology-first cases that were never stabilized.

Chapter 4: Dosing Frameworks and Titration Strategy

This chapter is a framework, not a prescription. The goal is to help you and your clinician design a protocol that is conservative, monitorable, and stoppable.

4.1 Start Low, Titrate Up: Why It Works

A low-start strategy improves safety signal detection and adherence.

Benefits:

- Distinguishes true adverse effects from unrelated symptoms.
- Reduces dropout from nausea, edema, headaches, and injection burden.
- Allows lab-guided rather than hype-guided dose escalation.

4.2 Four-Phase Dosing Framework

Phase	Timeline	Objective	Typical Actions
Phase 1: Baseline	Weeks -2 to 0	Risk mapping	Labs, history, contraindication screen
Phase 2: Initiation	Weeks 1–2	Tolerability	Lowest practical dose exposure, symptom tracking
Phase 3: Titration	Weeks 3–8	Early efficacy with safety	Incremental adjustments based on response/labs
Phase 4: Consolidation	Weeks 8–12+	Decide continue/stop/cycle	Repeat labs, objective endpoint review

4.3 Cycling Strategy

Some peptide protocols use continuous dosing; others cycle.

A pragmatic cycle model for non-approved peptides often includes:

- Defined on-phase (for example 6–12 weeks).
- Predefined off-phase (for example 2–8 weeks).
- Re-entry only if objective metrics improved and safety remained acceptable.

For FDA-labeled therapies, follow label and clinician guidance rather than generic cycle culture.

4.4 Reconstitution Fundamentals

Always use manufacturer instructions for approved products. For compounded preparations, require written pharmacy guidance.

Core formula

- **Concentration (mg/mL) = total mg in vial ÷ mL diluent added**
- **Injection volume (mL) = desired mg dose ÷ concentration (mg/mL)**

Example:

- 10 mg peptide vial + 2.0 mL diluent = 5 mg/mL.
- Desired dose 0.25 mg (250 mcg) → volume 0.05 mL.

4.5 Storage Principles

- Store lyophilized and reconstituted products exactly per labeling/pharmacy instructions.
- Many products require refrigeration after reconstitution.
- Protect from light when indicated.
- Track reconstitution date on vial.
- Discard at beyond-use date; do not stretch vials “a few extra weeks.”

For FDA-approved products:

- Follow label-specific storage and discard requirements exactly.

4.6 Injection Technique (Safety-Focused Overview)

- Wash hands thoroughly.
- Use new sterile syringe/needle every injection.
- Clean vial top and injection site with alcohol; allow to dry.
- Inject subcutaneous tissue at recommended sites (abdomen/thigh per product guidance).
- Rotate sites to reduce irritation and lipodystrophy risk.
- Dispose of sharps in approved container.

Never share needles, syringes, or multi-dose vial access between users.

4.7 Timing Strategy by Goal

- **Sleep-focused compounds:** often trialed earlier evening if clinician agrees.
- **GH-axis compounds:** timing depends on formulation and protocol design; consistency matters more than folklore.
- **On-demand sexual-health compounds (labeled PT-141):** timing per label (minimum lead time before activity).

4.8 Stop Rules: Non-Negotiable

Predefine stop criteria before first dose.

Stop immediately and contact clinician for:

- Persistent blood-pressure elevation.
- Severe nausea/vomiting with dehydration.
- Progressive edema, dyspnea, chest pain.
- Neurologic symptoms (severe headache, focal deficits, syncope).
- Allergic reaction signs.
- Rapid glucose deterioration.

> ***Key Takeaway***
> *A good protocol is not “how high can dose go.” It is “how early can risk be detected and how clearly can benefit be measured.”*

4.9 Practical Titration Worksheet

Use this in your clinician visit.

Item	Planned Value	Reassess Date
Start dose		
Maximum planned dose		

Target endpoint 1		
Target endpoint 2		
Safety labs at week 4–6		
Stop rule threshold		
Cycle length		
Off-cycle length		

Chapter 5: Side Effects, Warning Signs, and Mitigation

Most peptide harm comes from one of three failures:

- Underestimating side effects.
- Delaying response to red flags.
- Continuing despite no measurable benefit.

