Learning to Self Inject Methotrexate at Home

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Why might my Doctor ask me to inject Methotrexate?

Methotrexate comes in two forms: tablets and injections. Giving methotrexate by injection may have the following benefits:

- 1. The tablets may not be completely absorbed
- 2. The injection results in complete absorption
- 3. Dose adjustments are easier if you absorb all of the medication

Can I inject the Methotrexate by Myself?

Yes, methotrexate can easily be injected by you or your family members. The injections are only given once a week (like the tablets) and are relatively painless.

Is Methotrexate by Self-Injection New?

No, people have been learning to self-inject methotrexate at home for about 10 years. Before then, people went to their doctor once weekly for injection into the muscle (intra-muscular). By the mid 1990's, studies indicated that methotrexate is also well absorbed when injected into the fatty layer just under the skin (subcutaneous). This type of injection is much easier to do than the one into the muscle and is less painful as the needle is much thinner. Patients now routinely give subcutaneous self-injections at home which are far more convenient than a weekly trip to the doctor's office.

How is Iniectable Methotrexate Supplied?

Injectable Methotrexate is a clear yellow liquid. It is dispensed by your Pharmacist in small 2 mL vials which contain less than ½ teaspoonful of methotrexate. Here are some **important features** of the vials of methotrexate:

For patients with inflammatory arthritis, methotrexate is **supplied** as 50 mg in a 2 mL vial (25 mg per 1 mL).

- The <u>vial can be used for more than one dose</u> because it contains a preservative called benzyl alcohol to keep it clean (sterile) between uses.
- Check with your pharmacist to ensure that the strength of methotrexate is 50 mg/2 mL and that it contains the preservative.
- > The vial comes with a <u>coloured protective cap</u> that indicates the vial is new. This cap is removed before use and does not re-attach.
- Removing the cap exposes a rubber stopper on the top of the vial which is held in place by a metal ring. Entry into the vial occurs by inserting a needle through the rubber stopper.
- ➤ In Ontario, the ODB government pays for methotrexate 25mg/mL -2mL vial with preservative DIN# 02182777

How should the Methotrexate be Stored?

- Vials of methotrexate should be <u>stored at room temperature</u> away from excessive heat or cold (not in a car glove compartment or above the stove).
- Vials of methotrexate should be <u>protected from light</u> (stored in a cupboard not on window sills).
- Once opened, vials of injectable methotrexate can be safely stored for 4 weeks (28 days).
- Opened vials can be <u>stored at room temperature</u>, it is not necessary to keep opened vials in the fridge.
- ➤ Discard all empty vials into the **Sharps Container** (see information on Sharps Containers on Page 3)
- > Discard opened vials with unused methotrexate into the Sharps Container 28 days after opening them.

How do I obtain the Equipment that is required to give Injectable Methotrexate?

Single use syringes for subcutaneous injection and other injection supplies are available in every Canadian Pharmacy from Newfoundland to Vancouver as diabetics traditionally inject insulin this way.

I have never used Syringes and Needles Before – I Don't Know Anything about Them?

The syringe and needle come all as one unit. They can be bought in bags of 10 and cost about \$3.50 for 10.

- > The syringe is long and thin with a very small short needle attached to it, protected by a cap.
- ➤ The barrel of the syringe has the dose measuring scale on it.
- ➤ The syringe is to be <u>used once only</u>.
- > The plunger is designed to be grasp at the end and it moves up and down to "draw up" and give the methotrexate
- The **needle cap is removed** just before drawing up the medication



What Syringes & Needles are Recommended?

