

GHK-Cu

GHK-Cu (glycyl-L-histidyl-L-lysine-copper) or “copper tri-peptide” is a copper-binding human peptide found in plasma, saliva, and urine. It has qualities which allow for the regeneration of aged and injured liver cells, although its regenerative properties are not confined to the liver alone — it promotes tissue healing, injury recovery, and cell regeneration in everything from skin grafts to ligaments, lung connective tissue to boney tissue, the lining of the stomach, and much more. Can replace corticosteroids for the treatment of inflammatory skin conditions.

In addition to this, GHK-Cu is generally regarded as the best overall anti-aging peptide.

Benefits

- Stimulates elastin and collagen production; improves overall hydration of the skin
- Restores skin elasticity and helps reverse the thinning of aged skin; is more effective than most prescription retinols
- Reduces fine lines and wrinkles, photodamage, and hyperpigmentation
- Reduces free radical damage
- Protects skin from UV radiation
- Is a potent anti-inflammatory
- Accelerates hair growth — equal to or better than Minoxidil 5%
- Enlarges hair follicle size, resulting in thicker hair; strengthens follicles
- Is a powerful antioxidant
- Has DNA repairing properties
- Prevents metastasis in colon cancer
- Improves digestive health
- Has been shown to promote nerve fiber regeneration
- Can reverse fibroblasts associated with Chronic Obstructive Pulmonary Disease (COPD), and help relieve other symptoms of the disease
- Stimulates angiogenesis (the formation of new blood vessels)
- Stimulates wound healing; can reverse cortisone-induced inhibition of wound-healing
- Possesses multiple anti-cancer mechanisms

- Increases the production of neurotrophic factors
 - Reduces anxiety and aggression
 - Possesses pain-relieving qualities
 - Decreases the expression of pain genes
 - When certain systems aren't functioning properly, damaged proteins start accumulating; GHK-Cu clears these damaged proteins
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Possible Side Effects

Topical: No side effects noted.

Subcutaneous Administration: Injection site reaction (redness, swelling, itching, bruising, histamine flare-up (resembles hives, with a knot or bump under the skin for up to several days following each injection)); no others reported

Signs of Copper Toxicity

Headache, fever, passing out, nausea, vomiting, bloody vomit, diarrhea, black stool, abdominal cramps, brown ring-shaped markings in the eyes, and jaundice. May be accompanied by anxiety, irritability, inability to focus, depression, and moodiness. In the most serious cases, copper toxicity can result in kidney conditions, liver damage or failure, heart failure, and brain damage.

GHK-Cu: 100MG — Reconstitution and Dosing (Injectable)

4-6-week cycle followed by a 4-6-week washout period

Subcutaneous Administration

Start at the lowest dose and increase gradually as needed to continue sustaining benefits

It might not seem like a lot but a little goes a long way

Mix with 2.5mL (250 units) of BAC water

3 – 6 units (1-2mg), 1x/day, 7 days/week. Start at lowest dose and gradually increase as needed to sustain benefits.

Note: For some users, GHK-Cu (a copper peptide) is painful to inject and/or may cause a reaction at the injection site. This is not universal for all people- where many have a painful injection experience and a high incidence of injection site reactions (ISR's), others have neither and get to reap the benefits without so much as minor discomfort. If

you experience pain or an aggressive ISR, you can safely assume that you will not react well to copper peptides in any form. The injection pain might range from a small pinch to the sting of a bullet ant. Injection site reactions (ISRs) may include redness, swelling, bruising, pain, development of a knot beneath the skin which may last for several days.

Wondering why some people are unaffected by the pain and reactivity that other users have to deal with? Here's why some people are more sensitive to copper ions:

- They have low baseline ceruloplasmin (the copper-binding protein that regulates free copper)
- Their skin barrier or microcirculation is already inflamed
- They have trace metal imbalances (e.g., low zinc or high iron)

When injected, free copper can temporarily separate from GHK, generating mild oxidative activity and histamine release in that area — leading to redness, itching, or mild swelling.

There are a couple things you can do to prevent these reactions altogether, or at least minimize their severity. First, always rotate your injection site: you should never use the same spot twice in a row. Reference the “Subcutaneous Injection Site Locations” illustration in the Prep and Dosing Guide to learn about additional injection zones. Second, once your daily dose has been drawn into your syringe, add 30-90 units of water to the shot. Diluting the GHK-Cu will reduce the localized inflammation response. Third, consider using the GLOW or KLOW blend rather than GHK-Cu alone. When GHK-Cu and BPC-157 are combined, the pain associated with the injections is

For those who find that they cannot tolerate GHK-Cu injections, all is not lost! You don't have to throw away the remainder of the vial and waste your money... just add it to a half-ounce to an ounce of a thick, moisturizing cream or ointment. Due to the 3mL of water you reconstituted the vial with, the final product will be very watery. It is best to apply this thin, watery solution underneath a secondary moisturizer that will aid absorption. See Topical Dosing for a list of compatible/synergistic ingredients in skincare products.