5.1 Common Side Effects by Peptide Group

Peptide/Group	Common Side Effects	Notes
GH-axis modulators (tesamorelin, CJC, ipamorelin-like)	Fluid retention, joint discomfort, tingling, glucose changes, headache	Monitor IGF-1 and metabolic markers
PT-141 (bremelanotide)	Nausea, flushing, headache, injection-site reactions, vomiting	Label includes BP/HR effects and dose limits
BPC/TB-500-like recovery peptides	Injection-site irritation, variable systemic symptoms	High uncertainty due to product variability
DSIP/epitalon/selank/semax	Fatigue or activation mismatch, headache, sleep disruption, nasal irritation (intranasal)	Limited standardization
GHK-Cu injectable use	Injection reactions, uncertain systemic effects	Topical use has stronger safety context than injection

5.2 Red Flags That Require Same-Day Medical Contact

- Chest pain, shortness of breath, severe palpitations.
- Severe persistent vomiting or inability to keep fluids down.
- New neurologic deficits, severe dizziness, fainting.
- Marked swelling with rapid weight gain.
- Severe hypertension symptoms (headache/vision changes/confusion).
- Anaphylaxis signs: throat tightness, facial swelling, wheeze.

5.3 Side-Effect Mitigation Framework

Step 1: Verify dose and concentration math

Many side effects are dosing errors, not molecule effects.

Step 2: Reduce one variable at a time

- Lower dose first.
- Extend interval next.
- Pause stacks; reintroduce one compound at a time.

Step 3: Correct fundamentals

- Hydration/electrolytes.
- Sleep consistency.
- Carbohydrate timing for nausea-prone users (clinician-directed).

Step 4: Repeat targeted labs

- IGF-1 and glucose markers for GH-axis symptoms.
- CMP/CBC when systemic intolerance emerges.
- Blood pressure and heart-rate logs for cardiovascular symptoms.

5.4 Symptom-to-Action Table

Symptom	Likely Contributors	Immediate Action
Persistent nausea	PT-141, dose too high, timing mismatch	Hold next dose, hydrate, clinician guidance
New edema or paresthesia	GH-axis overexposure	Reduce/pause; check IGF-1, glucose, BP
Sleep worsening	Timing mismatch, stimulant load, peptide activation	Shift timing or discontinue trial
Libido no change after adequate trial	Wrong diagnosis, psychosocial factors, hormonal mismatch	Reassess diagnosis, stop ineffective protocol
Injection reactions	Technique, concentration, preservative sensitivity	Improve technique, rotate sites, evaluate formulation

5.5 When to Seek Emergency Care

Call emergency services for:

- Severe chest pain.
- Stroke-like symptoms.
- Syncope with injury or recurrent near-syncope.
- Progressive breathing difficulty.
- Severe allergic reaction.

5.6 Psychological and Behavioral Risk

Peptide use can shift expectations and behavior:

- “Stack escalation” without evidence.
- Ignoring adverse effects due to sunk cost.
- Social-media-driven protocol drift.
- Replacing foundational care with experimental compounds.

A strict review interval (every 4–8 weeks) helps prevent drift.

> ***Key Takeaway***
> *Side-effect management is not an afterthought. It is the central skill that separates controlled experimentation from preventable harm.*

Chapter 6: Cost Breakdowns and Sourcing Due Diligence

Peptide therapy cost is not just vial price. Total cost includes consults, labs, supplies, shipping, follow-up, and failure risk.

6.1 Cost Channels

Three common channels in the U.S. market:

1. **FDA-approved branded prescriptions**
2. **Compounded pathways through licensed pharmacies/clinics**
3. **Research-chemical marketplaces (“not for human consumption”)**

6.2 Price Reality (as of March 2026, U.S. public listings vary)

FDA-approved examples

- **Vyleesi (bremelanotide):** public cash pricing can vary substantially by channel; official support pathways may advertise discounted boxes for eligible patients.
- **Egrifta (tesamorelin):** cash pricing is high in public price guides, often in the thousands per month without coverage.

Compounded-clinic examples

Common advertised ranges (highly variable by clinic, dose, and add-ons):

- CJC/Ipamorelin-style programs: often low hundreds per month to higher with bundled care.
- Tesamorelin wellness programs: can range from lower hundreds to premium concierge pricing.

Research-chemical examples

Market listings often show low per-vial prices for non-approved compounds. This is exactly where purity, sterility, identity, and legal intent risks are highest.

