

THE PIVOTAL PROTOCOL | EDUCATIONAL REFERENCE

Reconstitution
Masterclass

A complete, step-by-step reference for peptide reconstitution, dosing math, injection technique, and storage - written for clarity and accuracy.

8
CORE SECTIONS

30+
STEP INSTRUCTIONS

1
QUICK REF CARD

SECTION 01

What You Need

Gather every item on this list before you begin. Attempting reconstitution without the correct supplies is the leading cause of avoidable errors. Confirm each item is present and in-date before proceeding.



Bacteriostatic Water (BAC Water)

Sterile water containing 0.9% benzyl alcohol as a preservative. The benzyl alcohol inhibits microbial growth, extending the usable life of your reconstituted peptide to 4-6 weeks refrigerated. Regular sterile water lacks this preservative and should not be substituted - reconstituted solutions using plain sterile water must be used within 24 hours and carry a higher contamination risk.



Insulin Syringes: U-100 Format

Standard U-100 insulin syringes (1 mL barrel). Use 29-31 gauge, 1/2 inch needles. The fine gauge minimizes tissue trauma. The 1 mL barrel provides precise measurement down to 0.01 mL increments. Never use a larger-barrel syringe for subcutaneous peptide injection - accuracy suffers significantly.



Alcohol Prep Pads (70% Isopropyl)

70% isopropyl alcohol is the standard antiseptic concentration. Higher concentrations (e.g., 99%) evaporate too quickly to effectively kill pathogens. Use a fresh pad for each wipe - never reuse. You will need at least two pads per session: one for the BAC water vial stopper, one for the peptide vial stopper, and a separate pad for the injection site.



The Peptide Vial (Lyophilized Powder)

Lyophilized means freeze-dried. Peptides in this form are stable at room temperature for shipping but must be stored per the guidance in Section 6 once received. Inspect the vial before use: the powder should be white or off-white, dry, and free of visible moisture or caking that could indicate cold-chain failure.



Sharps Disposal Container

An approved, puncture-resistant sharps container is required for safe needle disposal. Never recap a used needle with two hands - use the one-hand scoop technique or a needle-capping device. Never dispose of needles in household trash or recycling. Contact your local pharmacy or municipality for sharps disposal programs.



Clean, Flat Surface

A clean, non-porous, flat surface creates a stable workspace. A disposable absorbent pad (often called a "blue pad" or chux) placed on a counter is ideal. Avoid fabric surfaces, which harbor bacteria and create instability. Clean the surface with 70% isopropyl before laying out supplies.



SUPPLY VERIFICATION

Check expiration dates on your BAC water, alcohol pads, and syringes before every session. Expired supplies should be replaced. Work with your physician regarding proper sourcing and supply chain guidance.

Educational purposes only. This guide is not medical advice. All peptide use should be conducted under the guidance and supervision of a licensed healthcare provider.

SECTION 02

Understanding Concentrations

The single most important calculation in peptide use is understanding concentration. This determines how many units to draw for any given dose. Mastering this math eliminates dosing errors.

THE CORE FORMULA

$$\text{(Vial size in mg)} \div \text{(BAC water added in mL)} = \text{mg per mL}$$

Worked Examples

5 MG VIAL + 2 ML BAC

2.5 mg/mL

= 2,500 mcg per mL

10 MG VIAL + 2 ML BAC

5 mg/mL

= 5,000 mcg per mL

5 MG VIAL + 1 ML BAC

5 mg/mL

= 5,000 mcg per mL

i

MG TO MCG CONVERSION

To convert milligrams (mg) to micrograms (mcg): multiply by 1,000. Example: 2.5 mg = 2,500 mcg. Many peptide doses are expressed in mcg, so this conversion is used frequently.

U-100 Syringe Unit Math

A U-100 insulin syringe holds 1 mL = 100 units. Each unit on the syringe barrel represents 0.01 mL of liquid. This means:



UNIT CONVERSION RULE

Units to draw = (Desired dose in mcg) / (Concentration in mcg per unit). Or: Units = (Dose mcg / Total mcg per mL) x 100.