TOPICAL ADMINISTRATION

Note: The easiest way to prepare lyophilized GHK-Cu for use as a topical formulation is to first cut the aluminum that secures the rubber stopper to the neck of the vial, then carefully removing it and the rubber stopper from the vial. You will want something on hand that you can use to stir the powder at the bottom of the vial as you add water- you can remove the plunger from a dosing syringe to do this. Gradually add water until you have a thick sludge. Don't overthink this! This is not an exact science. Is it sludge-ish? Then call it good, and transfer the GHK-Cu from the vial into a container with your skincare base product. (You can add the lyophilized powder directly into the ounce of

base product, but it seems to work better when you add water to the sludge first). While you may mix the lyophilized GHK-Cu powder directly into one ounce of base/emollient product, we do not recommend doing so. Instead, add .5mL (or 50 units) of BAC water to the GHK-Cu vial. If the GHK-Cu remains mostly powder after the first .5mL/50 units, add another .5mL/50 units *gradually*. Mix continuously until a smooth, chunk-free sludge exists.

Compatible/Synergistic Ingredients Include:

Hyaluronic acid, Vitamin E, Niacinamide, Argireline, Vitamin B, Ceramides, Collagen, Elastin, Matrixyl 3000, Leuphasyl, Aloe Vera, Ferulic Acid, Squalane, Glycerin, Coenzyme Q10, Bakuchiol

Avoid:

Retinoids, alpha hydroxy acids (AHAs), beta hydroxy acids (BHAs), Glycolic acid, Salicylic acid, Vitamin C (L-ascorbic acid)

Stacking Suggestions

To increase results and cover wider regenerative or anti-aging goals:

- **Thymosin Beta-4 / TB-500** – For powerful wound repair and tissue regeneration
- **Epithalon** – Anti-aging, telomere repair, and DNA protection
- **Snap-8 or Argireline** – For enhanced wrinkle reduction and topical synergy
- **Glutathione** – For antioxidant replenishment and skin brightening
- **CJC-1295 + Ipamorelin** – For collagen boost, GH elevation, and systemic anti-aging synergy
- **BPC-157** – For gut healing and inflammatory suppression

PEPTIDE STORAGE

Peptides are quite fragile, and require specific, stable storage conditions to retain their potency and maximize their shelf life. Whenever you purchase multiple vials of a peptide, you will only reconstitute the vial that you will be dosing from. The rest will be kept in either your refrigerator or freezer, depending on the period of time they will be stored prior to use.

Factors Influencing Peptide Stability

Temperature fluctuations: higher temperatures accelerate peptide degradation

Multiple freeze/thaw cycles: this is one of the fastest way to diminish the efficacy of your peptides

Humidity: moisture can cause degradation and crystal formation. Even in their lyophilized state, peptides can absorb moisture from the air, inside of the vial.

Light exposure

Mechanical shock (when lyophilized vials are dropped or otherwise impact a hard surface with a decent amount of force): this can reduce efficacy and cause aggregation, particle formation, and cavitation (the formation and collapse of bubbles within a liquid)

Regardless of whether your peptide is reconstituted or lyophilized, and no matter if they will be stored in the refrigerator or freezer, you need an appropriate container to hold them.

1. Get an opaque container which can be sealed tightly. If you do not have an opaque container, wrap your peptides in foil to prevent their exposure to light.
2. Consider purchasing desiccant packets- these are larger versions of the silica gel packets found in new shoes. Amazon has a 60-count package of 5 gram silica gel packets for \$5.99.

https://www.amazon.com/Wisesorb-Desiccant-Indicating-Silica-Packets/dp/B0C52NGYY3/ref=sr_1_15?crd=2GGO70LA4BX7L&dib=eyJ2ljojMSJ9.zGx00hUCqKL9Akj6id6oxTwrnIGRxO8T8Vm8afP9DSFbojHaOrvCot5F0Hurz5hHzDacBbPW0ILWh-p2Zv2V4FcOoib3sqEFAFEH-8oizJyNYdD1XpJYh7I9uNxaSY_Ai_LXSs_Z8yk9Hc6DcAf9FOX0bOXYQB-w2THXmGgyETyPxKmDrk9kyGjKqIqVI6zobGA_9rlyokvWPw6wl7Lgd7kPmmBqTaDahTVX33UCkWc.0n4L5XRD0ILVZnOPjn5o_eo1BxCc-tE2tBqT2ro0F4s&dib_tag=se&keywords=desiccant%2Bpacks&qid=1745676807&suffix=desicc%2Caps%2C1830&sr=8-15&th=1

Place a couple silica packets into your storage container with your peptides in order to minimize their exposure to moisture. This may seem like overkill, but considering the detrimental effect that moisture has on the efficacy of your peptides, this simple extra step is worth the negligible cost.

