GLUTATHIONE

A naturally occurring substance within the body that is made from three amino acids: cysteine, glutamate, and glycine. Glutathione plays a role in many chemical reactions in the body, combats free radicals (molecules that can damage cells), detoxifies chemicals and pollutants, and is a natural antioxidant. Glutathione levels in the body may be reduced by a number of factors, including aging, poor nutrition, environmental toxins, and stress; this drop is correlated with poorer health and the development of many disorders. Levels also fall if you have certain conditions, including cancer, HIV/AIDS, Type-2 Diabetes, Hepatitis, and Parkinson's disease.

BENEFITS

- Antioxidant properties
- Detoxification properties
- Reduces oxidative stress that can contribute to symptoms in many different chronic conditions, including autoimmune disease
- Helps mitigate the harmful effects of radiation and chemotherapy
- Combats male infertility
- Enhances immune function
- Reduces inflammation
- Better skin health – fewer wrinkles, better elasticity, reduced photoaging
- Purges heavy metals from the system
- Improves cartilage health
- Can boost athletic performance and exercise output; pre-exercise glutathione administration improves lipid (fat) metabolism and acidification in skeletal muscles, resulting in less muscle fatigue
- Flushes toxins from the liver
- Promotes brain health – helps prevent or manage Parkinson's and reduces neuronal damage following stroke
- Promotes long-term eye health, particularly of the retina, lens, and cornea. Supports the Muller cells, which regulate retinal function and protect the eye against pathogens. Decreases oxidative stress in the eye and delays age-related changes, including loss of visual acuity and the incidence of cataracts

- When combined with L-citrulline, glutathione maximizes the production of nitric oxide, which dilates the blood vessels to improve blood flow and oxygen delivery to muscles and tissue
- Protects the liver from damage. One study of people with non-alcoholic fatty liver disease had improved liver enzymes after four months of consistent dosing
- May help with weight loss

SYMPTOMS OF LOW GLUTATHIONE

- Fatigue
- Brain fog/confusion
- Bad skin
- Deteriorating vision
- Sleep problems
- Frequent infections
- Anemia (low red blood cell count)
- Loss of coordination
- Seizures

POSSIBLE SIDE EFFECTS

- Gas
- Diarrhea
- Flushing/warming of the skin
- Weight gain

WHAT TO AVOID WHILE TAKING GLUTATHIONE

- **Alcohol** – Creates oxidative stress, which uses up antioxidants. Places a burden on the system and depletes Glutathione levels
- **Tobacco** – Depletes Glutathione levels and compounds the adverse effects of smoking

- **Aspartame** – Changes the transculturation pathway in the liver in which Glutathione is involved. Inhibits detoxification, depletes Glutathione levels, and increases inflammation

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Consult a Physician Before Use If You Take:

- NSAIDs
- Immunosuppressants
- Chemotherapy drugs
- Oral contraceptives

GLUTATHIONE: 1500MG: RECONSTITUTION AND DOSING PROTOCOLS

Mix Glutathione: 1500 mg with 7mL (700 units) of BAC water

4-week cycle followed by 4-week washout period

Intramuscular Administration

DOSING PROTOCOL

- 46 units = 100mg
- 100mg, once per day, six days per week
- Maximum cycle: 4 weeks, followed by a 4-week washout period

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STACKING SUGGESTIONS

To enhance results and synergistic benefits, Glutathione is commonly stacked with:

- **NAD+** – For advanced cellular repair, mitochondrial function, and anti-aging
- **GHK-Cu** – Boosts antioxidant defense, skin regeneration, and tissue healing
- **Vitamin C (liposomal or IV)** – Enhances glutathione recycling and bioavailability
- **AOD-9604** – For weight loss and improved fat metabolism
- **Citrulline or Arginine** – Improves nitric oxide production and blood flow
- **CoQ10 or PQQ** – Supports mitochondrial energy and cognitive health
- **BPC-157** – For gut healing, inflammation control, and systemic recovery