- Syringes (Insulin, 1 cc or 1mL) are made by many manufacturers and look alike
- There are basically two types of syringes that can be used to inject methotrexate: U-100 Insulin Syringes or 1cc/1mL syringes. NOTE: 1cc=1mL=U-100 (100 Units)!
- 3. All of these small syringes are capable of holding a maximum of 25 mg of methotrexate.
- 4. *Needle Length:* The syringes all come with needles which are either 5/16" (8 mm=short) or ½" (12.7 mm) long.
- 5. *Needle Thinness:* Either 28, 29, or 30 gauge higher number is the thinnest.
- 6. Each 0.1cc = 0.1mL = 10 units = 2.5mg of methotrexate

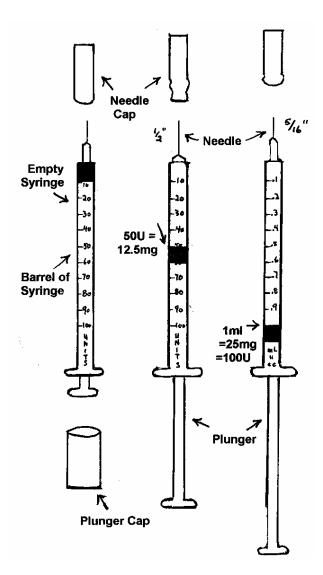
What Other Supplies will I Need?

- 1. Alcohol Single Use Swabs for cleaning the vial's rubber stopper
- 2. Cotton Balls
- 3. Sharps Container a Puncture Proof Plastic or Metal Container with a Lid

Syringes, needles, medication vials, alcohol swabs and cotton balls that have come in contact with this medication or with blood or body fluids **cannot** be disposed of in your household garbage. Instead they are placed in a "sharps container", classified as "biomedical waste". **Sharps Containers need not be purchased.** In some provinces use of any puncture proof container with a tight lid such as liquid laundry detergent or bleach containers, metal coffee cans or vinegar container is permitted. Some Pharmacies provide and take back their containers only. **Check with your Pharmacist or Medical Personnel about Sharps Containers and their disposal system in your area.**







Diagrams - actual size of syringesNote: different needle sizes

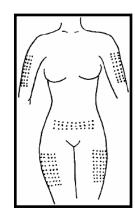
- Empty Syringe (left)
- ➤ Half-filled Syringe (middle) (50U= 12.5mg)
- Full Syringe (right) 1 mL=25mg =100U

How do I Figure out the amount of Methotrexate to Inject?

You can determine the amount to Methotrexate to be injected for all range of doses with the chart below. The prescription will list the dosage in volume and then dosage i.e. 0.6 ml (15mg). You translate this dosage to # units on the Insulin Syringe as per the chart below. When listing your medication dosage, always list the methotrexate in mg dosage not units of Insulin.

Dose of Methotrexate	Amount listed on label and to be drawn up if using 1 mL =1cc Syringe	Amount to draw up if using 100U Insulin Syringe	Number of full doses contained In the vial based on dosage
7.5 mg	0.3 mL	30 U	5
10 mg	0.4 mL	40 U	5
12.5 mg	0.5 mL	50 U	4
15 mg	0.6 mL	60 U	3
17.5 mg	0.7 mL	70 U	2
20 mg	0.8 mL	80U	2
22.5 mg	0.9 mL	90 U	2
25 mg	1.0 mL	100 U	2

HOW TO INJECT METHOTREXATE SUBCUTANEOUSLY



1. Choose Your Work Area

- ☐ Choose a well lit, flat area, such as a table
- ☐ Wash your work area with soap and water and dry

2. Choose a Site to be Injected

- □ Select a site where you can "pinch an inch" of fat, usually the abdomen or thigh as shown in picture below. Someone else can inject you on the outer aspect of the upper arm. Stay at least 3 fingerbreadths away from the belly button.
- ☐ It is best to alternate between the right and left sides every week and to choose different locations on the thighs or abdomen.
- ☐ Do not inject near scars, bruises, red or swollen areas or close to groin or joint areas. To minimize bruising, avoid injection into skin with visible surface small blood vessels.

3. Gather Your Supplies

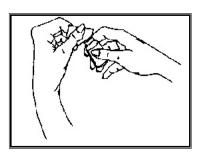
- ☐ Syringe and needle as one unit (1 mL or 1cc or U-100), Single use, disposable
- ☐ Alcohol Swab for vial top cleaning
- □ Cotton ball
- ☐ Bandage if you tend to need one
- Vial of Methotrexate
- □ Sharps Container

The CDC (Centre for Disease Control) indicates that because alcohol-impregnated towelettes contain a limited amount of alcohol, their effectiveness is comparable to that of soap and water.