3. Tightly fasten the lid onto your container. Keep them in either the refrigerator or freezer according to the length of time they will be stored.

Refrigeration of Reconstituted Peptides

For storage of reconstituted peptides for up to 60 days.

Place peptide vials into appropriate light-proof, airtight container as specified above.

Do not store your vials in the door of the refrigerator, since this will subject the peptide to unnecessary agitation and damage.

If your dosing vial is going to last you for longer than 1-2 months and you are aliquoting reconstituted peptides for long-term freezer storage, use a buffer solution with a pH between 5-6 instead of bacteriostatic water. Aliquoting is transferring some of your reconstituted peptide into a sterile container, then storing it in the freezer. It is absolutely vital that you only freeze this solution one time, as multiple freeze/thaw cycles are particularly damaging to peptides. You may purchase the buffered solution on Amazon.

Peptides stored in the refrigerator may be used for 60-90 days following reconstitution for most peptides (30- 45 days for NAD+ and AOD- 9604).

Lyophilized Powder Storage: Refrigerator

Exposure to bright artificial light or sunlight can degrade the quality of peptides.

Lyophilized peptides are stable when stored at room temperature for 30-60 days. We recommend storing them in a cool, dark, dry cupboard when they may not be refrigerated or frozen.

Lyophilized peptides which will be used within 1 year may be stored in the refrigerator. It is important to store them in a container that will block moisture and light.

If you need to store peptides for longer than one year, they should be stored in the freezer. It is important to use a container which will prevent exposure to light and additional moisture. When frozen, peptides may be stored for 2-3 years. It is vitally important that your peptides not be subjected to multiple freeze/thaw cycles, as this causes them to undergo rapid degradation.

If you plan to use peptides long-term, consider purchasing a peptide vial storage container. They are available with and without temperature controls. The temperature-controlled options are excellent for traveling and for those who wish to be discreet about their use of peptides. Etsy has an extensive selection of reasonably priced options, as does Amazon.

**Do not store Lipo-C in the refrigerator, as doing so will cause the solution to gel. It should be stored between 68-77°, away from light.*

WHAT SUPPLIES WILL I NEED?

Alcohol prep pads.

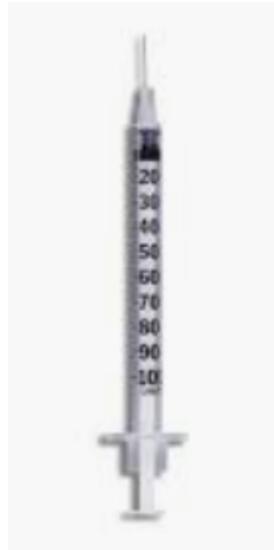
Bacteriostatic water. Depending on the peptide's properties and intended use, other solvents like saline solutions, specific buffers, or acetic acid may be required to prepare the peptide properly (e.g. the acetic acid solvent which accompanies AOD-9604). We provide the necessary solutions for all peptides in our inventory.

Clean insulin syringes. It is advisable to familiarize yourself with the dosing for the peptide you will be using, and purchase the most appropriately sized syringe with which to draw and administer your doses accurately. If your dosing involves single digit units (e.g. 2 units, 3 units, 6 units, and so on) the use of .3mL (.3cc, or 30 unit) syringes is advisable. Accurately measuring out such small doses is nearly impossible on a 1mL or .5mL syringe. Two online vendors who supply syringes without a prescription are Amazon <http://www.amazon.com> and ADW Diabetes <http://www.adwdiabetes.com> .

Optional: 22 or 23 gauge, 3mL syringe for reconstitution.

Optional: Light-blocking, moisture-preventing peptide storage container. Non-climate controlled options are ideal for use in refrigerators and freezers. Climate controlled options are ideal for traveling or discretion.