Comprehensive Dosing Reference Table

This table shows common vial sizes and BAC water volumes with resulting concentrations and unit equivalents for representative doses. Always recalculate for your specific vial and BAC water volume.

VIAL SIZE	BAC WATER ADDED	CONCENTRATION	100 MCG DOSE	250 MCG DOSE	500 MCG DOSE	1 MG DOSE
5 mg	1 mL	5 mg/mL	2 units	5 units	10 units	20 units
5 mg	2 mL	2.5 mg/mL	4 units	10 units	20 units	40 units
5 mg	5 mL	1 mg/mL	10 units	25 units	50 units	100 units
10 mg	1 mL	10 mg/mL	1 unit	2.5 units	5 units	10 units
10 mg	2 mL	5 mg/mL	2 units	5 units	10 units	20 units
10 mg	4 mL	2.5 mg/mL	4 units	10 units	20 units	40 units
2 mg	1 mL	2 mg/mL	5 units	12.5 units	25 units	50 units
2 mg	2 mL	1 mg/mL	10 units	25 units	50 units	100 units



ALWAYS VERIFY YOUR CALCULATION

The table above is a reference only. Always calculate your specific dose based on your actual vial size and the precise volume of BAC water you added. Document your reconstitution details on a label affixed to the vial immediately after reconstitution. Never rely on memory for concentration values.

Educational purposes only. Dosing decisions should be made in coordination with a licensed healthcare provider. This guide presents math concepts, not clinical recommendations.

SECTION 03

Reconstitution: Step by Step

Follow these steps in exact order. Do not skip or reorder. Each step serves a specific contamination-prevention or peptide-integrity purpose.

1

Wash Hands Thoroughly

Use soap and warm water. Wash for a minimum of 20 seconds, covering all surfaces including between fingers, under nails, and the backs of your hands. Dry with a clean paper towel. Do not touch any non-sterile surface after washing before putting on gloves if used.

✓ Do This Every Time

2

Prepare a Clean, Flat Workspace

Lay a fresh absorbent pad or clean paper towel on a flat, stable counter. Wipe the counter surface with a 70% isopropyl pad and allow it to air-dry. Arrange your supplies: peptide vial, BAC water vial, fresh alcohol pads, syringe, and sharps container. Touch only what you need.

3

Disinfect Both Vial Stoppers

Using separate alcohol pads, wipe the rubber stopper on the BAC water vial and the rubber stopper on the peptide vial. Wipe in one direction - do not scrub back and forth. Allow each stopper to air-dry for a full 10 seconds before inserting any needle. Damp alcohol on the stopper can push contamination into the vial.

× Never Reuse the Same Pad on Both Vials

4

Draw BAC Water Into the Syringe

Insert the syringe needle through the center of the BAC water vial stopper. Invert the vial. Pull the plunger back slowly to draw the desired volume of BAC water. A common starting volume is 1-2 mL - verify the correct volume for your specific peptide and target concentration against the formula in Section 2. Remove the syringe from the vial.

5

Inject BAC Water Along the Side of the Peptide Vial

Insert the needle through the stopper of the peptide vial, angling it so the needle tip points toward the inner glass wall. Press the plunger slowly, allowing the BAC water to run down the side of the vial rather than directly onto the freeze-dried powder cake. Direct high-velocity injection onto the powder can cause protein denaturation and reduce potency.

✓ Aim at the Glass Wall, Not the Powder

✗ Never Inject Directly Onto the Powder

6

Do Not Shake. Gently Roll or Swirl.

After adding BAC water, remove the syringe and place the vial on a flat surface. Do not shake or vortex the vial. Shaking creates foam and can break peptide bonds, degrading potency. Instead, roll the vial slowly between your palms or gently swirl in a circular motion. Continue until the powder is fully and evenly dissolved, typically 30-60 seconds.

