

Tirzepatide Patient Information

Introduction

Managing weight is a crucial aspect of overall health. Being overweight or obese is not just about appearance; it's a medical condition that significantly increases the risk of chronic diseases. This information sheet provides an overview of three medications—Tirzepatide, Semaglutide, and Retatrutide—designed to aid in weight loss and improve related health conditions.

Health Risks of Overweight and Obesity

Understanding the health risks associated with excess weight underscores the importance of weight management.

Cardiovascular Diseases

- Individuals with obesity have a **32% higher risk** of developing coronary artery disease compared to those with normal weight.
- Approximately **75%** of hypertension cases are related to obesity.

Type 2 Diabetes

- Around **90%** of individuals with type 2 diabetes are overweight or obese.
- Each **1-point** increase in Body Mass Index (BMI) is associated with a **7% increase** in the risk of developing diabetes.

Cancer Risk:

- Obesity is linked to an increased risk of at least **13 types** of cancer, including breast (post-menopause), colorectal, endometrial, kidney, liver, and pancreatic cancers.
- In the United States, about **40%** of all cancers diagnosed are now associated with overweight and obesity.

Sleep Apnea

- An estimated **70%** of individuals with obstructive sleep apnea are obese.
- Weight gain of **10%** can increase the risk of developing sleep apnea by six times.

Osteoarthritis

- For every **5 point** increase in BMI, the risk of osteoarthritis increases by **35%**.

Non-Alcoholic Fatty Liver Disease (NAFLD)

- Among obese individuals, the prevalence of NAFLD can be as high as **90%**.

Reproductive Health

- **Women:** Obesity can cause menstrual irregularities and infertility. Approximately **30%** of cases of infertility are related to weight issues.
- **Men:** Obesity is associated with lower testosterone levels, affecting fertility and sexual function.

Mental Health

- Individuals with obesity have a **55% increased risk** of developing depression over time. There is a bidirectional relationship; those with depression have a **58% increased risk** of becoming obese.

Mortality and Life Expectancy

- Each **5-point** increase in BMI above 25 is associated with a **31% higher risk** of premature death.

Weight Loss Medications

Semaglutide, tirzepatide, and retatrutide belong to a class of diabetes and weight loss medications commonly referred to as GLP-1 (Glucagon-like Peptide) agonists. All of these medications affect GLP-1. However, tirzepatide also affects GIP (Glucose-dependent Insulinotropic Polypeptide), and retatrutide affects GLP-1, GIP, and Glucagon.

Receptors

- **GLP-1 (Glucagon-like peptide-1):** It enhances the release of insulin, which helps lower blood sugar levels, and slows down gastric emptying, which contributes to a feeling of fullness.
- **GIP (Glucose-dependent insulinotropic polypeptide):** This receptor helps enhance insulin secretion in response to meals, further supporting glucose regulation. It also contributes to metabolic processes that promote weight loss.
- **Glucagon receptors:** These are involved in regulating energy expenditure and promoting lipolysis (the breakdown of fats). Activation of glucagon receptors can increase metabolic rate, which may aid in weight reduction.

Remember that overweight and obesity are chronic medical conditions and frequently require chronic medication use. Contrary to popular belief, it's NOT just about eating less and exercising more. Many times, your body causes you to store fat easier, to not burn fat for energy, mistakenly tells you that you are hungry when you're not, and fights your attempts at losing weight. It is not "cheating" to use medication to control your weight any more than it is "cheating" to use blood pressure medication to control your blood pressure. Yes, your weight may increase if you stop the medication, the same way your blood pressure increases if you stop your blood pressure medication.

You absolutely have to have good eating habits and monitor calorie intake, make sure you are being active, and get enough sleep. It is also imperative that you consume an adequate amount of protein. You not only require protein to maintain your muscle mass, but all of your vital organs require a significant amount of protein. Try to consume about 1 gram of protein for every pound of body weight. For this, you use your GOAL body weight, not your current body weight. For example, if you currently weigh 200 lbs, but your goal/healthy weight is 140; you will aim for a daily intake of 140 grams. If you have any kidney dysfunction, please consult your nephrologist or primary care provider for daily protein

recommendations. You have to track your protein intake. Most people significantly overestimate how much protein they consume. All of these things will increase your success with weight loss and help you keep the weight off!

I recommend taking these medications for at least 6 months. Your body wants to stay at the weight it is. You have a “set point” for a weight that your body will try to maintain. It takes a long time to lower that set point. If you want to keep the weight you have lost off, you have a better chance if you take the medication for 6 months or longer. You also have to make lifestyle and diet changes while you are taking the medication.

Tirzepatide (Brand names: Mounjaro® and Zepbound®)

What is Tirzepatide?

Tirzepatide (Pronounced Ter-zep-uh-tide) is a once-weekly injectable dual glucagon-like peptide 1 (GLP-1) receptor and glucose-dependent insulinotropic polypeptide (GIP) receptor agonist. It works by increasing insulin production and lowering glucagon secretion as well as targeting areas in the brain that regulate appetite and food intake. A small change in the molecule allows the drug to last weeks in our bodies rather than the natural version our bodies make, which lasts minutes.