6.3 Sample Monthly Cost Model

Cost Component	Branded Rx	Compounded Clinic	Research Chemical
Product	High to very high	Low-moderate to moderate	Low per vial
Clinician consult	Often covered/standard	Usually included or add-on	Often none
Labs	Usually required	Required in better clinics	Often skipped (major risk)
Supplies/shipping	Variable	Variable	Variable
Quality assurance	Highest regulatory confidence	Mixed, depends on pharmacy	Lowest confidence
Legal clarity	Highest	Moderate/complex	Lowest for human use

6.4 True Cost of a Bad Source

Low upfront price can become expensive quickly:

- Contaminated product: urgent care/ER costs.
- Misdosed product: months of ineffective therapy.
- No lot traceability: no accountability pathway.
- Legal and sport-compliance consequences.

6.5 Quality Verification Checklist

For clinics

- Confirm prescriber license and scope.
- Confirm informed consent includes FDA status and alternatives.
- Confirm objective monitoring plan and stop rules.

For compounding pharmacies

- Verify state license and good standing.
- Verify whether pharmacy is 503A or 503B and what that means for your product.
- Request lot-specific Certificate of Analysis (identity, potency, purity).
- Ask for sterility/endotoxin testing documentation for injectables.
- Confirm beyond-use dating policy and storage requirements.
- Look for recognized quality programs (for example PCAB accreditation) as supportive, not sole proof.

For online sources

- If a product is labeled “research use only,” do not treat it as equivalent to a clinical pharmaceutical.
- Avoid vendors giving human dosing advice while claiming non-human intent.
- Use FDA and NABP resources to verify pharmacy legitimacy when buying prescription medication online.

6.6 Red Flags for Unsafe Sourcing

- No pharmacist contact available.
- No batch-level COA.
- No sterility statement for injectable.
- Vague manufacturing origin.
- Claims of “FDA certified peptides” without verifiable pathway.
- Pressure selling, influencer discounts replacing clinical review.

6.7 Cost Optimization Without Cutting Safety

- Consolidate labs into scheduled panels rather than random repeats.
- Avoid multi-peptide starts; one change at a time reduces wasted spend.
- Set objective continuation criteria at baseline.
- Prefer fewer, better-monitored interventions over broad stacking.

> ***Key Takeaway***
> *Cheapest vial is rarely cheapest therapy. Cost efficiency comes from verified source quality, correct indication fit, and strict stop/continue criteria.*

Chapter 7: How to Review Options with Your Clinician

A strong appointment turns peptide therapy from marketing narrative into clinical decision process.

7.1 Appointment Preparation (48-Hour Checklist)

Bring:

- Full medication/supplement list.
- Last 12 months of lab results.
- Blood pressure log (if available).
- Sleep, energy, libido, body composition symptom timeline.
- Prior peptide exposure history (what, dose, duration, side effects).

Define top 1–2 goals only:

- Example: reduce visceral fat markers and improve insulin profile.
- Example: improve sexual desire-related distress.
- Example: reduce chronic recovery bottlenecks while maintaining safety.

7.2 Questions to Ask Your Clinician

Evidence and indication

- Is this peptide FDA-approved for my condition?
- What outcome data supports this use in people like me?
- What is the expected effect size at 8–12 weeks?

Safety and monitoring

- Which baseline labs are mandatory before start?
- Which side effects should trigger immediate hold?
- What is my follow-up lab schedule?

Dosing strategy

- What is the minimum effective starting dose?
- What objective trigger justifies dose escalation?
- What is our stop rule if response is weak?

Source quality

- Which pharmacy is used and why?
- Can I review lot-level COA and sterility/endotoxin data?
- What are storage and beyond-use rules for my exact product?

7.3 Clinician-Ready Decision Grid

Decision Domain	Option A	Option B	Option C
Primary goal			
Evidence quality			
FDA status fit			
Baseline risk burden			
Monitoring intensity			
12-week success metric			
12-week stop threshold			

Monthly total cost			

7.4 Finding Peptide-Knowledgeable Clinicians

Look for:

- Endocrinology or obesity-medicine fluency when GH-axis compounds are considered.
- Sexual-medicine competence for PT-141 candidacy.
- Comfort with both benefits and limits, not just protocol sales.
- Willingness to decline treatment when baseline risk is unfavorable.