- **Melanotan II or PT-141** – Combined for enhanced skin tone and libido/vascular effects
- **TB-500** – For deep tissue regeneration and systemic healing when combined with GSH's anti-inflammatory support

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?crid=2GGO70LA4BX7L&dib=eyJ2IjoiMSJ9.zGx00hUCqKL9Akj6id6oxTwrnIGRxO8T8Vm8afP9DSFbojHaOrvCot5F0Hurz5hHzDacBbPW0lLWh-p2Zv2V4FcOojb3sqEFAFEH-8oizJyNYdD1XpJYh7I9uNxaSY_Ai_LXSs_Z8yk9Hc6DcAf9FOX0bOXYQB-w2THXmGgyETyPxKmDrk9kyGjKqIgVl6zobGA_9rIyokvWPw6wI7Lgd7kPmmBqTaDahTVX33UCkWc.0n4L5XRD0ILVZnOPjn5o_eo1BxCc-tE2tBqT2ro0F4s&dib_tag=se&keywords=desiccant%2Bpacks&qid=1745676807&sprefix=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: Refriger*ator**

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.

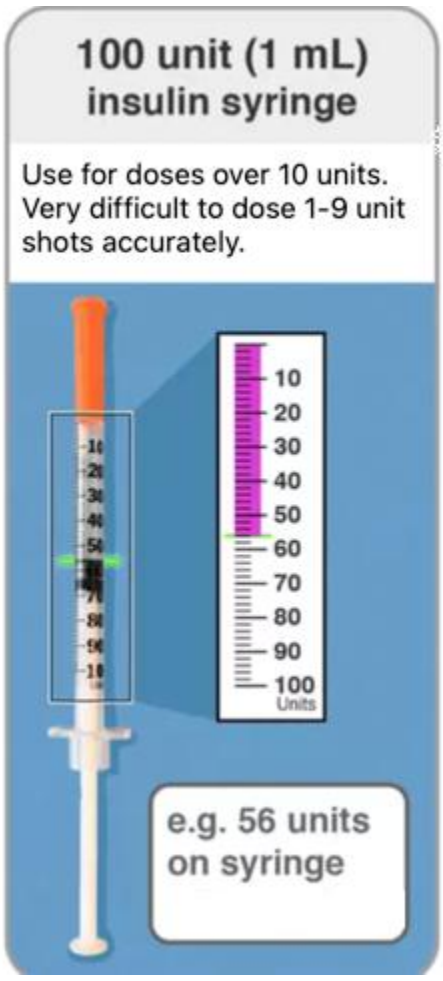
Optional: Light-blocking, moisture-preventing peptide storage container. Non-climate controlled options are ideal for use in refrigerators and freezers. Climate controlled options are ideal for traveling or discretion.

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.