✗ Shaking Degrades the Peptide

7

Inspect the Solution

Hold the vial up to a light source and examine the solution. A properly reconstituted peptide solution should be clear and colorless to very faintly tinted, with no visible particles, cloudiness, or discoloration. If the solution is cloudy, particulate, or has an unusual color, discard it immediately. Do not attempt to filter or salvage a suspect solution.

✘ **DISCARD IMMEDIATELY IF YOU SEE**
Cloudiness or turbidity. Visible floating particles. Unusual color (yellow, brown, or pink tint beyond faint). Precipitate at the bottom that does not dissolve with swirling.

8

Label the Vial Immediately

Write or affix a label to the reconstituted vial before setting it down. The label must include: the compound name, the date of reconstitution, the total volume of BAC water added, and the resulting concentration (mg per mL). This information is essential for accurate dosing on every subsequent use. Never rely on memory.

✓ Label Before Refrigerating

9

Refrigerate the Reconstituted Vial

Transfer the labeled vial to the refrigerator promptly. Target storage temperature is 35 to 46 degrees Fahrenheit (2 to 8 degrees Celsius). Do not place near the freezer compartment or fan, where temperatures may dip below freezing. Do not freeze a reconstituted vial. See Section 6 for complete storage guidance.



STERILE TECHNIQUE IS NON-NEGOTIABLE

Every lapse in sterile technique is a potential infection risk. If at any point you are uncertain whether a surface, needle, or stopper is still clean, restart that step with fresh supplies. The cost of a fresh alcohol pad is nothing compared to the cost of a contaminated injection. Work with your physician to establish your full safety protocol.

Educational purposes only. Reconstitution procedures should be performed under the guidance of a licensed healthcare provider who has reviewed your specific compound and circumstances.

SECTION 04

Drawing Your Dose

Drawing the correct dose accurately requires technique and patience. Rushing this step is the primary cause of dosing inaccuracy. Take your time on each sub-step.

1

Remove from Refrigerator and Warm Slightly

Take the vial from the refrigerator 5 to 10 minutes before drawing your dose. Cold solution is more viscous, which makes accurate drawing more difficult and can cause mild injection discomfort. Do not use a heating device. Allow the vial to reach room temperature naturally on your clean workspace.

2

Wipe the Stopper with a Fresh Alcohol Pad

Each time you access the vial, wipe the rubber stopper with a fresh 70% isopropyl pad. Allow 10 seconds of air-drying. Even if you just used the vial moments ago, contaminants can land on the stopper surface. This is a non-negotiable step every single time.

✓ Fresh Pad Every Access

3

Insert Syringe and Invert the Vial

Insert the syringe needle straight through the center of the stopper. Invert the vial so the needle points upward and the stopper is at the bottom. Keep the needle tip submerged in the liquid at all times to avoid drawing air. Your dominant hand holds the syringe; your non-dominant hand stabilizes the vial.

4

Draw Slightly Over Your Target, Then Return to Exact Dose

Pull the plunger back to draw slightly more liquid than your target dose. Then slowly push the plunger forward to return to your exact dose mark. This two-step technique pushes any air bubbles out through the needle while it is still in the inverted vial, without wasting solution. You will see any air bubbles exit back into the vial. Confirm your dose marking matches your calculation from Section 2.

✓ **Overdraw Then Push Back to Exact Dose**

5

Remove and Recap Until Ready to Inject

Remove the syringe from the vial. Use the single-hand scoop technique to recap the needle: lay the cap on the flat surface, lower the needle into it with one hand, and lift the syringe to seat the cap. Never use two hands to recap a used needle. If not injecting immediately, place the capped syringe on the clean surface until ready.

Educational purposes only. This guide is not medical advice. All practices should be reviewed with your healthcare provider.

SECTION 05

Subcutaneous Injection Technique

Subcutaneous (SubQ) injection delivers the compound into the fatty tissue just beneath the skin. Proper technique minimizes discomfort, reduces site reactions, and ensures consistent absorption.