Avoid clinicians who:

- Start multiple peptides on day 1 without baseline labs.
- Promise guaranteed results.
- Minimize FDA/regulatory status discussion.
- Cannot explain stop rules.

7.5 Shared-Decision Template

Use this in the visit:

1. My primary goal is:
2. My acceptable risk level is:
3. My non-negotiable safety boundaries are:
4. My measurable 12-week success markers are:
5. My stop conditions are:

7.6 Final Pre-Start Checklist

- Diagnosis and goal are clear.
- Baseline labs complete.
- Source verified.
- Dose and titration documented.
- Follow-up booked before first dose.
- Emergency/red-flag plan understood.

> ***Key Takeaway***
> *The best peptide outcomes come from structured collaboration with a clinician, not from protocol copying.*

Final Summary

Peptide therapy is not one category of treatment. It is a spectrum:

- At one end: FDA-approved, indication-defined therapies with clear labels.
- At the other: experimental peptides with limited human evidence and uncertain product quality.

To manage this spectrum safely:

- Match molecule to diagnosis, not hype.
- Baseline aggressively.
- Start conservatively.
- Track objectively.
- Stop decisively when benefit is unclear or risk rises.

In practical terms, peptide therapy is less about finding a “magic protocol” and more about executing disciplined clinical process.

Implementation Appendices

These appendices are designed to make the seven core chapters operational. They are intentionally practical and can be printed or copied into your clinical workflow notes.

Appendix A: Evidence-Strength Scoring Model (Use Before Any Purchase)

Use this five-domain model to score any peptide option. A low score does not always mean “never use,” but it does mean your monitoring and informed-consent burden must be higher.

Domain	Score 0	Score 1	Score 2	Score 3
Regulatory status	Not approved; active safety concerns	Not approved; limited safety visibility	Approved elsewhere but not U.S. for use case	FDA-approved for your exact indication
Human efficacy data	No meaningful human data	Small/weak studies only	Moderate RCT signal in related population	Strong RCT evidence in matching population
Human safety data	Sparse; no long-term profile	Limited short-term only	Moderate safety data, gaps remain	Well-characterized in labeled use
Product quality confidence	Unknown source, no verifiable QA	Partial QA	Licensed source, incomplete transparency	High-trust source with documentation
Monitoring feasibility	No practical monitoring plan	Monitoring possible but inconsistent	Regular labs feasible	Structured monitoring already built

How to use the score

- Total score 0–5: very high uncertainty.
- Total score 6–9: high uncertainty.
- Total score 10–12: moderate uncertainty.
- Total score 13–15: lower uncertainty relative to alternatives.

Apply this score before and after your clinician visit. If the score drops after reviewing actual source documentation, pause the decision.

Example scoring snapshots

Peptide context	Regulatory	Efficacy	Safety	Quality	Monitoring	Total
Tesamorelin for labeled HIV lipodystrophy indication via legitimate Rx channel	3	3	3	3	3	15
PT-141 for labeled indication with cardiovascular screening	3	3	2	3	3	14

CJC/Ipamorelin wellness stack from reputable clinic/pharmacy with labs	0	1	1	2	2	6
Online “research use only” TB-500 without lot verification	0	0	0	0	1	1

> ***Key Takeaway***
> *Scoring forces realism. It is difficult to justify high-risk protocols when the score is visibly low.*

Appendix B: 12-Week Objective-Tracking Templates by Goal

Subjective outcomes matter, but they are not enough. Pair symptom tracking with objective markers so you can distinguish true signal from noise.

B1. Recovery Goal Template (BPC/TB-like experimental use)

Week	Objective Marker	Subjective Marker	Decision Rule
0	Baseline pain scale, ROM, strength test, rehab baseline	Pain interference score	Start only if baseline stable
2	Repeat ROM and pain test	Recovery confidence score	If no trend and side effects present, de-escalate
4	Functional benchmark (e.g., squat depth, return-to-run metric)	Sleep and soreness journal	Continue only if function improves
8	Compare to baseline and week 4	Overall benefit rating	Stop if objective gain absent
12	End-cycle review	Value-for-cost rating	Resume only with clear objective benefit

Recovery context is highly confounded by physical therapy quality, training volume, and sleep. You should document these variables weekly.