How Does Tirzepatide Work?

- Delays how quickly our stomachs digest food which leads to a feeling of fullness and satisfaction with smaller meal sizes, decreased appetite and cravings, absorbing nutrients.
- Acts on 2 different receptors, which allows for lower blood sugars, in part by reducing the production of sugar in the liver.
- Stimulates insulin production and decreases glucagon production in the liver which lowers blood sugar without an increased risk of hypoglycemia.
- It appears to affect leptin, the hormone that tells you that you are full, and ghrelin, the hormone that tells you that you are hungry.
- GIP increases energy expenditure, which increases metabolism, resulting in weight loss.
- In a 2022 study, participants lost an average of 22% of their body weight.

Potential Health Benefits

- **Improved Blood Sugar Control:** Tirzepatide enhances insulin secretion and reduces glucagon levels, leading to better regulation of blood glucose levels. This helps in achieving optimal glycemic control in individuals with type 2 diabetes.
 - **Weight Loss:** Clinical trials have demonstrated significant weight loss in patients using tirzepatide. The medication slows gastric emptying and reduces appetite, contributing to decreased calorie intake and weight reduction.
 - **Cardiovascular Benefits:** By improving glycemic control and promoting weight loss, tirzepatide may reduce cardiovascular risk factors such as high blood pressure and elevated cholesterol levels. Some studies suggest potential benefits in lowering the risk of heart disease.
 - **Renal Protection:** Improved blood sugar control can slow the progression of diabetic nephropathy. Some evidence suggests tirzepatide may have direct beneficial effects on kidney function.
 - **Improved Lipid Profile:** Tirzepatide has been shown to lower triglyceride levels and increase HDL (good) cholesterol, which contributes to a healthier lipid profile.
 - **Potential Anti-Inflammatory Effects:** Preliminary research indicates that tirzepatide may have anti-inflammatory properties, which could have additional health benefits, although more studies are needed in this area.
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Potential Side Effects

- The most common side effects are gastrointestinal (GI) and include nausea, vomiting, constipation, acid reflux, stomach pain, or diarrhea. These less commonly occur with tirzepatide than semaglutide. Occasionally, cyanocobalamin (B12) is added to reduce GI side effects.
- May cause loss of muscle if you are not consuming an adequate amount of protein and doing resistance exercise. Glycine supplementation can help prevent muscle loss.
- Significant weight loss may cause sagging skin and more pronounced wrinkles. This is not specific to GLP-1 medications. ANYTHING that causes significant weight loss will cause more pronounced wrinkles and sagging skin because the underlying supporting structure of your skin has been stretched out from being overweight. The more overweight you are, the more pronounced this effect is when you lose weight.
- RISK OF THYROID C-CELL TUMORS. If you or any family members have been diagnosed with Multiple Endocrine Neoplasia Syndrome Type 2 or Medullary thyroid cancer you should not take Tirzepatide.
- May increase the risk of developing pancreatitis. However, previous pancreatitis has not been shown to increase future risk of pancreatitis with GLP-1 medications.

- The risk of serious side effects increases in patients with hypoglycemia, kidney problems, and risk of allergic reactions. Increasing at longer intervals helps decrease side effects.
- This medication is not insulin and should not be used if you have type 1 diabetes or if you develop diabetic ketoacidosis. Tirzepatide should not be used with any other GLP-1 medications.
- If you develop intolerable nausea or vomiting, go back to the previous dose for a few more weeks and try to increase again later. You do not have to increase to the maximum dose. If you are losing weight and not having significant side effects, you can maintain at that dose. If you develop severe constipation or abdominal pain, stop the medication and get evaluated by your PCP or Emergency Dept ASAP. If you develop swelling in your neck or difficulty swallowing, get evaluated by your PCP or Emergency Dept.

Dosage Guidelines

See the dosing schedules at the end of this document. There are separate dosing instructions for Compounded Tirzepatide and Research Peptide Tirzepatide. Please make sure that you are following the correct dosing schedule!!!

Tirzepatide is given as a weekly subcutaneous injection. The starting dose is 2.5mg weekly, and the maximum dose is 15mg weekly. Very few patients require the maximum dosage. The optimal dosage is one in which you are losing weight and don't have intolerable side effects. This is different for each patient.

Medication is stored in the freezer until first use, then stored in refrigerator.

If you experience intolerable side effects, like nausea and vomiting, go back to the dose you were at before for a week or two and try increasing it again. If intolerable nausea or vomiting persists, just stay at the dose you tolerate.

Cost

Strive Pharmacy - Direct shipping to the following states: (AZ, CO, DC, DE, FL, GA, HI, IA, ID, KS, MA, MD, ME, MO, MS, MT, ND, NE, NH, NM, NY, OH, OK, OR, PA, PR, RI, SD, TN, TX, UT, WA, WY)

Compounded Tirzepatide/Glycine/B12 – 10mg/5mg/0.5mg/ml. \$330 per 2ml. Shipping is \$30. May order up to 8ml at a time.