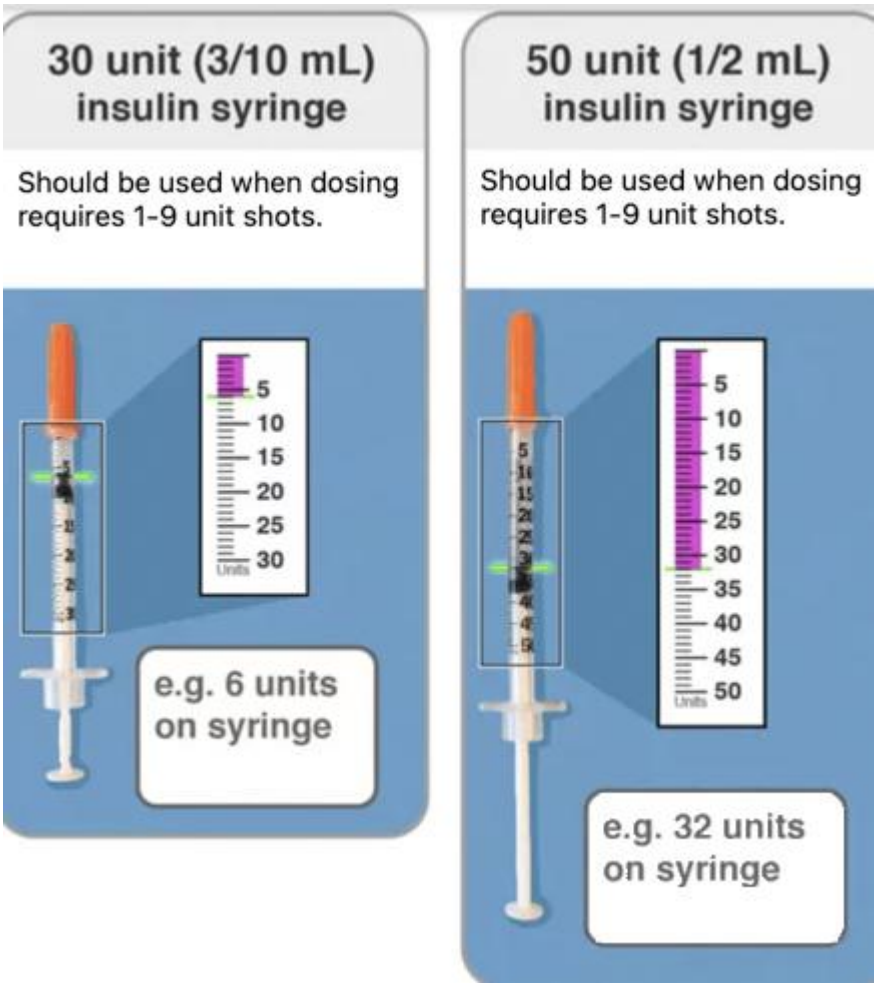
1mL / 1cc / 100-unit Syringe

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.

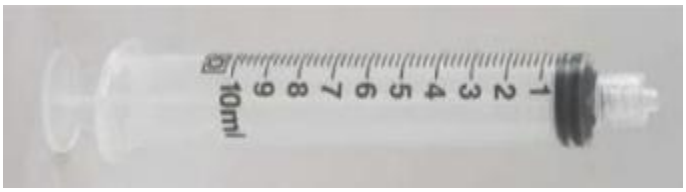


Left: 0.3mL / 0.3cc / 30-unit Syringe

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.