4. Clean

- ☐ Wash your hands with soap and warm water and dry with a clean towel.
- ☐ If the injection area is not clean, wash with soap and water and dry
- ☐ The World Health Organization (WHO) recommends that if the skin is clean, there is no need to swab the skin with alcohol.
- ☐ If you do choose to swab the injection site, allow the alcohol to dry before injecting.



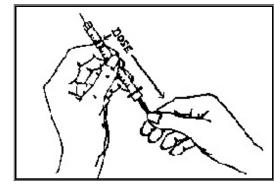


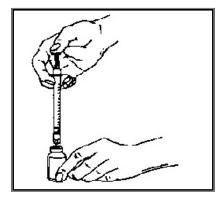
5. Prepare the Methotrexate Vial

- New vial: Pop the protective coloured cap (1/8" high) off top of the vial. Discard. It does not re-attach.
- ☐ **Previously used Vial**: Clean the top of the vial using the alcohol swab. Let vial top dry before you puncture the rubber stopper with your needle. Put the alcohol swab into your Sharps Container.

6. Prepare the Syringe and Needle

- ☐ Remove cap from end of plunger (if covered)
- ☐ Hold the syringe in the non-dominant hand as shown
- □ Pull back the plunger end, drawing air equal to the ½ the dosage mark on the syringe. Adding ½ the volume of air helps the medication to flow into the syringe easier and at the same time keeps the spraying of medication to a minimum when the needle is removed from the vial.
- □ Lastly, remove the protective cap covering the needle of the syringe.





7. Insert the Needle into the Vial and Inject Air into the Vial

- ☐ Hold the barrel of syringe like a dart or pencil (straight up).
- □ Place the vial upright on a flat surface and insert needle straight through the middle area of the rubber stopper on top of the vial of methotrexate until needle is all the way down
- ☐ Push down on the plunger end until all the air is injected into the vial.
- ☐ Holding onto both the vial and the barrel of the syringe, turn the vial and syringe upside down, keeping the needle in the vial.
- ☐ The needle will now be pointing upward.

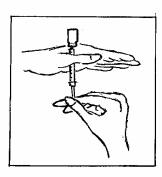
To Withdraw the Medication, the vial and syringe can be held in many ways.

Medical personnel tend to hold the vial in one hand and to maneuver both the syringe and plunger with the other hand because:

- ☐ this works for large & small vials
- ☐ they have had a lot of practice
- ☐ they do not have arthritis. You do not have to use this method

8. "Draw Up" the Methotrexate into the Syringe

- ☐ Tip of the needle needs to be covered by the liquid (harder near the end of vial or with a longer needle)
- ☐ Hold the vial as shown. Use fingers to support syringe and pull down the end of the plunger



OR You may use this method

- Once upside down, the small vial will rest on the end of the upside down syringe without support. Move fingers of non-dominant hand down to
- ☐ grip syringe
- ☐ Get a good grip on the syringe by pinching the top of the syringe between your thumb and two fingers of non-dominant hand
- Use your dominant hand to pull plunger end down and "draw up" methotrexate and the yellow liquid will slowly be drawn into syringe
- ☐ Draw in medication to slightly past the dose needed (black top of plunger)
- ☐ If your hands hurt with the above, you may also grip the top of syringe between the thumb and finger as shown.

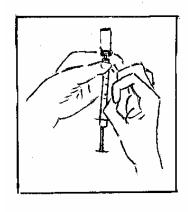
9. Expel Air from the Syringe

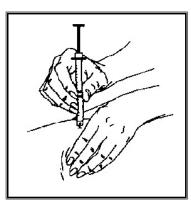
Check for air pockets in the syringe. If present, tap syringe so air bubble floats to the top

Push the plunger back up so the air goes into the vial. Small air bubbles that are

- Push the plunger back up so the air goes into the viai. Small air bubbles that are difficult to remove are not a problem
- ☐ If you have too little or too much medication, pull plunger in or out to line up the top of the black plunger with your required dose.