Recommended Injection Sites



Abdomen

Most common site. Inject at least 2 inches away from the navel in any direction. Avoid the navel itself and the waistband area. Large subcutaneous fat depot, easy to access and pinch.



Outer Thigh

Use the outer-front (anterolateral) surface of the thigh, midway between the knee and hip. Avoid the inner thigh. Good alternative for individuals who prefer not to use the abdomen.



Upper Outer Arm

Use the outer, fleshy area of the upper arm between the shoulder and elbow. May require assistance for self-injection. Ensure adequate subcutaneous tissue at the site.



ROTATE INJECTION SITES

Always rotate your injection site within the selected area and between different anatomical locations across sessions. Injecting repeatedly in the exact same spot causes lipohypertrophy, a localized thickening of the subcutaneous fat that reduces absorption and creates visible lumps. Keep a rotation log if needed.

Injection Procedure

1

Clean the Injection Site

Wipe the selected injection area with a fresh 70% isopropyl alcohol pad using a circular motion from center outward. Allow to air-dry completely, at least 10 seconds.

Do not blow on it or fan it. Injecting through wet alcohol can cause a brief stinging sensation and may carry surface contaminants into the tissue.

2

Pinch the Skin and Position the Needle

Using your non-dominant hand, gently pinch a fold of skin and subcutaneous fat at the injection site, lifting it slightly away from the underlying muscle. This ensures the needle enters the subcutaneous layer and not the muscle. For individuals with adequate subcutaneous tissue at the site, pinching may be optional - discuss with your physician. Hold the syringe like a dart in your dominant hand.

3

Insert at the Correct Angle

Insert the needle at a 45-degree angle for individuals with lean subcutaneous tissue at the injection site. Insert at a 90-degree angle if the pinched skin fold is thick enough to accommodate the full needle length (typically 1/2 inch) without risk of reaching muscle. A smooth, confident insertion in one motion is less painful than a slow hesitant one.

✓ 45 degrees: lean tissue

✓ 90 degrees: adequate subcutaneous tissue

4

Inject Slowly and Steadily

Press the plunger with smooth, even, steady pressure. A slow injection rate (approximately 10 seconds per 0.1 mL) minimizes pressure buildup in the tissue and reduces discomfort. If you feel significant pressure or burning, pause briefly. Maintain your grip on the pinched skin throughout the injection.

5

Remove Needle and Apply Light Pressure

Withdraw the needle smoothly at the same angle it entered. Release the pinched skin. Place a clean alcohol pad or clean dry gauze over the site and apply gentle pressure for 10 to 15 seconds. Do not rub the site. Rubbing can cause localized irritation and may disperse the compound away from the intended deposit site.

× Do Not Rub the Injection Site

6

Dispose of Needle Immediately

Place the used needle directly into your sharps container without recapping if possible, or use the one-hand scoop cap technique described in Section 4 if you must recap before disposal. Never leave a used, uncapped needle on a surface. Dispose of the full sharps container according to your local regulations - many pharmacies offer sharps take-back programs.

Educational purposes only. Injection technique should be reviewed and demonstrated by a licensed healthcare provider before self-administration.

SECTION 06

Storage Guide

Peptide potency is directly affected by storage conditions. Temperature, light, and freezing (of reconstituted peptides) are the three primary degradation factors. Follow these guidelines precisely.

FORM	LOCATION	TEMPERATURE	DURATION	NOTES
Lyophilized powder (unreconstituted)	Refrigerator	35-46 F / 2-8 C	Up to 24 months	Preferred long-term storage. Keep away from refrigerator fan or freezer compartment where temps may fluctuate or dip below freezing.
Lyophilized powder (unreconstituted)	Freezer	0 F / -18 C or below	Up to 36 months	Extended storage option for multi-year stockpiling. Allow to come fully to room temperature before opening. Minimize freeze-thaw cycles (no more than 1-2 total).
Reconstituted in BAC water	Refrigerator	35-46 F / 2-8 C	4-6 weeks	4-6 weeks is a general guideline for BAC water-reconstituted peptides. Some compounds may differ. Confirm with

FORM	LOCATION	TEMPERATURE	DURATION	NOTES
				your physician and the documentation for your specific compound.
Reconstituted	Freezer	Any	Do Not Freeze	Freezing reconstituted peptide solutions causes ice crystal formation that physically damages the peptide structure. This is an irreversible potency loss. Never freeze a reconstituted vial.