2ml (20mg total) (\$18/mg)

3ml (30mg total) (\$17.50/mg)

4ml (40mg total) (\$17.25/mg)

6ml (60mg total) (\$17/mg)

8ml (80mg total) (\$16.88/mg)

Strive Pharmacy - Shipping to the following states: (AL, AK, AR, CA, CT, IN, KY, LA, MI, MN, NC, NJ, SC, VA, VT, WI, WV)

Compounded Tirzepatide/Glycine/B12 – 10mg/5mg/0.5mg/ml. \$330 per 2ml. Shipping is \$72. May order up to 8ml at a time.

2ml (20mg total) (\$20/mg)

3ml (30mg total) (\$18.90/mg)

4ml (40mg total) (\$18.30/mg)

6ml (60mg total) (\$17.70/mg)

8ml (80mg total) (\$17.40/mg)

Research Peptide. Please see document titled *“Research Peptide Information”* in the Education Folder under Records in the patient portal.

12mg Vial (20mg/ml) - \$228.50 (\$19/mg) (Includes shipping and bacteriostatic water for reconstitution)

30mg Vial (20mg/ml) - \$503.50 (\$16.76/mg) (Includes shipping and bacteriostatic water for reconstitution)

60mg Vial (20mg/ml) - \$998.50 (\$16.60/mg) (Includes shipping and bacteriostatic water for reconstitution)

72mg Vial (20mg/ml) - \$1,108.50 (\$15.40/mg) (Includes shipping and bacteriostatic water for reconstitution)

Important Disclosures

- These statements have not been evaluated by the US Food and Drug Administration (FDA).
- Not intended to diagnose, treat, cure, or prevent any disease.
- Research peptides and some compounded drugs are not FDA-approved but are produced under strict quality control measures.

THE FOLLOWING RECONSTITUTION INFORMATION ONLY PERTAINS TO MEDICATIONS IN POWDER FORM.

Reconstitution Instructions

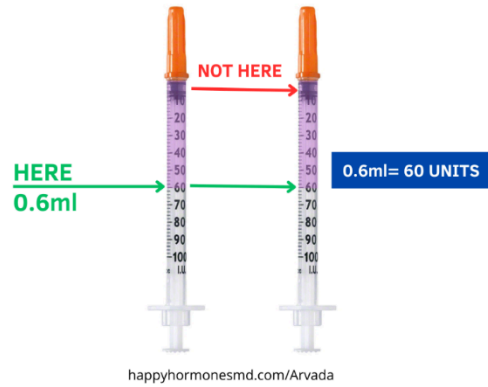
IMPORTANT:

- Follow the instructions below regarding the amount of bacteriostatic water to use when reconstituting the peptide. **DO NOT** follow the instructions that come with the peptide.

- Do NOT throw away the vial of bacteriostatic water!!! It is a multiuse vial and can be used for your next order!

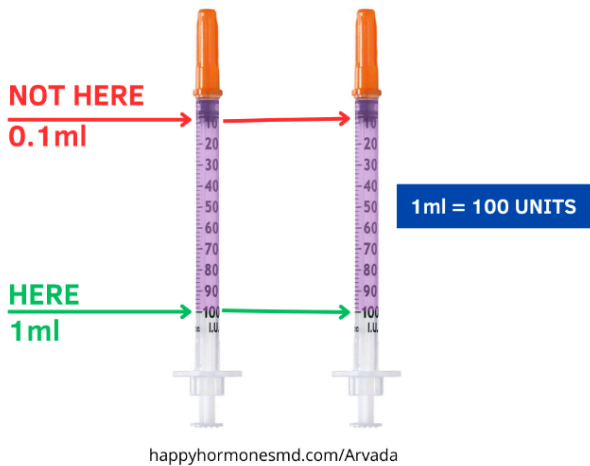
12 mg vial: Inject **0.6ml of bacteriostatic water** into the vial (**0.6ml = 60 units**).

0.6ml - 60 units (Not 6 units)

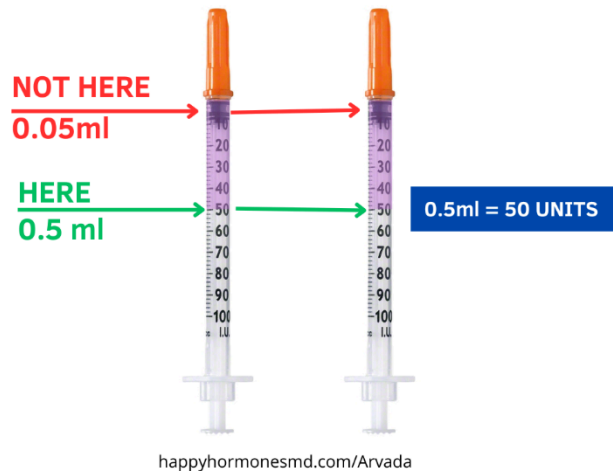


30 mg vial: Inject **1.5 ml of bacteriostatic water** into the vial (**1.5ml = 150 units**). You will have to inject one 1ml and one 0.5ml syringes full of water into the vial.