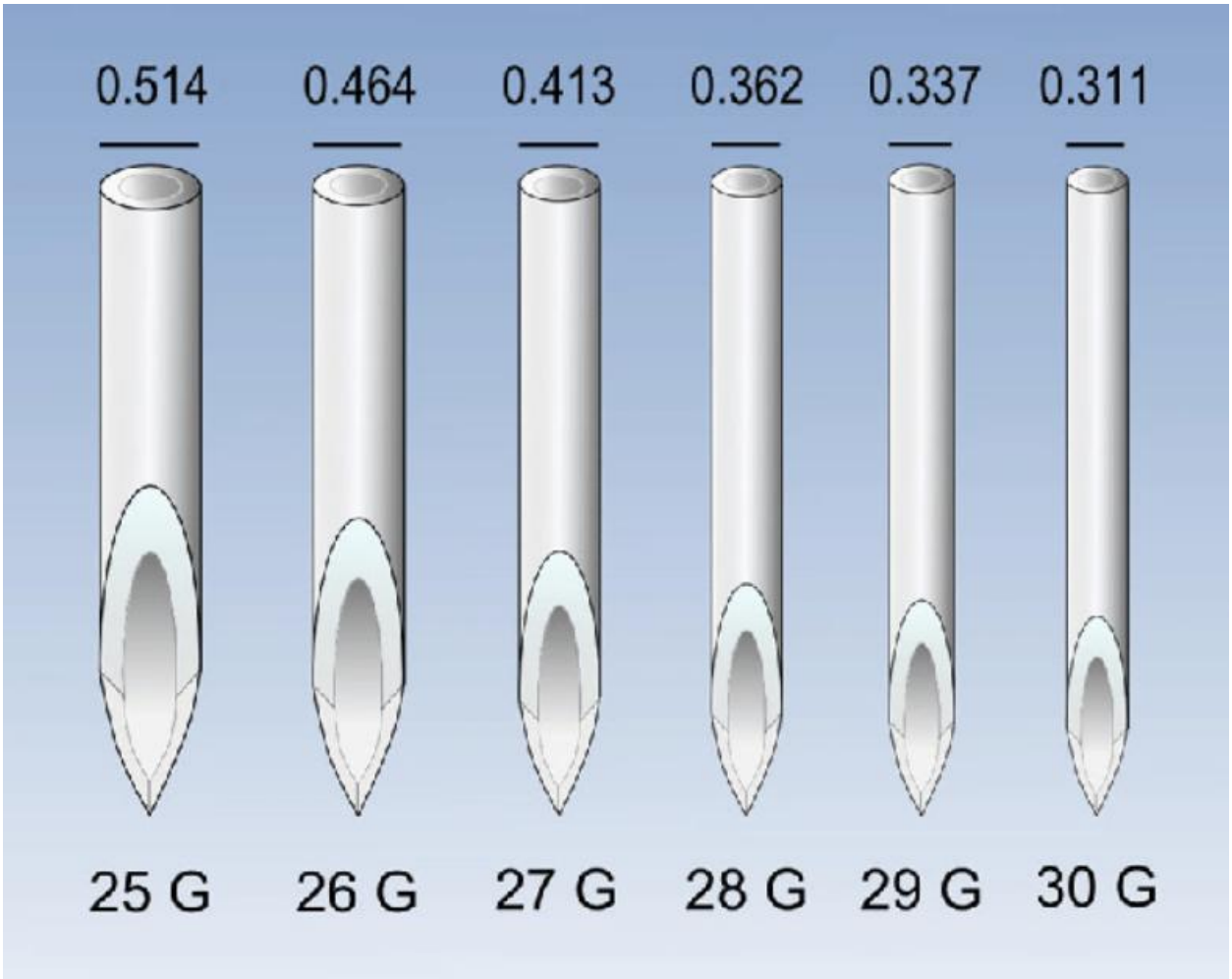
Luer Lock Needle Hub

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

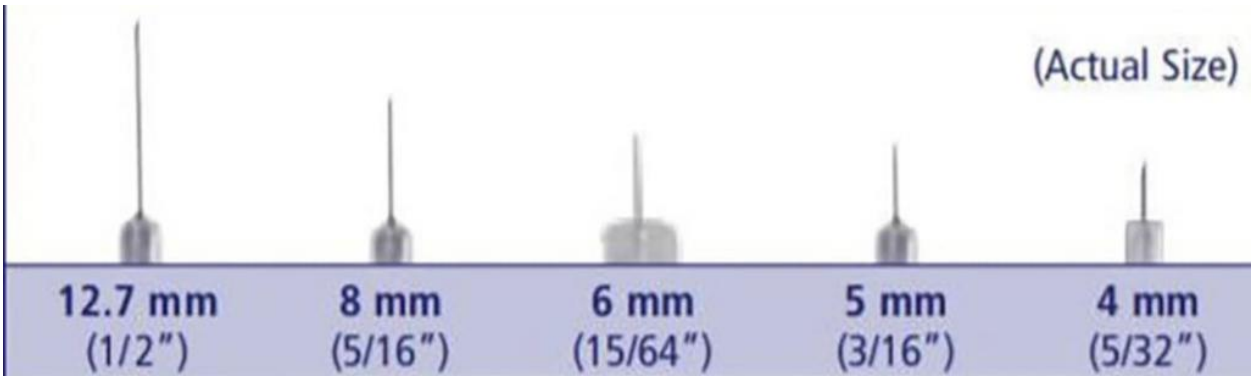
Numbered lines refer to .5mL, 1mL, 1.5mL, 2mL, 2.5mL, and 3mL.