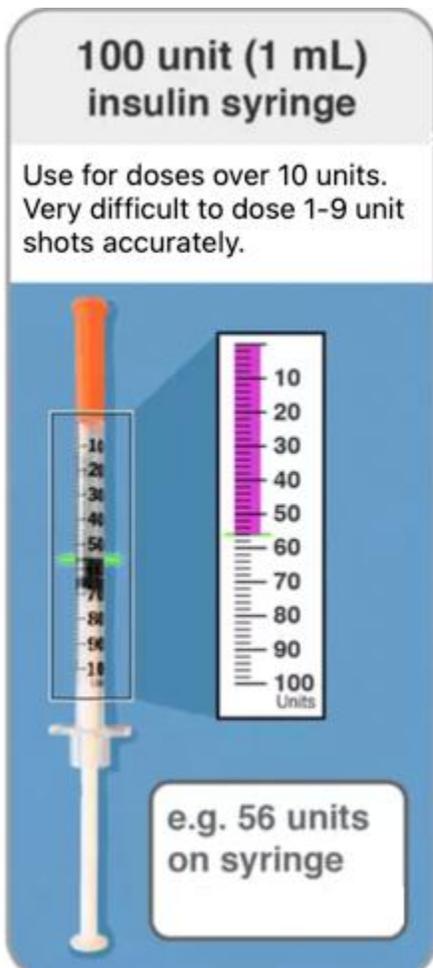
SYRINGES



Tip: The needle.

Barrel: The Cylindrical part of the syringe that the numbers are printed on.

Plunger: The moveable part inside of the barrel.



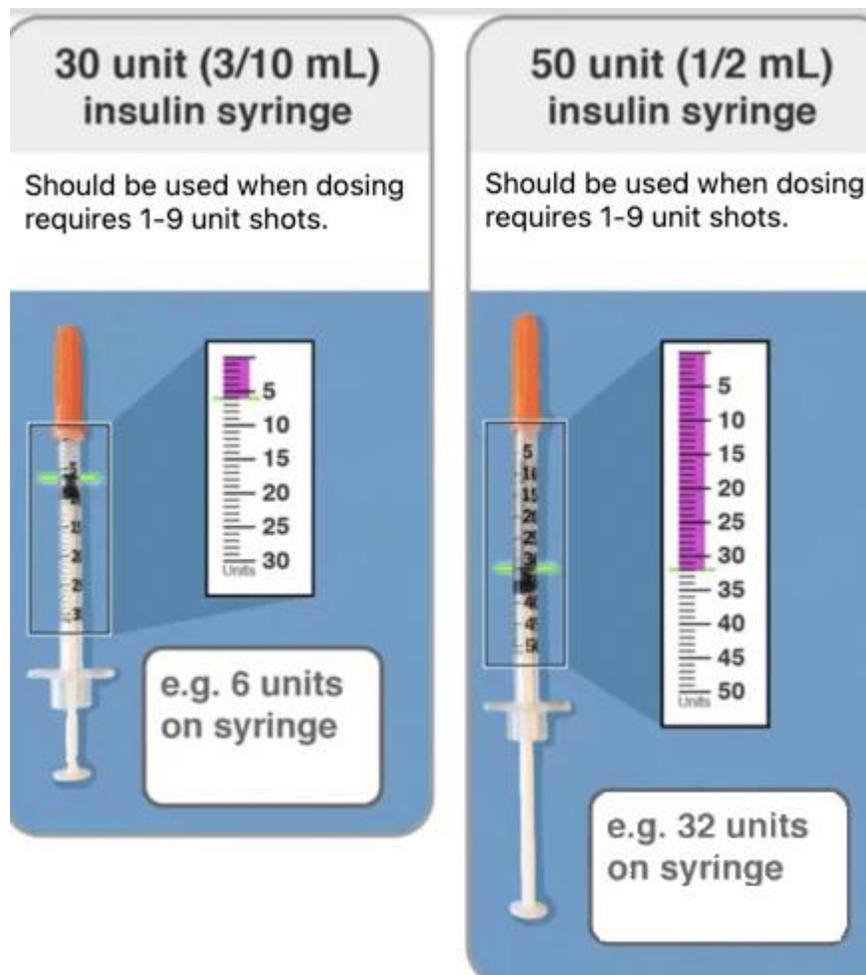
1mL / 1cc / 100-unit Syringe

Used for doses over 10 units.

The numbers reflect 10 unit graduations (e.g., 10 units, 20 units, etc.).

Each line ("tick mark") between the numbers represents **TWO (2) units**.

Impossible to draw single unit doses accurately.



Left: 0.3mL / 0.3cc / 30-unit Syringe

Should be used for any peptide which calls for single-unit doses (e.g., 2 units, 5 units, 7 units, etc.).

The numbers on the barrel reflect 10 unit graduations.

Each line (“tick mark”) between the numbers stands for **ONE (1) unit**.