1 ml - 100 units (Not 10 UNITS)

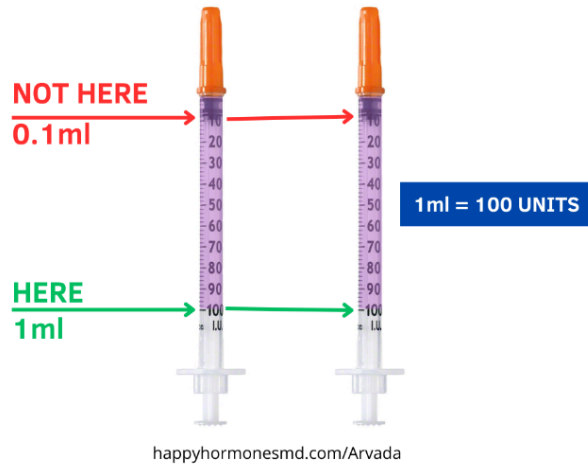


0.5ml - 50 units (Not 5 UNITS)



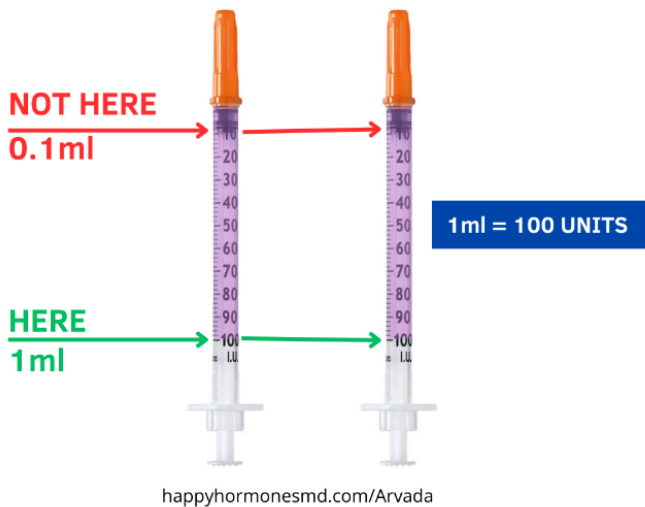
60 mg vial: Inject **3ml of bacteriostatic water** into the vial (**3ml = 300 units**). You will need to inject 3 full 1ml syringes of water into the vial.

1 ml - 100 units (Not 10 UNITS)

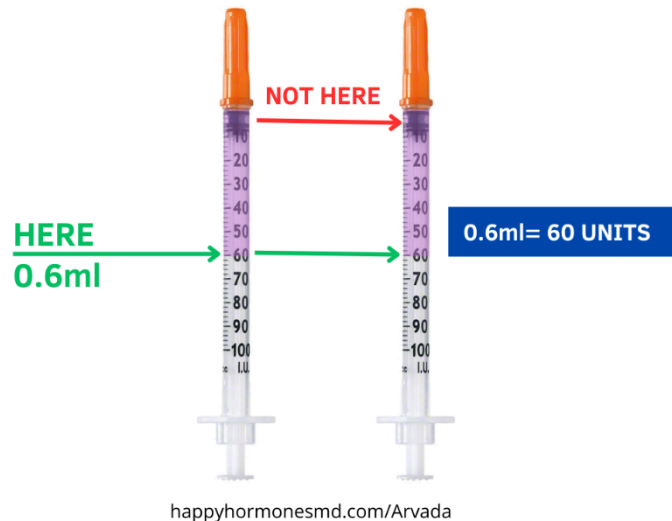


For a **72 mg vial**: Inject **3.6ml of bacteriostatic water** into the vial (**3.6ml = 360 units**). You will need to inject 3 full 1ml syringes and one 0.6ml syringe of water into the vial.

1 ml - 100 units (Not 10 UNITS)



0.6ml - 60 units (Not 6 units)



- See the **document** titled *“Reconstituting Medications in Powder Form”* in the Education Folder in the patient portal.
- See the following **Instructional videos** in the Education Folder in the patient portal:
 - *“Reconstituting Powdered Medications”*

- *“Injection Video – Introduction”*
 - *“Injection Video – Drawing Up the Medication”*
 - *“Injection Video – Administering the Medication”*
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Storage and Stability for Research Peptides

- Vials are shipped as **lyophilized powder**, requiring no refrigeration during shipping.
 - In Lyophilized Form:
 - Stable for up to 3 years in the freezer and 2 years in the refrigerator.
 - Protect from light.
 - Once Reconstituted:
 - Stable for 6 weeks.
 - Must be refrigerated and kept away from light.
 - Avoid placing vials in the refrigerator door to prevent degradation from frequent temperature changes.
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Quality Assurance

- All research peptides are subjected to third-party testing with publicly available Certificates of Analysis (COA).
- Testing includes:
 - RP-HPLC (Reversed-Phase High-Performance Liquid Chromatography)
 - Mass Spectrometry (MS)
 - Sterility Testing
 - Additional tests meeting or exceeding U.S. Pharmacopeia (USP) and USP-National Formulary (NF) regulations.