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 **½" (12mm)** tips are commonly used. ½" 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 oill need 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, ½" (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.

½" (12mm): Refers to the length of the needle tip. ½" 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 ½” 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 of 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, ½” 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.

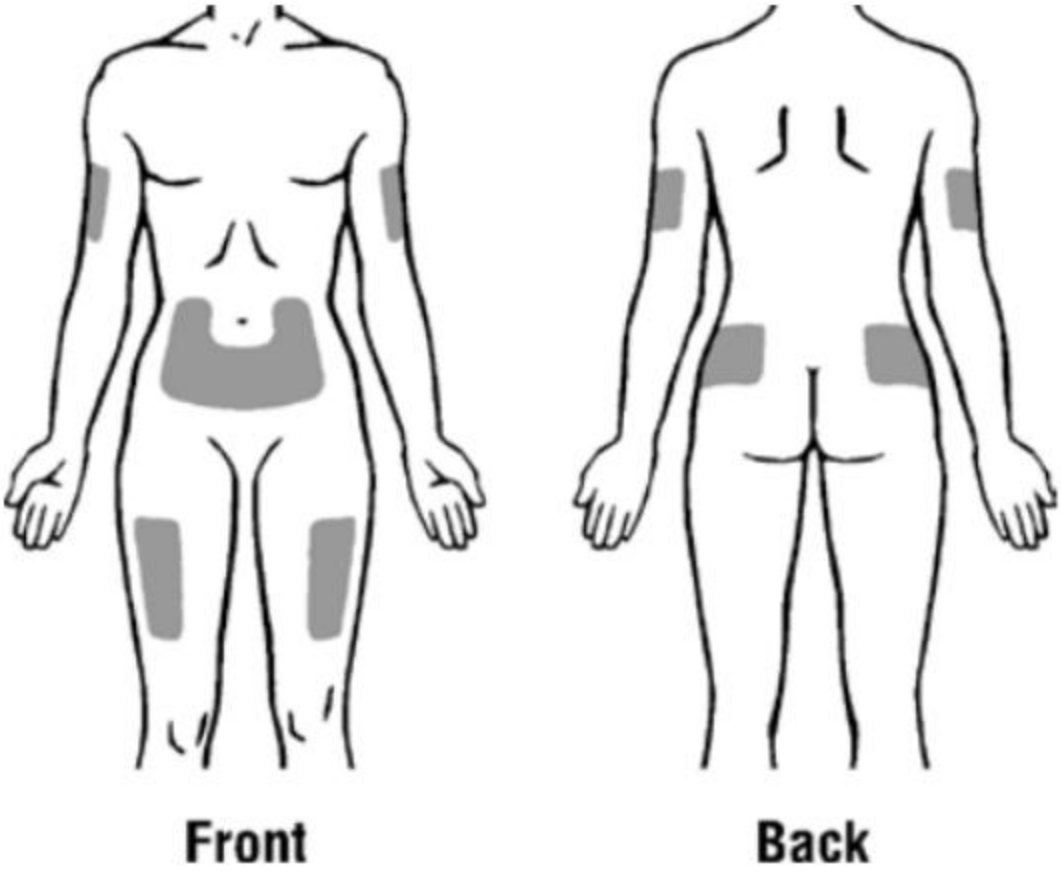
Clean the surface area of the skin were you want to inject the peptides. When the site allows you to do so, gently pinch the fat at the injection site and lift it away from the body. With the other hand, quickly plunge the syringe into the skin until the needle is fully inserted.

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.