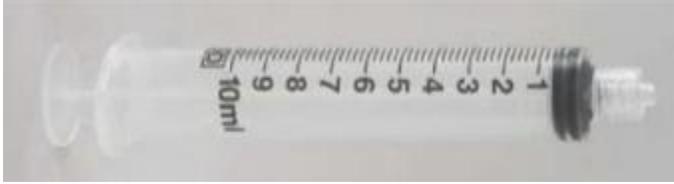
30 units on a 3/10mL, 0.5mL, or 1mL syringe are exactly the same—they just look different because the barrel sizes differ.

You will not need to adapt your dosing instructions based on the size of needle you are using.

Right: 0.5mL / 0.5cc / 50-unit Syringe

Also suitable for single-unit dosing, especially for peptides with doses under 10 units.

The numbers reflect 10 unit graduations, each line stands for **ONE (1) unit**.



10mL Luer Lock Syringe

For Lemon Bottle administration or large volume use.

Does not come with a needle—these must be purchased separately.

Allows use of a larger tip to draw the solution, and a smaller needle to administer the medication.

Dosing needles are perfectly capable of both drawing and administering the dose.



Luer Lock Needle Hub

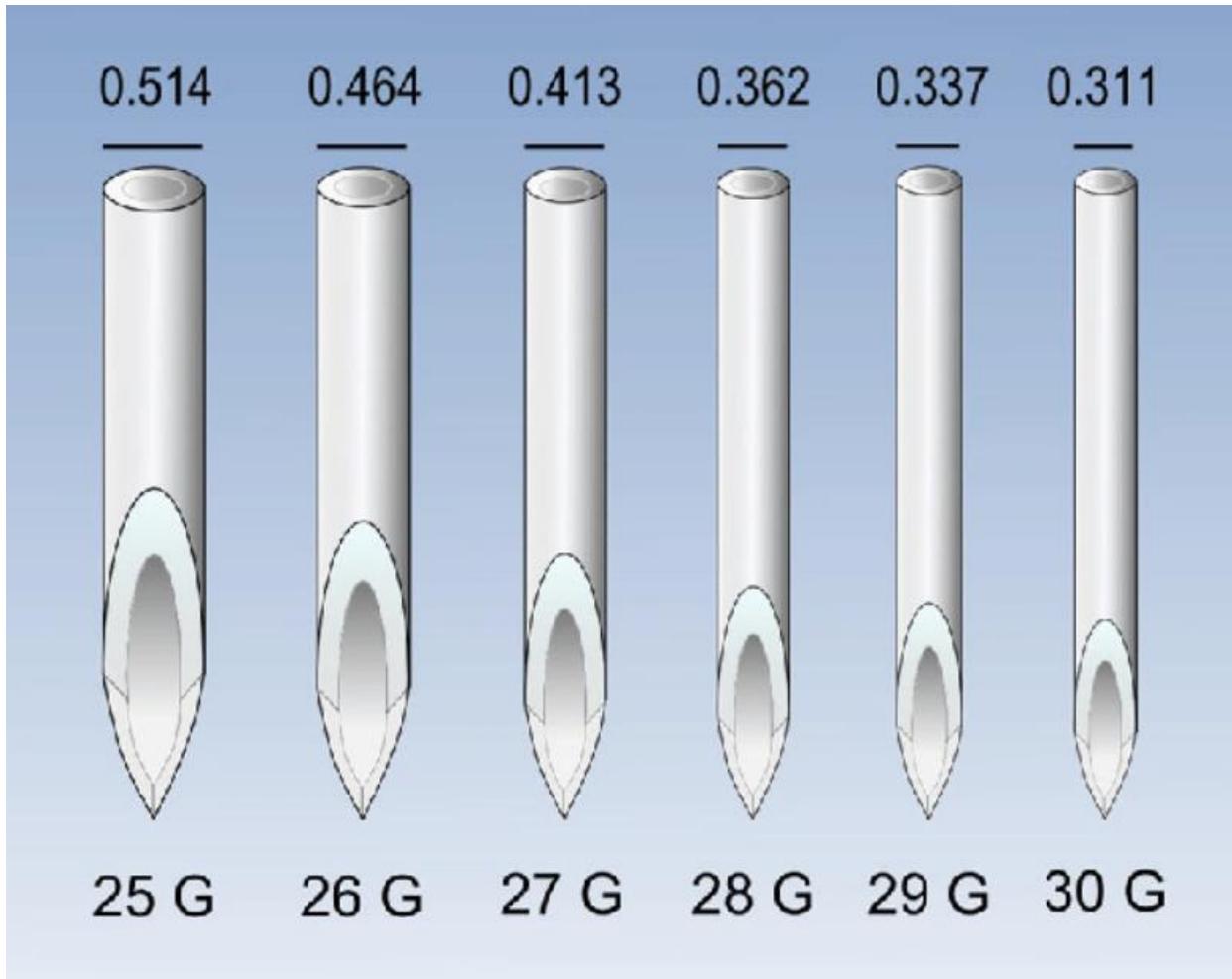
Twists on to Luer Lock barrel. Often sold separately from the Luer Lock barrel. Available in a number of different gauges and lengths to accommodate specific applications.