The manufacturer ensures quality, safety, and efficacy, complying with regulatory standards.

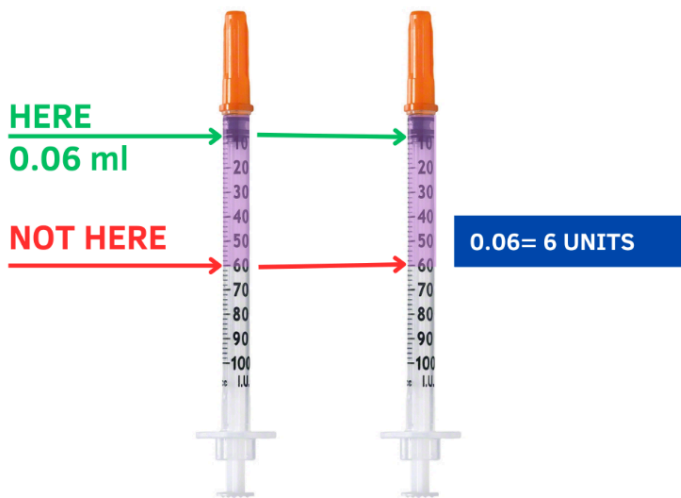
This dosing schedule is for the RESEARCH PEPTIDE ONLY. See BELOW for dosing instructions for compounded Tirzepatide. They are DIFFERENT concentrations.

Weeks 1 and 2 (Research Peptide)

Dose: 1.25mg

How much you inject: 0.06ml (or 6 units on insulin syringe) SQ once a week for 2 weeks in order to acclimate your body to the medication.

0.06ml - 6 units (Not 60 units)



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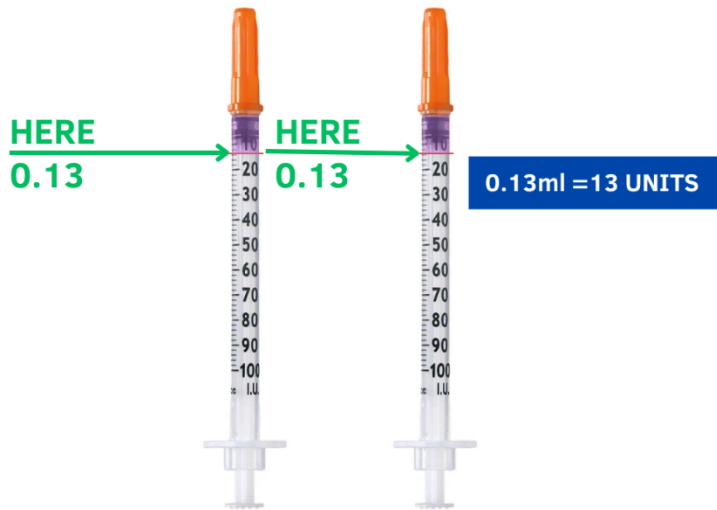
Weeks 3 through 6 (Research Peptide)

Dose: 2.5mg

How much you inject: 0.13ml (or 13 units on insulin syringe) SQ once a week for 4 weeks

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0.13ml = 13 UNITS



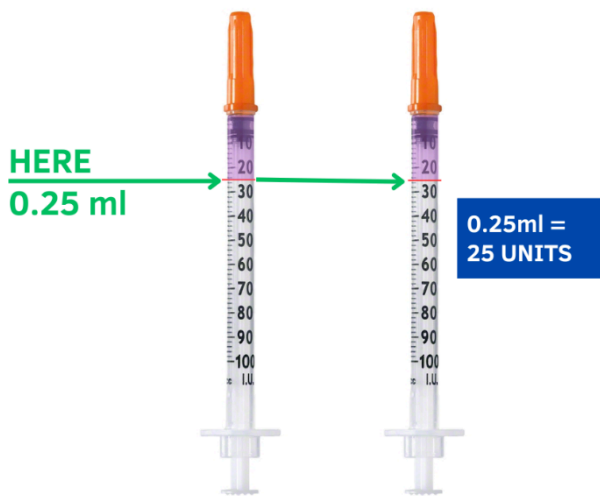
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Weeks 5 through 8 (Research Peptide)

Dose: Approximately 5mg

How much you inject: 0.25ml (or 25 units on insulin syringe) SQ once a week for 4 weeks

0.25ml - 25 UNITS



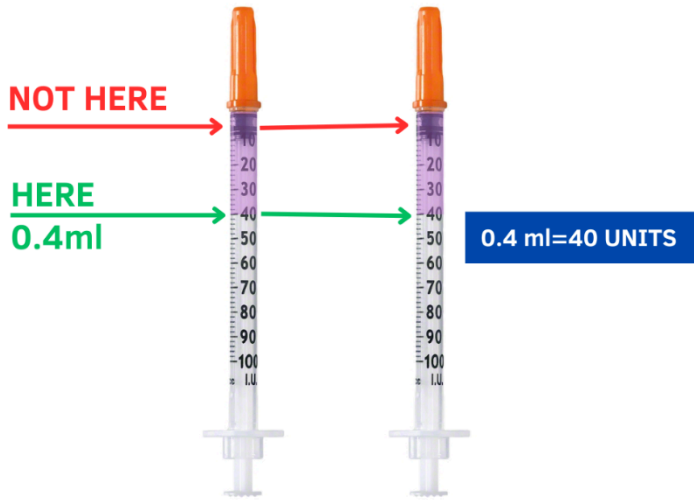
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Weeks 9 through 12 (Research Peptide)