Minimum weekly notes:

- Training load (RPE-based).
- Rehab compliance.
- Sleep duration and quality.
- NSAID/analgesic use.
- New injury events.

B2. Body Composition Goal Template (GH-axis compounds)

Week	Metabolic/Endocrine Marker	Body Composition Marker	Decision Rule
0	Fasting glucose, fasting insulin, HbA1c, IGF-1	Waist, weight, body-fat method (same tool)	Start only after baseline complete
4	IGF-1 and fasting glucose safety check	Waist and body weight trend	If no tolerability, reduce/hold

8	Repeat glucose/insulin if risk factors present	Trend line over 8 weeks	Continue only with objective movement
12	Full reassessment panel	Repeat same body composition method	Stop or redesign if no measurable delta

Compounds that shift GH/IGF-1 can produce temporary scale changes due to water shifts. Avoid overreacting to week-to-week fluctuations.

Interpretation note:

- Waist reduction with stable weight may still indicate favorable recomposition.
- Weight loss without waist or metabolic improvement is not automatically success.

B3. Sleep Goal Template (DSIP/Epitalon-style experimental use)

Week	Objective Marker	Subjective Marker	Decision Rule
0	Sleep diary baseline (2 weeks)	Insomnia severity score	Start only if schedule is stable
2	Sleep onset latency trend	Daytime function score	If latency worsens, adjust timing or stop
4	Wake-after-sleep-onset trend	Mood/irritability trend	Continue only if objective sleep improves
8	Average total sleep time	Sleep quality score	Stop if no meaningful sleep gain

Sleep protocols fail when circadian fundamentals are ignored. Keep light timing and wake time constant before adding variables.

B4. Sexual Health Goal Template (PT-141 context)

Week	Objective/Structured Marker	Subjective Marker	Decision Rule
0	Baseline desire/distress instrument	Relationship/psychological baseline notes	Confirm diagnosis fit
2–4	Track response across doses	Nausea and tolerability log	Optimize tolerability first
8	Reassess symptom scale and distress	Benefit-risk self-rating	Discontinue if no meaningful response

Partner dynamics, relationship stress, untreated depression/anxiety, and medication side effects strongly influence outcomes. These should be reviewed in parallel.

B5. Cognitive Goal Template (Selank/Semax experimental context)

Week	Objective Marker	Subjective Marker	Decision Rule
0	Baseline attention/reaction-time tests	Stress/anxiety baseline	Establish routine first
2	Repeat same cognitive tasks, same time/day	Perceived focus score	Hold if sleep worsens

4	Trend analysis vs baseline	Anxiety and sleep score	Continue only with objective gain
8	Final cycle review	Cost-benefit judgment	Stop if gains not reproducible

For cognitive outcomes, consistency of testing conditions is essential. Test at similar time, caffeine status, and sleep state.

Appendix C: Lab Interpretation Pitfalls and Clinical Context

C1. IGF-1 interpretation errors

Common mistakes:

- Treating one elevated IGF-1 value as definitive toxicity.
- Ignoring assay/lab changes between measurements.
- Comparing age-inappropriate references.

Better approach:

- Use same lab and method whenever possible.
- Trend over time rather than single-point panic.
- Pair with symptoms and glucose markers.

C2. GH is a poor standalone marker

Random GH is pulsatile and often clinically noisy. In peptide contexts, IGF-1 plus symptom/metabolic trends usually provide better longitudinal control.

C3. Testosterone and estradiol context

Interpret sex hormones with:

- Time of draw (especially morning male draws).
- SHBG context for free androgen interpretation.
- Menstrual phase in premenopausal women.
- Medication confounders (for example oral contraceptives, anti-androgens).

C4. Prolactin false positives

Prolactin can rise transiently from stress, sleep disruption, sexual activity, and certain medications. Mildly elevated values often need repeat fasting morning confirmation before escalation.

C5. Fasting insulin and HbA1c mismatch

It is possible to see:

- Normal HbA1c with elevated fasting insulin (early insulin resistance pattern).
- Elevated HbA1c with “normal” fasting insulin due to beta-cell trajectory differences.

Both should be interpreted with glucose trend, waist pattern, and family history.

