

## Dihydroergotamine (DHE) Subcutaneous Injection Guide

- Migraine Attack Abortive Treatment
- Medication Overuse Protocol Treatment
- Refractory Cluster Headache Treatment

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Revised in November 2013

### OBJECTIVE:

To learn how to subcutaneously inject a mix of saline (sodium chloride) and DHE to reduce the burning sensation often associated with injecting pure DHE.

### HELPFUL TIPS:

If you have never given yourself a subcutaneous injection, or you have difficulty with needles, here are some tips:

- For your first injection, make an appointment with a nurse so that s/he can show you how to do it properly. Bring this guide, along with all necessary materials;
- Then, once you are at home for your next injection, ask someone with whom you are comfortable to be present to reassure you;
- At all times, breathe calmly through your nose, avoiding hyperventilating by the mouth;
- You can even practice visualization before beginning. Sit calmly imagining giving yourself the injection, with ease, free of worry. This will help build your confidence;
- If you feel unwell at any point during the injection and are not sure you can finish, calmly remove the needle (see Step 34). Put your head between your knees or rest it on the table. Breathe normally. Drink water. Take your time. When you are ready, swipe the needle with a clean alcohol swab to disinfect it, and repeat the same injection process (from Step 30) to empty the solution.

### IMPORTANT NOTE:

- The quantity of saline you mix with DHE can be modified according to your tolerance. For some, 1 mL is sufficient to reduce the unpleasant sensation;
- The following instructions are based on a maximum quantity of 1.5 mL of saline, mixed with 1 mL of DHE, for a total of 2.5 mL of liquid in a syringe which contains a volume of 3 mL (3 cc).

### GENTLE REMINDERS:

- Calmly prepare yourself;
- Even if it seems impossible to do, know that you are capable!
- If needed, ask for help from someone you trust;
- When in doubt, consult a nurse, pharmacist or doctor;
- Always check the expiry dates of all products.

### ABBREVIATIONS:

G	= gauge (needle diameter)
cc	= cubic centimeter
in.	= inch
cm	= centimeter
mL	= milliliter
mg	= milligram
DIN	= Drug Identification Number



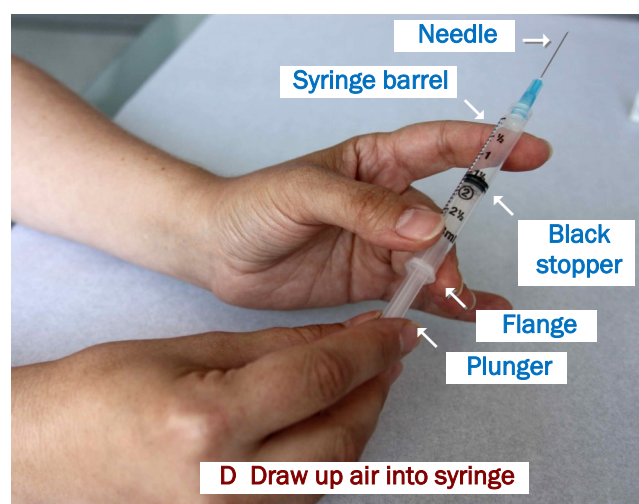
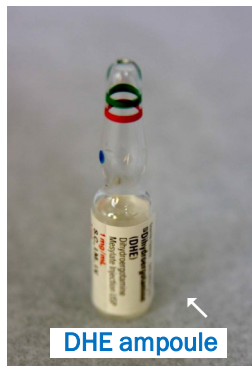
**MATERIALS REQUIRED:**

- One 1 mg/mL ampoule of prescription DHE
- One 90 mg/10 mL multidose vial of saline for injection purposes (DIN: 00037818)
- Each time you reuse the vial, verify if there are any fragments of rubber in it. If the liquid is not clear or contains foreign particles, DO NOT USE IT. Return it to your pharmacy in exchange for a new one.
- One 3 cc/mL syringe with 25G x 1 in. needle
- One 30G x 1/2 in.\* needle
- Three to four alcohol swabs
- Clean tissue or paper towel to cover your work surface
- One “Sharps” container (to dispose of used needles) or other appropriate container
- In case of minor bleeding, a bandage or sterile gauze
- A surface disinfectant and clean cloth or paper towel

\*A short needle (1/2 in.) can facilitate the injection, especially for those afraid of needles. You can also use a needle measuring up to 1 inch, provided it is designed for subcutaneous injections.