3mL Reconstitution Syringe



Numbered lines refer to .5mL, 1mL, 1.5mL, 2mL, 2.5mL, and 3mL.

Short lines measure 0.1mL (0.1, 0.2, 0.3, 0.4, etc.).
Used for accurate reconstitution of peptides.

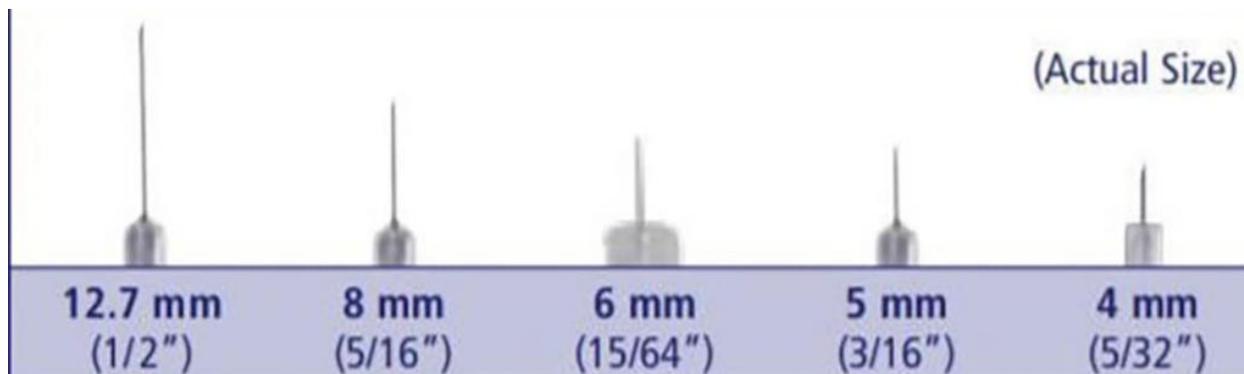


Needle Gauge

Needle gauge refers to the thickness or diameter of the needle (higher number = thinner needle).

Most dosing syringes are between **29–31 gauge**.

Reconstitution syringes are typically **27 gauge**.



Standard Syringe Lengths for Subcutaneous Injection

For subcutaneous injections, **5/16" (8mm)** and **1/2" (12mm)** tips are commonly used. 1/2" is the largest length recommended for subcutaneous use.

HOW TO ORDER DOSING SYRINGES

1. Review your dosing instructions. Determine whether you need 30, 50, or 100 unit syringes (or both).

If the dosing instructions require single-unit doses, e.g. 2-units, 5-units, 9-units, and so on, you will need either 3/10mL or .5mL syringes in order to accurately measure your dose. If you do not have to draw doses under 10-units, 1mL/1cc/100-unit syringes may be used.

2. Interpreting syringe labeling/ordering syringes: There are three relevant components you will need to interpret and/or relate syringe measurements to order to correctly purchase syringes. Below is a pack of syringes. At the top right corner of the bag, you will find a label stating "29 gauge, 1cc, 1/2" (12mm)."

29 gauge: Dosing syringes fall within the 29-31 gauge range. This is an acceptable size for dosing.

1cc: 1cc is the same as 1mL, or 100 units. This is an appropriately sized syringe for most peptide dosing.

1/2" (12mm): Refers to the length of the needle tip. 1/2" is the largest length that you will want to use for subcutaneous dosing, and is the tip length of choice for intramuscular dosing.

3. Recommended dosing syringes.

For single-unit dosing: 30 or 31 gauge, 3/10mL/.3cc/30-unit syringes with 5/16" (8mm) tip.

For doses over 10 units: 29-31 gauge, 1mL/1cc/100-unit syringes with 5/6" (8mm) tips *OR* 29-31 gauge, 1mL/1cc/100-unit syringes with 1/2" tips if you have peptides requiring a mix of subcutaneous and intramuscular dosing.

RECONSTITUTION

Remove the plastic cap from the top of the peptide vial and from the bacteriostatic (BAC) water (if necessary).

Clean the surface of both vials with an alcohol prep pad.

Select a needle for the reconstitution process. The best option for this is a 22 or 23 gauge, 3mL syringe- however, a 1mL insulin syringe may be used. When using an insulin syringe, it is easier to use the 28 or 29 gauge, 1/2" tip variety, as the shorter, finer gauge ones may bend when passing through the rubber of the vials.