C6. CBC and CMP trend intelligence

Single mildly abnormal values may be noise. Trend direction over repeated intervals is typically more informative than isolated edge-of-range values.

Watch trends in:

- Hematocrit/hemoglobin.
- Creatinine and eGFR context.
- Sodium/potassium shifts with fluid symptoms.
- ALT/AST persistence beyond brief fluctuation.

C7. Lipid interpretation in protocol changes

Body recomposition phases, diet changes, and weight shifts can temporarily affect lipids. Evaluate lipids in context of apoB (if available), triglycerides, HDL trend, and metabolic markers.

Appendix D: Reconstitution and Dosing Math Toolkit

This section is educational math support, not prescribing guidance.

D1. Unit conversion essentials

- 1 mg = 1000 mcg.
- 0.1 mL = 10 insulin syringe units on U-100 syringes.
- 1.0 mL = 100 units on U-100 syringes.

D2. Common calculation sequence

1. Convert peptide amount in vial to mcg.
2. Divide by total mL diluent added to get mcg/mL.
3. Convert desired mcg dose into mL volume.
4. Convert mL volume into syringe units.

D3. Example calculations

Example A:

- Vial contains 5 mg peptide = 5000 mcg.
- Add 2.0 mL diluent.
- Concentration = 2500 mcg/mL.
- Desired dose = 250 mcg.
- Required volume = 0.1 mL = 10 units.

Example B:

- Vial contains 10 mg peptide = 10,000 mcg.
- Add 4.0 mL diluent.
- Concentration = 2500 mcg/mL.
- Desired dose = 500 mcg.
- Required volume = 0.2 mL = 20 units.

Example C:

- Vial contains 2 mg peptide = 2000 mcg.
- Add 1.0 mL diluent.
- Concentration = 2000 mcg/mL.
- Desired dose = 100 mcg.
- Required volume = 0.05 mL = 5 units.

D4. Math safety checklist

- Verify vial strength and total amount.
- Verify total diluent actually added.
- Label vial with date, concentration, and initials.
- Double-check calculation before first dose.

- Re-check after any vial or syringe change.

D5. Frequent dosing errors

- Confusing mg with mcg.
- Assuming every syringe has same calibration.
- Using old concentration after adding extra diluent.
- Copying another person's unit value without matching vial concentration.

Appendix E: Regulatory and Legal Practical Q&A

E1. Is "compounded" the same as "approved"?

No. Compounded preparations are not FDA-approved products in the same way branded approved drugs are. They can be appropriate in some clinical situations, but they carry different regulatory and quality realities.

E2. Can a clinician prescribe non-approved peptides?

Clinical practice and compounding law are complex and state-dependent. Even when access exists, legal availability does not establish efficacy or safety for a specific use.

E3. What does "research use only" imply?

It indicates the product is not intended for human consumption. Treating RUO listings as interchangeable with clinical pharmaceuticals is a major risk error.

E4. Why do websites still show dosing instructions on non-approved products?

Commercial incentives. Marketing language often outpaces evidence and compliance discipline. Dosing text online is not proof of clinical validity.

E5. What is the safest legal pathway when considering peptides?

For U.S. patients, the highest-confidence pathway is usually:

1. Clear diagnosis.
2. Licensed clinician oversight.
3. FDA-approved product when indication matches.
4. Structured monitoring and follow-up.

Appendix F: Source Due-Diligence Scorecard

Use this before paying.

Item	Yes/No	Notes
Prescriber identity and license verified		
Diagnosis and indication documented		
FDA status explained in writing		
Pharmacy identity verified		
503A/503B status clarified		
Lot-specific COA available		
Sterility/endotoxin documentation available (injectables)		

Beyond-use date and storage instructions written		
Monitoring labs scheduled before first dose		
Adverse-event escalation plan documented		
Stop rules defined		
Total 12-week cost estimate transparent		

F1. Minimum acceptable documentation pack

Before first injection, you should be able to obtain:

- Written protocol summary.
- Exact product name/strength/formulation.
- Pharmacy contact details.
- Storage and handling instructions.
- Follow-up schedule.

If any part is missing, delay start.

F2. Transparency score interpretation

- 10–12 “Yes”: strong process confidence.
- 7–9 “Yes”: moderate confidence, ask clarifying questions.
- 0–6 “Yes”: high caution; reconsider source.