Is injection of air subcutaneously harmful? No A large bubble of air may be a bit uncomfortable but, in general, air is removed from the syringe as it takes up medication space. It would take injection of much more than this whole syringe full of air into a vein to be a problem.





10. Insert the Needle

- ☐ With needle still in the vial, turn vial/syringe right side up. Rest vial on flat surface.
- ☐ You are now ready to inject the medication into your subcutaneous fatty layer
- ☐ Holding the syringe like a pencil or dart and remove the needle from the vial
- ☐ With your free hand pinch "an inch" of fat and with a swift movement like a dart insert the needle straight into skin (90 degrees)

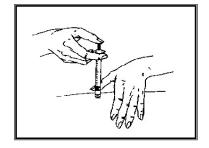
Do I have to pull back on the needle? It is not necessary to draw back on the syringe each time to check for blood (also called aspiration). It has not been shown to be needed. This fatty layer contains only a few blood vessels and if one is nicked by the needle it is not a problem.

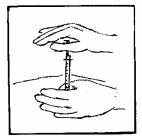
11. Inject the Methotrexate

- ☐ Release the skin
- ☐ Keeping the needle in all the way, steadily push the plunger to inject all the methotrexate.

OR

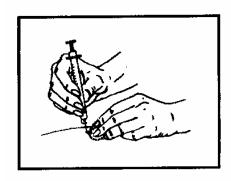
☐ If your hands are sore, once the needle is all the way in, you can hold the bottom of the syringe with your non-dominant hand and use the flat of your other hand to push the plunger down as shown.





12. Remove the Needle

- ☐ Pull the needle straight out.
- ☐ It is not a problem if you notice blood at the site after the needle is removed. You may have nicked a surface blood vessel when you injected and the blood has followed the needle back up to the skin surface.
- ☐ A bead of yellow methotrexate may also follow the needle back to the skin surface and is not a concern.
- Apply pressure to the injection site with the cotton swab and it will soak up the blood or medication and the bleeding or leakage will soon stop. Place cotton ball into the Sharps Container. If needed, apply a bandage.
- ☐ Do not rub the injection site.
- ☐ If a bruise occurs, it will soon begin to fade.





13. Put the Syringe Directly into the Sharps Container

- ☐ Do NOT RECAP the needle
- ☐ Discard syringe into the sharps container
- Use needle and syringe ONCE ONLY.



14. Clean Up

- ☐ All syringes, medication vials, alcohol swabs and cotton ball that have come in contact with this medication or with blood or body fluids cannot be disposed of in your regular garbage or dumpster but must be placed in the Sharps Container for disposal as biomedical waste
- ☐ As the methotrexate vial is used more than once, clean it before storage. Clean vial top (rubber stopper) with an alcohol swab and discard swab in Sharps Container.
- ☐ Close Sharps Container for safe storage
- ☐ Wash work area and hands with soap and water





15. Storing Supplies

- Store methotrexate, syringes and Sharps Container at room temperature in a safe, dry
- ☐ Keep methotrexate vials, all injection supplies and sharps containers out of the reach of children and household pets.

16. Care of Sharps Container

- ☐ Do not overfill the Sharps Container = Biomedical Waste
- ☐ When ¾ full, seal Container
- ☐ Ask at your pharmacy for the location of the designated Biomedical Waste Disposal Site in your community.



Questions

- 1. What if I'm very thin and some methotrexate goes into the muscle? This is not a problem as methotrexate is just as well absorbed from the muscle and has been injected into the muscle for many years
- 2. What if the Skin Yellows at the Injection Site?

Some of the methotrexate has gone into the skin. This is not a problem – it just takes longer to absorb from the skin and should disappear in a day or two. It may be because a bit of medication might have followed the needle back up to the skin surface or the needle may have not been all of the way in or the needle may have gone in on more of an angle than straight in. If it happens often you could try the longer needle (1/2")