**Step 1 Setting up the Materials and Working Surface**

1. Wash your hands well with warm water and soap.
2. Select a clean, disinfected, well-lit, flat working surface, such as a table.
3. Place the materials on a paper towel or tissue.
4. If you are opening a new multidose vial of saline, remove the plastic cap to expose the rubber grey stopper [A]. Disinfect the metal ring and stopper with a new alcohol swab each time you reuse the vial [B].
5. Remove the packaging of the syringe [C].
6. Pull the plastic needle cap straight off. Do not discard as you will need this later. Be careful to NEVER touch the needle.
7. Slowly pull back the plunger, drawing in air, until the black stopper in the syringe reaches the 1.5 mL mark [D].



## Step 2 Preparing the Mix of DHE and Saline

8. Holding the saline vial on your working surface, insert the needle straight down through the centre ring of the grey stopper [ E ]. Make sure the needle goes in straight so as not to break or bend it.
9. Once the needle is inserted, push the plunger as far as it goes to inject air (1.5 mL) into the vial [ F ]. This is to create positive pressure which facilitates the extraction of the saline afterwards.
10. Keeping the needle in the vial, turn the vial upside down. Make sure the needle tip always remains in the solution. If there is not much saline left in the vial, you may need to partially withdraw the needle to ensure the tip remains submerged.
11. Slowly pull back the plunger until the syringe fills to a volume of 1.5 mL [ G ]. (The quantity of saline may vary from one person to the next, for example from 1 to 1.5 mL.)
12. Remove the needle from the vial.
13. Hold the syringe pointing the needle upward (at a 90° angle) to check for excess air, air bubbles or white foam. Gently tap the syringe to make bubbles rise to the surface, close to the base of the needle [ H ]. Expulse the excess air, as needed, by slowly pushing the plunger straight upward [ I ].
14. Carefully put the syringe down, making sure not to let the needle touch any surface. For example, you can temporarily lean the barrel of the syringe onto the plastic needle cap.
15. Take the breakable ampoule of DHE and look to see if there is any liquid at the top. If there is, gently flick your finger near the top to get all the liquid into the bottom portion of the ampoule.
16. To open the ampoule, hold the bottom part with one hand. With your other hand, place the thumb on the coloured dot and snap the neck off by applying pressure backwards. If there is no dot on the ampoule, aim slightly above the bulbous part of the neck and snap back to break it. You can use a tissue or the syringe packaging to surround the ampoule to protect your fingers from the breaking glass [ J ]. (If it is not a clean break and you see shards of glass in the liquid, ask your pharmacist to return it to the manufacturer.) The ampoule is ready [ K ].
17. In one hand, hold the DHE ampoule. With the other hand, take the syringe which contains the saline and insert the needle into the DHE ampoule being **careful to not prick yourself**. Hold the barrel of the syringe at the same time as you gently and slowly pull back the plunger to withdraw the amount of DHE prescribed by your doctor (e.g. 0.5 or 1 mL). **Make sure the tip of the needle stays submerged in liquid at all times. Also, be careful not to pull the plunger completely out of the syringe** [ L ].



E Insert Needle



F Push air into vial



G Withdraw saline



H Flick air to surface



I Push out excess air



J Break open DHE ampoule



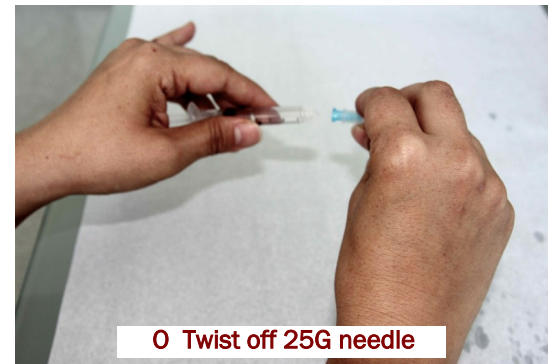
K Opened ampoule



L Withdraw DHE



**RE: #17** There are several ways to hold the syringe. If the one you see in the photo doesn't feel comfortable, feel free to hold it differently. **Please be extra careful when recapping the needle to remove it from the syringe!** This protocol may seem long, but once you get the hang of it, the entire procedure will only take you a few minutes.