Appendix G: Appointment Scripts and Communication Templates

The following scripts are designed to help patients communicate clearly with clinicians and reduce rushed decisions.

G1. Opening script (first visit)

“My goal is to evaluate peptide therapy using objective metrics and a conservative safety plan. I want to understand which options are FDA-approved for my condition, which are experimental, and what monitoring is required before I make a decision.”

G2. Evidence clarification script

“Can we separate what is proven in randomized human trials from what is preclinical or anecdotal, and map that directly to my goals?”

G3. Dose and stop-rule script

“I only want to proceed if we can define start dose, maximum dose, monitoring checkpoints, and exact stop conditions before treatment begins.”

G4. Sourcing script

“Please document the pharmacy source and whether lot-specific quality data are available for potency, identity, and sterility.”

G5. Cost transparency script

“Please estimate total expected 12-week cost including product, labs, follow-ups, and supplies, not just vial price.”

G6. If clinician suggests multi-peptide stack immediately

“I prefer a stepwise approach so we can identify effect and side effects accurately. Can we start with one intervention and reassess at week 6–8?”

G7. If benefits are unclear by week 8–12

“Given limited measurable improvement and ongoing burden, I would like to discuss discontinuation or protocol redesign instead of automatic escalation.”

Appendix H: 90-Day Implementation Roadmap

This roadmap translates the guide into a realistic 90-day process.

Days 1–14: Preparation Phase

- Define primary goal and measurable endpoints.
- Gather prior records and medications.
- Complete baseline labs.
- Verify source quality and regulatory status.
- Schedule follow-up appointments in advance.

Deliverables by day 14:

- Baseline data sheet completed.
- Risk score completed.
- Written protocol with stop rules.

Days 15–42: Initiation and Early Titration

- Start at lowest practical dose per clinical plan.
- Keep daily symptom and adherence logs.
- Avoid introducing multiple confounders simultaneously.
- Perform week 4–6 safety labs as indicated.

Decision point at day 42:

- Continue, reduce, pause, or stop based on objective and safety data.

Days 43–90: Consolidation and Decision

- Continue only if objective benefit appears.
- Repeat key labs and endpoint measures.
- Conduct cost-benefit review.
- Decide on continuation, cycling, or discontinuation.

90-day review questions:

1. Did objective markers improve?
2. Did side effects remain acceptable?
3. Was total cost justified by measured benefit?
4. Is continuation safer than discontinuation?

Appendix I: Common Myths vs Clinical Reality

Myth	Clinical Reality
“All peptides are natural and therefore safe.”	Safety depends on molecule, dose, source quality, and monitoring.
“If I feel better, labs are optional.”	Labs are required to detect silent risk and confirm mechanism.

“More peptides means faster results.”	Stacking increases confounding and adverse-event risk.
“Online dosing guides are enough.”	Most are not evidence-graded and may be unsafe for your context.
“If it is compounded, it must be approved.”	Compounded products are not the same as FDA-approved products.
“No side effects means no risk.”	Some risks are delayed or lab-detectable before symptoms appear.

Appendix J: Contraindication and Caution Pre-Screen

This is a discussion tool, not a diagnostic instrument.

Pre-screen caution domains:

- Cardiovascular disease or uncontrolled blood pressure.
- Active malignancy history and oncologic surveillance context.
- Diabetes or prediabetes with poor control.
- Severe psychiatric instability.
- Pregnancy, planned pregnancy, or breastfeeding.
- Severe liver or kidney impairment.

Medication interaction review domains:

- Antihypertensives.
- Glucose-lowering medications.
- Dopaminergic/serotonergic medications.
- Hormone therapies.
- Sedative-hypnotics.

Appendix K: Documentation Templates

K1. Baseline Intake Template

- Primary goal:
- Secondary goal:
- Prior therapies tried:
- Current medications:
- Allergy history:
- Baseline vitals:
- Baseline labs date:
- Risk concerns:

K2. Weekly Tracking Template

- Week number:
- Dose and timing:
- Missed doses:
- Side effects:
- Sleep duration:
- Training load:
- Diet consistency:
- Objective metric update:

K3. Follow-Up Summary Template

- Interval since last review:
- Key benefits observed:
- Key adverse events:
- Lab changes:
- Continue/adjust/stop decision:
- Next review date:

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