Dose: Approximately 7.5mg

How much you inject: 0.4ml (or 40 units on insulin syringe) SQ once a week for 4 weeks

0.4ml - 40 units (Not 4 UNITS)



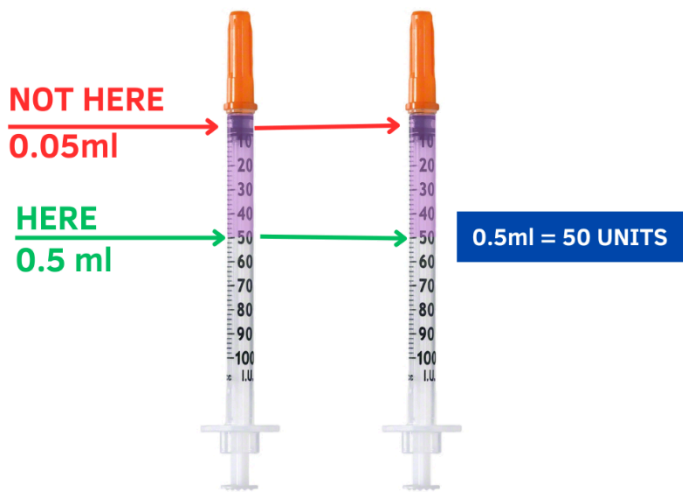
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Weeks 13 through 16 (Research Peptide)

Dose: 10mg

How much you inject: 0.5ml (or 50 units on insulin syringe) SQ once a week for 4 weeks

0.5ml - 50 units (Not 5 UNITS)



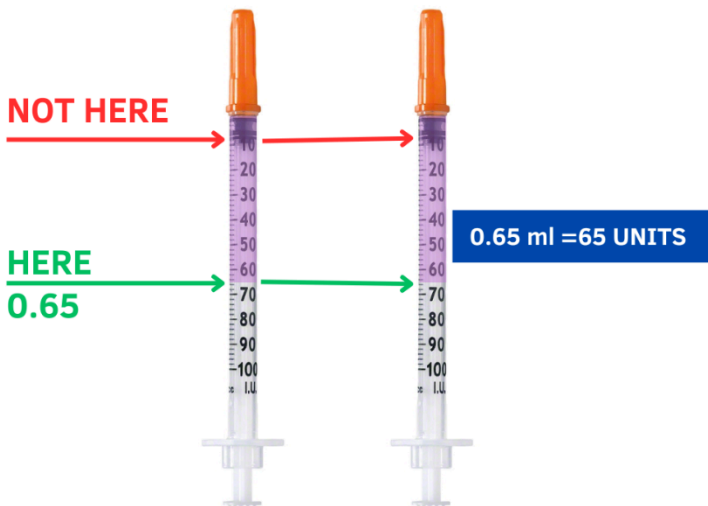
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Week 17 through 20 (Research Peptide)

Dose: 12.5mg

How much you inject: 0.65ml (or 65 units on insulin syringe) SQ once a week for 4 weeks

0.65ml - 65 units (Not 6.5 UNITS)



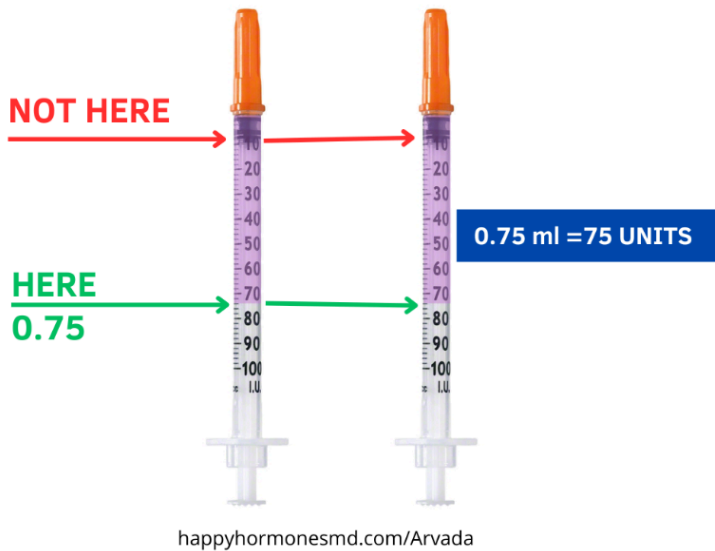
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Week 21 and on (Research Peptide)

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Dose: 15mg

How much you inject: 0.75ml (or 75 units on insulin syringe) This is the maximum dose.