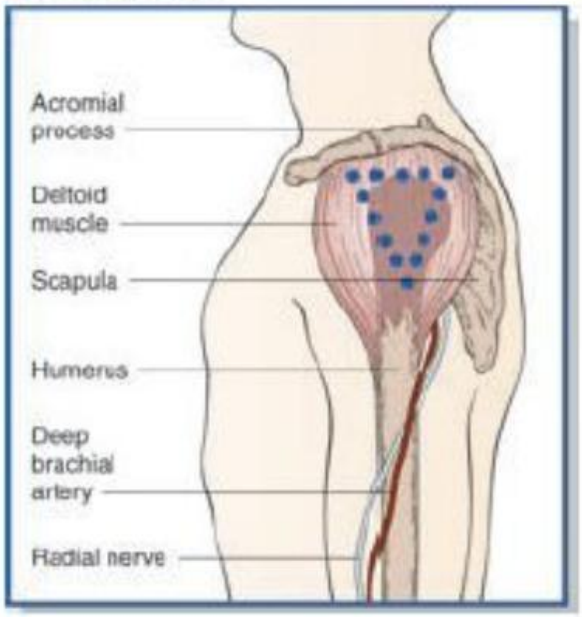
We recommend that after you put your shirt back into place, that you rub the injection site (with your shirt as a barrier to the bacteria on your hands) for one minute, to aid the absorption of the peptide.

Remember to return your peptide to the refrigerator!

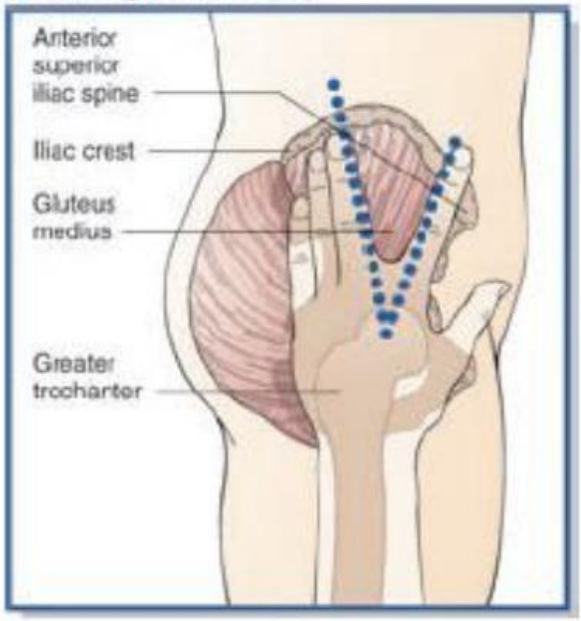
Best Locations for Intramuscular Injection

Intramuscular (IM) Injection Sites

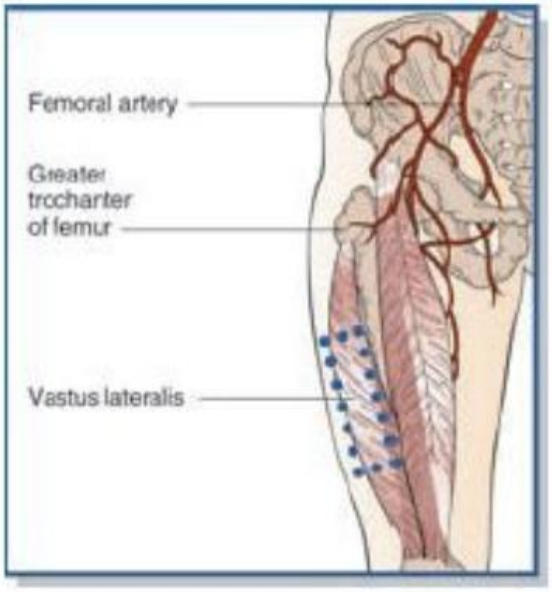
Deltoid Site



Ventrogluteal Site



Vastus Lateralis Site



Dorsogluteal Site