18. Once you have withdrawn the DHE, make sure there is a small amount of air in the syringe where the barrel of the syringe meets the needle. If there is no air, pull back slightly on the plunger, being **careful to not remove it completely from the syringe**. This will facilitate mixing the two liquids. (Less than 0.5 mL of air is sufficient.)
19. To mix the DHE and saline well, hold the barrel of the syringe vertically between the fingers of both hands (the needle pointing upwards) and gently roll the barrel for at least 20 seconds **[ M ]**. Do not shake the syringe as this will create foam.
20. When finished, check the syringe for air bubbles (or foam). If there are any, point the needle upwards (at a 90° angle) and gently tap your finger against the barrel of the syringe to get the bubbles to the surface, near the base of the needle. Slowly and carefully push the plunger up, keeping the needle pointing upwards. If a thin jet of liquid comes out without air bubbles, your medication is ready for injection.
21. To replace the needle by the shorter one, begin by putting back the plastic cap on the needle **[ N ]**. **Be extra careful to not prick yourself with the exposed needle!**
22. Remove the cap but this time with the needle. To do so, hold the plastic cap and twist it off counter clockwise **[ O ]**.
23. Remove the packaging of the injection needle (30G x ½ in.).
24. Screw the new needle on the syringe (keeping the cap on so as not to prick yourself) **[ P ]**.
25. Put the syringe down for now.

### **Step 3 Choosing and Preparing the Injection Site**

26. Choose one of these injection sites: **1)** in the middle of your thigh (the fatty part, away from your knee); **2)** the abdomen, except for the 5 cm (2 in.) area around your navel.
27. To protect your skin, choose a different site for each injection. Make sure the new site is at least 2.5 cm (1 in.) from your last injection. Do not inject into areas where the skin is tender, red, hard or bruised. Also, avoid scars and stretch marks.
28. To prepare the skin for injection, clean the site with a new alcohol swab with a firm circular motion from the inside (point of injection) to the outside **[ Q ]**. Do not touch this area again before administering the injection.

## Step 4 Injecting the Solution

29. Keep sterile gauze or a bandage handy for use after the injection if needed.
30. With your non-dominant hand (left if you are right-handed), gently pinch the cleaned area of skin and hold it firmly **[ R ]**. With your dominant hand, hold the syringe like you would a pencil, at about a 45° angle to your skin.
31. Push the needle into the skin (without hesitation) with a quick dart-like motion **[ S ]**. You may feel a slight pinching, especially if you hit a capillary. The swifter you inject, the less you will feel it.
32. Let go of the pinched skin.
33. To administer the injection, with your dominant hand, slowly push the plunger down. If using the ½ in. thinner (30G) needle, you may feel more resistance than with the 1 in. wider (25G) needle. In this case, you can try holding the barrel of the syringe with your non-dominant hand. With your dominant hand, use the flange to create a counter-resistance, all the while slowly injecting the solution **[ T ]**.
34. Once the syringe is empty, swiftly pull the needle from the skin at the same angle at which you inserted it **[ U ]**.
35. If slight bleeding occurs when you pull out the needle, apply pressure for 10 seconds with sterile gauze or an alcohol swab. Use a bandage, if necessary.

**NOTE:** Once finished, you may notice a swelling or redness at the injection site. This is a common reaction which may take a few days to disappear, and the area may remain sensitive. You may put ice on the injection site for 10 minutes to reduce swelling. If you are worried that this, or any other, reaction to the medication is undesirable or unexpected, do not hesitate to contact your doctor or pharmacist.

## Step 5 Disposing of Materials

36. Immediately throw away the used syringe and needles in an appropriate puncture-resistant container. Your pharmacist should be able to give or sell you one. Keep this container out of reach of children or animals. Once it is full, bring it back to your pharmacy **[ V ]**.
37. Keep unopened ampoules of DHE as well as the multidose vial of saline, if some remains, at room temperature, protected from light and humidity and out of reach of children or animals. You can store the multidose vial of saline in a clean empty pill box or sealable bag.
38. The remaining materials can be placed in the trash.
39. Disinfect your working surface.



**R Pinch skin**



**S Insert needle**



**T Slowly inject**



**U Pull out needle  
It's done!**



**V Dispose of needles**