NEVER FREEZE RECONSTITUTED PEPTIDES

Freezing a solution that has been reconstituted with BAC water causes physical degradation of the peptide structure. The loss in potency is irreversible. If a reconstituted vial accidentally freezes, do not use it. Discard and reconstitute a fresh vial if lyophilized powder is available.

Additional Storage Rules



Protect from Light

UV and visible light can accelerate peptide degradation. Keep vials in their original packaging or wrapped in foil when stored. Do not leave vials on a bright countertop or windowsill, even briefly.



Avoid Temperature Fluctuation

Repeated cycling between warm and cold temperatures stresses peptide stability. Store in a consistent-temperature zone of the refrigerator - typically a middle shelf, away from the door (which warms with each opening) and the back wall (which can freeze).



Minimize Air Exposure

Each time you access a reconstituted vial, you introduce a needle through the stopper. The stopper reseals, but repeated access increases cumulative risk. Draw your dose efficiently. Do not leave needles in the stopper between uses.



Discard at First Sign of Degradation

If a reconstituted solution becomes cloudy, develops particulate, or changes color at any point during its storage life, discard it immediately. Do not use a solution that does not pass the clear-and-colorless visual inspection, regardless of how recently it was reconstituted.

Educational purposes only. Storage guidelines represent general best practices. Individual compounds may have specific requirements - consult your healthcare provider and available compound-specific documentation.

SECTION 07

Troubleshooting

The following covers the most commonly encountered situations. When in doubt, contact your healthcare provider rather than proceeding with a suspect vial or preparation.



Powder Is Not Dissolving

Continue gentle swirling for up to 2-3 minutes. Some peptides dissolve more slowly than others, particularly at lower temperatures or with smaller BAC water volumes. If the powder is still not dissolving after extended swirling, gently roll the vial in your palm to warm it slightly. Do not shake or heat. If a significant undissolved mass persists after 5 minutes, check that you used the correct volume of BAC water and that the BAC water itself is not expired or contaminated. As a last resort, a small additional volume of BAC water may help, but recalculate your concentration accordingly.



Cloudy Solution After Reconstitution

Discard the vial. Do not inject a cloudy solution. Cloudiness can indicate contamination, protein aggregation from physical denaturation (e.g., the solution was shaken or heated), incompatibility between the peptide and BAC water, or a compromised starting material. There is no safe way to salvage a cloudy peptide solution. Contact your healthcare provider before proceeding.



Redness at the Injection Site

A small circle of mild redness (erythema) immediately after injection is a normal inflammatory response to the mechanical needle insertion and does not indicate infection or allergy in most cases. It typically resolves within 15-30 minutes. To reduce occurrence: allow the solution to reach room temperature before injecting, rotate injection sites consistently, and ensure the injection site alcohol was fully dry before inserting the needle. If redness is spreading, warm, hardening, or persists for more than a few hours, contact your healthcare provider promptly - these may indicate an infection or more significant reaction.



Pain or Burning at the Injection Site

Mild, brief discomfort during injection is common and normal. To minimize: allow the solution to warm to room temperature for 5-10 minutes before drawing, inject slowly and steadily, and use the smallest gauge needle you can reliably draw through. A 31-gauge needle produces less tissue trauma than a 28-gauge. Persistent or significant pain after injection, especially with warmth or swelling, should be evaluated by your healthcare provider.