Insert the reconstitution syringe through the center ring of the BAC water. Turn vial upside down and draw out the indicated amount of water required to mix the peptide.

Insert the water-filled syringe through the center ring of the peptide vial. Press the plunger of the syringe down slowly, gently injecting the water into the vial.

Remove the syringe from the vial of peptide, then cap and dispose of it.

Roll the vial gently between the palms of your hands to mix the contents. Once the contents appear to be fully dissolved, allow the vial to sit for another 15-30 minutes to complete the dissolution process.

The peptide is now ready to be used. Follow storage guidelines. Whenever you remove the peptide from the refrigerator to draw a dose, roll the vial gently between your palms again to ensure that the contents are evenly mixed.

INJECTION GUIDELINES

Subcutaneous

Clean the surface area of the peptide vial with an alcohol prep pad.

Remove the cap from the plunger and needle.

Insert the syringe into the center ring on the top of the peptide vial, turn the bottle upside down, and draw back the amount indicated by your dosing instructions. If the peptide is not flowing into the syringe, or is flowing very slowly, remove the needle from the vial, and pull the plunger back to fill the syringe with air. Reinsert the needle into the peptide vial and depress the plunger. Pushing air into the plunger will allow the fluid to fill your syringe much faster.

Recap the syringe and set the needle down on your preparation surface. If you sanitize your preparation area prior to use, you may leave the needle uncapped.

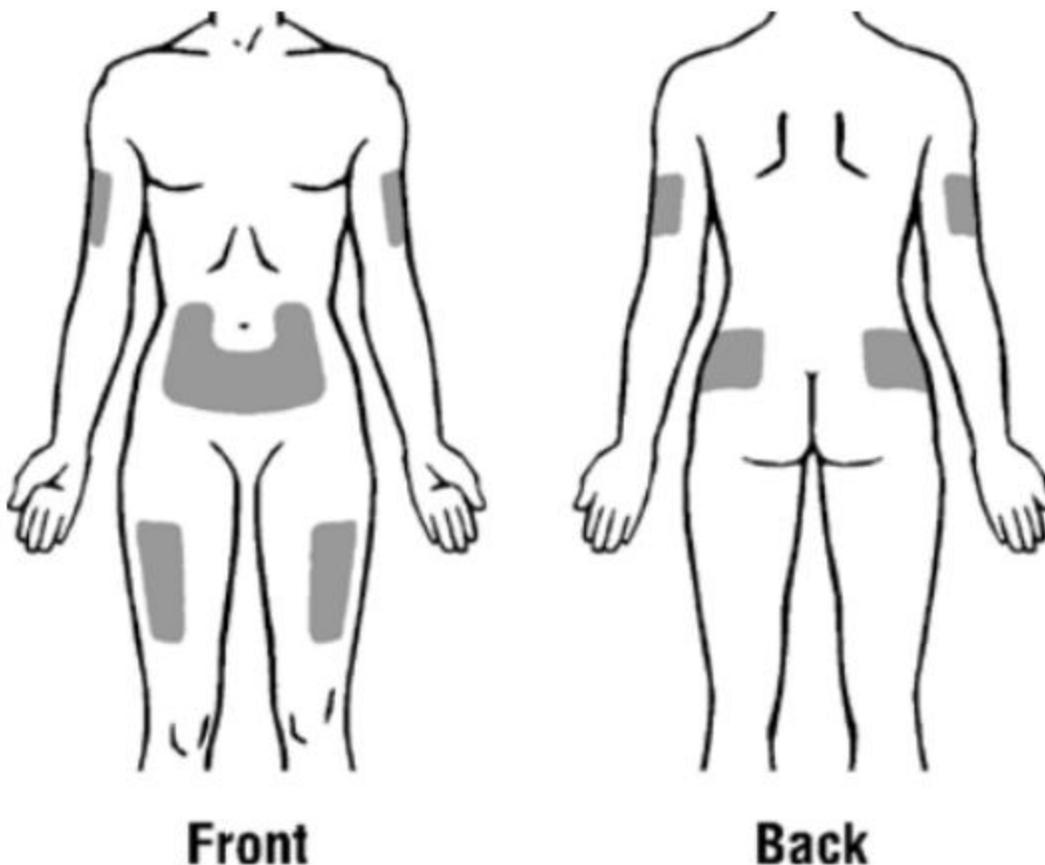
Clean the surface area of the skin where you want to inject the peptides. When the site allows you to do so, gently pinch the fat at the injection site and lift it away from the body. With the other hand, quickly plunge the syringe into the skin until the needle is fully inserted.