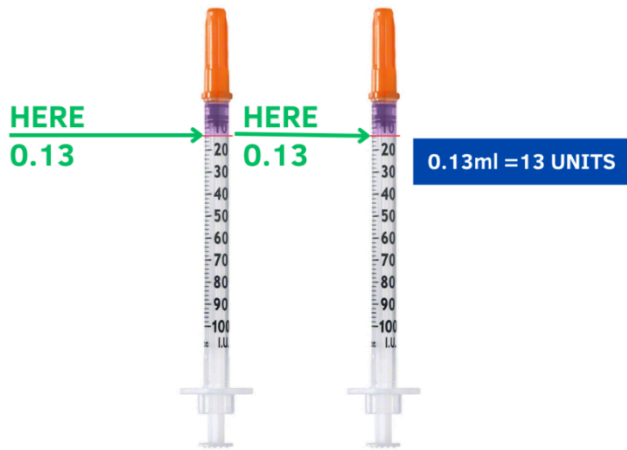
This dosing schedule is for COMPOUNDED TIRZEPATIDE ONLY. See ABOVE for dosing instructions for the Research Peptide. They are DIFFERENT concentrations.

Weeks 1 and 2 (Compounded Peptide)

Dose: 1.25mg

How much you inject: 0.13ml (or 13 units on insulin syringe) SQ once a week for 2 weeks in order to acclimate your body to the medication

0.13ml = 13 UNITS



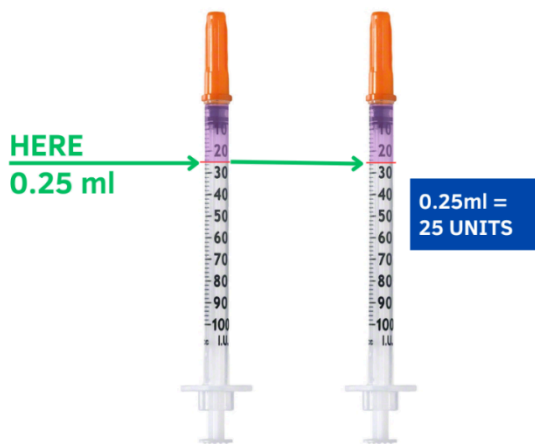
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Weeks 3 through 6 (Compounded Peptide)

Dose: 2.5mg

How much you inject: 0.25ml (or 25 units on insulin syringe) SQ once a week for 4 weeks

0.25ml - 25 UNITS



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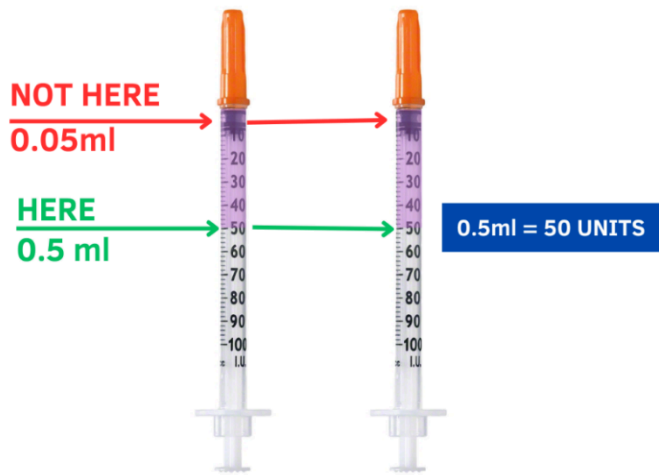
Weeks 5 through 8 (Compounded Peptide)

Dose: Approximately 5mg

How much you inject: 0.5ml (or 50 units on insulin syringe) SQ once a week for 4 weeks

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0.5ml - 50 units (Not 5 UNITS)

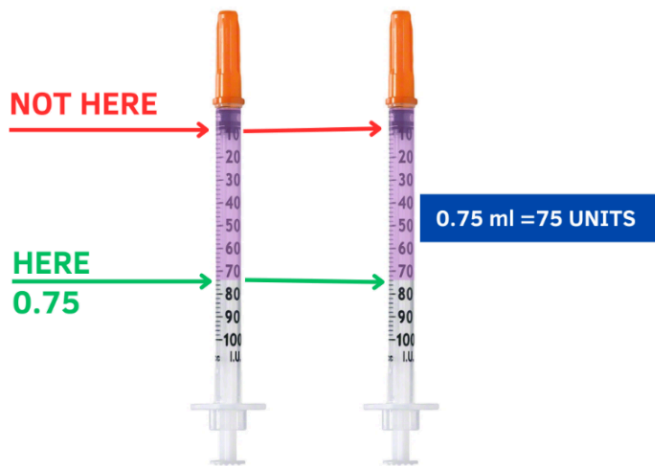


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Weeks 9 through 12 (Compounded Peptide)

Dose: Approximately 7.5mg

How much you inject: 0.75ml (or 75 units on insulin syringe) SQ once a week for 4 weeks