Injection Anxiety

Injection anxiety is extremely common and does not indicate weakness or inability. Practical approaches that help many individuals: use the finest gauge needle available (31g), apply a small ice pack to the injection site for 30-60 seconds to briefly numb the area before the alcohol wipe, focus on slow diaphragmatic breathing during the process, and practice the motion with a capped needle before uncapping. The physical sensation of a 31-gauge 1/2 inch needle entering subcutaneous fat is minimal for most people - anticipation is typically more significant than the actual sensation. With practice, the process becomes routine. Discuss any persistent anxiety with your physician, who may be able to offer additional guidance or observe your technique.



Unsure of Dose or Concentration After Labeling

If your vial label is damaged, illegible, or you cannot confidently determine the concentration, do not use the vial. The risk of an incorrect dose, in either direction, outweighs the cost of discarding and reconstituting a new vial. Always maintain a written log of your reconstitutions with the compound name, date, vial size, BAC water volume, and resulting concentration. A small notebook kept in a consistent location serves this purpose reliably without technology dependency.

Small Bubble in Drawn Syringe

A small air bubble in a subcutaneous injection syringe is not dangerous (air emboli from subcutaneous injections are not clinically significant at these volumes). However, a bubble displaces a small amount of the solution you intended to inject, reducing your dose slightly. To remove it: with the needle pointing upward, gently tap the syringe barrel to float the bubble to the top, then push the plunger slightly to expel the bubble. If still in the inverted vial, simply push the plunger forward by the bubble volume and the bubble exits into the vial.

Educational purposes only. Troubleshooting guidance does not replace clinical evaluation. Contact your healthcare provider for any concern you are not confident in resolving independently.

SECTION 08

Quick Reference Card

Print this page and keep it accessible in your workspace. All essential information in one view.

Reconstitution Quick Reference

CONCENTRATION FORMULA

$$\text{mg in vial} \div \text{mL BAC water} = \text{mg/mL concentration}$$

RECONSTITUTION STEPS

- 1 Wash hands 20 seconds minimum
- 2 Prepare and wipe clean flat surface
- 3 Wipe both vial stoppers with separate pads
- 4 Draw BAC water into syringe
- 5 Inject along vial glass wall, not onto powder
- 6 Swirl gently. Never shake.
- 7 Inspect: clear = good, cloudy = discard
- 8 Label vial immediately
- 9 Refrigerate (35-46 F)

STORAGE TEMPERATURES

- F** Powder, refrigerator: 35-46 F, up to 24 months
- F** Powder, freezer: 0 F or below, up to 36 months
- R** Reconstituted, refrigerator: 35-46 F, 4-6 weeks

INJECTION STEPS

- 1 Warm vial 5-10 min at room temp
- 2 Wipe stopper with fresh alcohol pad
- 3 Invert vial, insert syringe
- 4 Overdraw, push back to exact dose
- 5 Wipe injection site, let dry
- 6 Pinch skin, insert at 45-90 degrees
- 7 Inject slowly and steadily
- 8 Remove, press gently, do not rub
- 9 Dispose in sharps container immediately

DISCARD IMMEDIATELY IF...

- Solution is cloudy or turbid
- Visible floating particles in solution
- Unusual color: yellow, brown, or pink tint
- Precipitate does not dissolve with swirling
- Reconstituted vial was accidentally frozen

X Reconstituted, freezer: NEVER

• Vial label is damaged or unreadable

L All forms: protect from light always

• Beyond stated reconstitution date



THIS CARD IS AN EDUCATIONAL REFERENCE ONLY

All peptide use should be conducted under the guidance of a licensed healthcare provider. Options, not directives. Work with your physician to establish the protocols appropriate for your individual circumstances.

THE PIVOTAL PROTOCOL

Educational Purposes Only - Not Medical Advice. This guide is provided for educational and informational purposes only. It does not constitute medical advice, clinical guidance, or a recommendation to use any specific compound or protocol. All decisions regarding peptide use, dosing, reconstitution, and self-administration should be made in consultation with and under the supervision of a licensed healthcare provider. The Pivotal Protocol makes no representations regarding the accuracy, completeness, or fitness for purpose of this material for any individual's specific circumstances. Individual results, tolerances, and appropriate protocols vary. Always work with your physician.