Depress the plunger until all of the syringe contents have been injected, wait for a few seconds, and remove, cap, and dispose of the syringe.

We recommend that after you put your shirt back into place, that you rub the injection site (with your shirt as a barrier to the bacteria on your hands) for one minute, to aid the absorption of the peptide.

Remember to return your peptide to the refrigerator!

Best Locations for Subcutaneous Injections



Intramuscular

Clean the top part of the bottle where you will draw your shot from.

Remove caps from the needle and plunger.

Insert the syringe tip into the center ring of the rubber cap, turn the bottle upside down, and draw the dose indicated by your dosing instructions.

Remove syringe from the peptide bottle. If your prep surface has not been sanitized, cap the needle before setting the syringe down. If you did sanitize it you may set the needle down without a cap.

Clean the surface area of the skin where you will inject the peptide.

Quickly push the syringe through your skin and into the muscle.

Depress the plunger until all of the syringe contents have been injected, then wait a few seconds before removing the syringe.

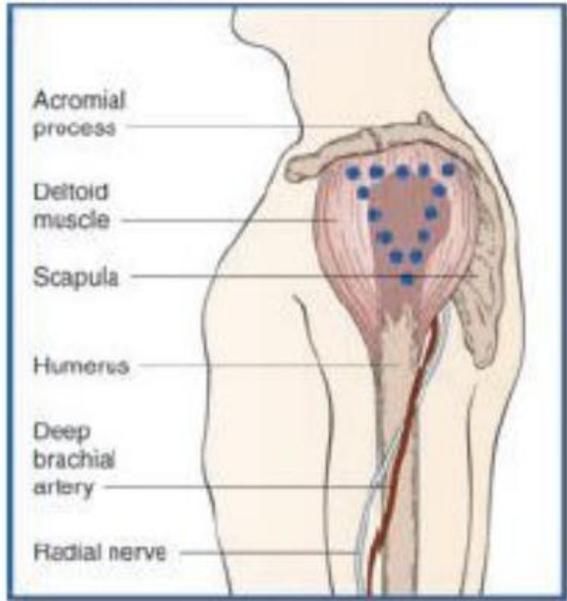
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Remember to return your peptide to the refrigerator!

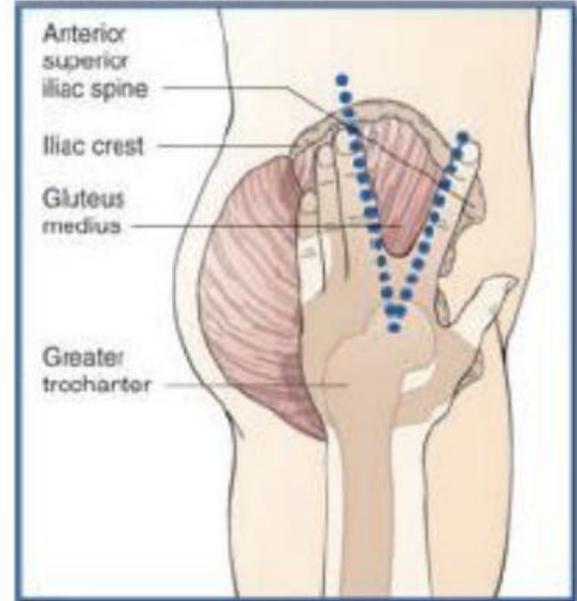
Best Locations for Intramuscular Injection

Intramuscular (IM) Injection Sites

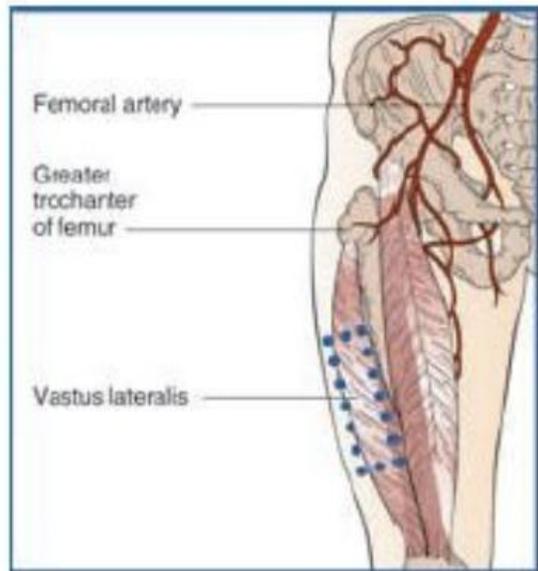
Deltoid Site



Ventrogluteal Site



Vastus Lateralis Site



Dorsogluteal Site