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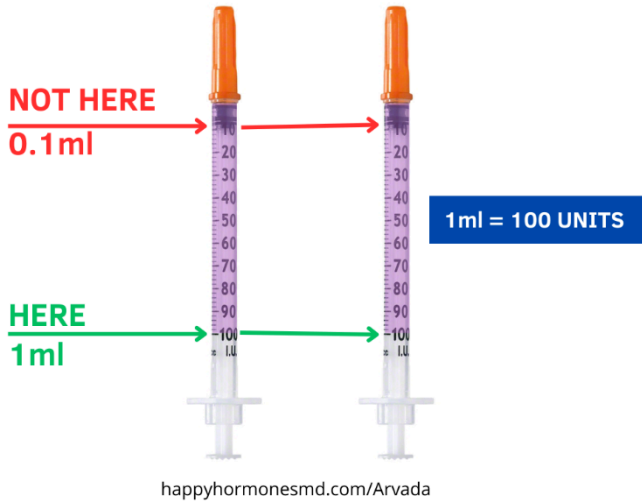
Weeks 13 through 16 (Compounded Peptide)

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Dose: 10mg

How much you inject: 1ml (or 100 units on insulin syringe) SQ once a week for 4 weeks

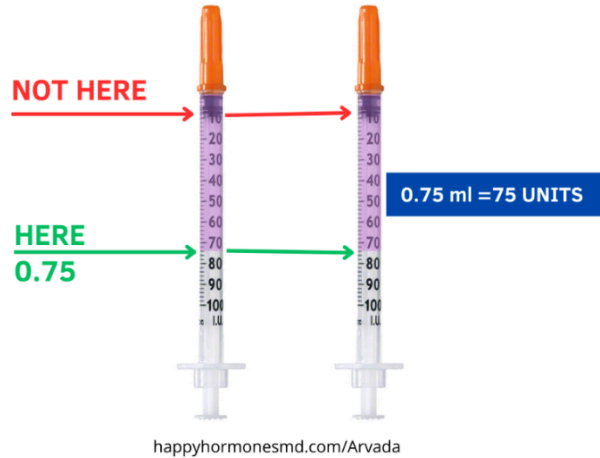
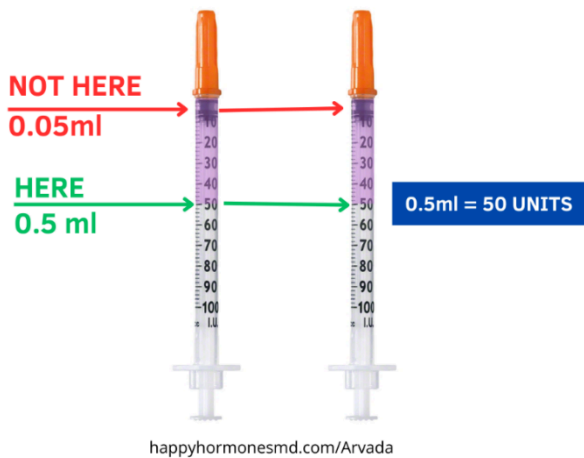
1 ml - 100 units (Not 10 UNITS)



Week 17 through 20 (Compounded Peptide)

Dose: 12.5mg

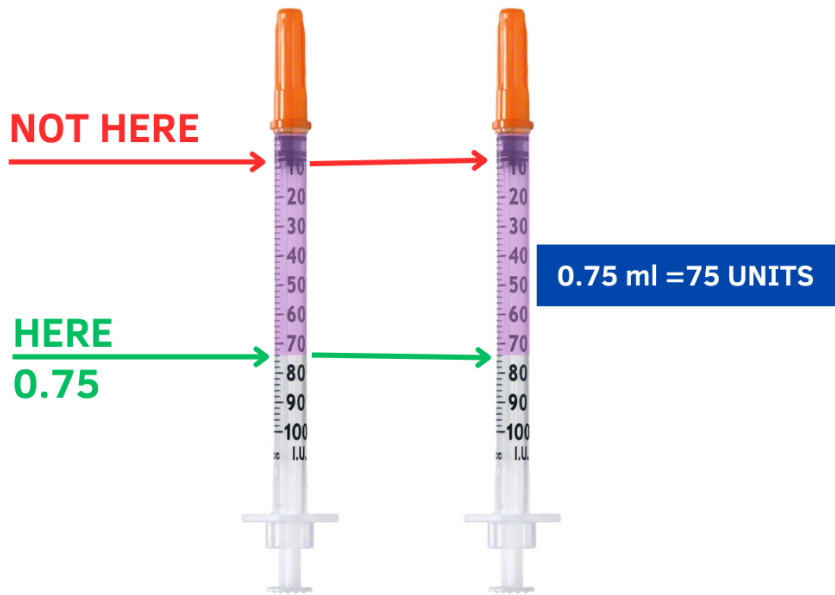
How much you inject: 1.25ml - split into two injections of 0.75ml (75 units on insulin syringe) AND 0.5ml (50 units on an insulin syringe) SQ once a week for 4 weeks



Week 21 and on (Compounded Peptide)

Dose: 15mg

How much you inject: 1.5ml - split into TWO injections of 0.75ml (75 units on insulin syringe). This is the maximum dose.



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