



Trimix Injections

Frequently Asked Questions and Best Practices

This document was prepared to make the process as easy and painless as possible for men who have decided to use injection therapy for erectile dysfunction. This document should also be useful to those considering the use of injection therapy. At the end of the document you will find a list of contributors, a request for feedback, and an index. It should also be noted that it is not necessary to have an erection to have an orgasm. A vibrator and/or a creative partner can be helpful. You may want to refer to Tom F. Lue, MD's excellent book *A Patient's Guide to Male Sexual Dysfunction* for more detail. This book is available online at amazon.com, barnesandnoble.com or ordered through your local bookstore. ISBN: 1884065821, keywords: Male Sexual Dysfunction.

POST SURGERY

Q1. After a nerve-sparing Prostatectomy, will injections help recovery of my natural erections?

A1. Yes, if your nerves were spared, the use of injections, which stimulate the flow of blood to the penis, may help the recovery of your natural erections.

Q2. What is the optimal time after surgery to begin injection therapy?

A2. As soon as the patient recovers from surgery and feels OK to start a sexual relationship again, usually 4 to 12 weeks after surgery.

Q3. Will injections work on men with non-nerve sparing prostatectomies?

A3. Yes. Injections work independently of the nerves.

POST-RADIATION

Q4. Are there different recommendations for treating erectile dysfunction with injections for erectile dysfunction resulting from radiation therapy?

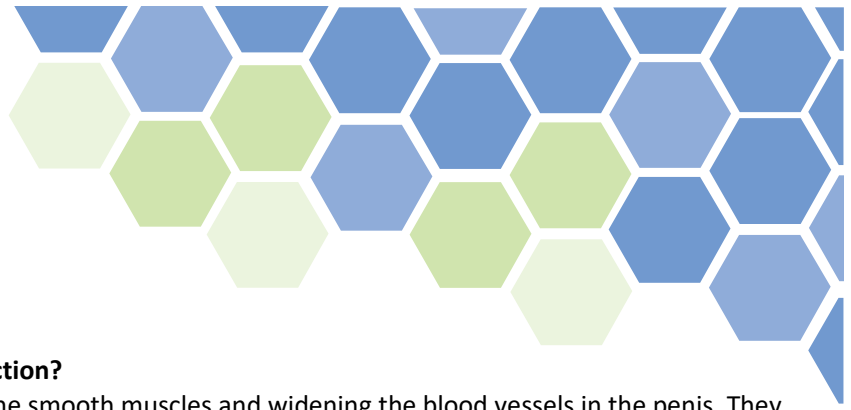
A4. There is no difference

INJECTION MEDICATIONS AND MECHANISM

Q5. It seems that there are several different medications suitable for injections. What are they and what are the tradeoffs?

A5. Each of these medications will work to help you achieve an erection. You should always consult your physician to discuss which is best for you. Some of the medicines currently in use include the following:

1. Papaverine is available at a low cost and is stable at room temperature but is less effective than the other medications and may have a higher tendency to cause scarring (fibrosis).
2. Papaverine plus phentolamine is more potent than papaverine alone but with the same potential side effects such as priapism and scar tissue formation.
3. Alprostadil rarely causes priapism but with its use pain is more common. (Alprostadil is also known as prostaglandin E-1 or PGE-1, in powdered form it may be called Caverject or Edex.)
4. Papaverine plus phentolamine plus Alprostadil (Trimix) is the most potent but requires refrigeration and has the same side effects as Papaverine and Alprostadil.



Q6. How do these medications work to produce an erection?

A6. These drugs create an erection by relaxing the smooth muscles and widening the blood vessels in the penis. They are not dependent on nerve stimulation. For a more complete discussion of how the penis functions see our Your Health Matters document entitled, Managing Impotence - A Patient Guide. Available at: the UCSF Urology Clinic at Parnassus, the UCSF Urologic Oncology Clinic or, the UCSF Cancer Resource Center at Mt. Zion or from the UCSF Urology Website at <http://cas.ucsf.edu/urology/patientGuides/neuroMale.html>

Q7. Are there long-term side effects to the use of injections? What are they?

A7. One possible side effect is the development of curvature in the erect penis, which can be painful and interfere with intercourse. This is called "Peyronie's Disease." It is caused by a buildup of plaque or scar tissue inside the penis in the lining of the corpora cavernosa. These are the two sponge-like cylinders running the length of the penis into which the medication is injected. It is relatively rare and can be treated. You can minimize the risk of getting Peyronie's by learning to inject correctly. This is not difficult.

Q8. Are there medical conditions that preclude the use of injections?

A8. Yes.

1. Severe scarring of the penis.
2. Allergy to any of the 3 medications.
3. Active infection or sores on the penis.

Note: Blood thinners such as aspirin and Coumadin can increase bleeding. Men may use injection therapy when taking these medications IF they compress the injection site for at least 7 minutes.

ERECTIONS FROM INJECTIONS

Q9. What percentage of men will get a useful erection from an injection? Do injections work for everyone?

A9. If the medication is properly dosed (this is done by your physician) and properly injected, a useful erection should occur in at least 80% of men.

Q10. Does the medication continue to work indefinitely or is a tolerance created requiring increasing dosage?

A10. Both have been seen.

Q11. How long will the erections last?

A11. This depends on a number of factors including one's general health, current physical status, whether the proper dosage was properly injected and the presence of other stimulation. Erections generally appear in 5 to 10 minutes and on average last approximately 30 minutes.

Q12. Can injections be used with vacuum erection devices?

A12. DO NOT use a vacuum erection device after injecting! Serious bleeding can result. There may be exceptions. Please consult your doctor.

Q13. My medication requires refrigeration. How long can it be left un-refrigerated?

A13. Three hours



Q14. If I am traveling, are there medications that don't require refrigeration that I can use in place of my regular medication?

A14. If your standard medication is Alprostadil (Prostaglandin), then Caverject or Edexcan be used. These are mixed from a powder at the time of use. Papaverine +phentolamine doesn't need refrigeration.

Q15. What is the definition of priapism?

A15. It is a prolonged erection. This is an easily managed but is a potentially serious complication. If ignored, it may result in severe pain and complete impotence necessitating placement of a penile prosthesis. Therefore, it is very important that if you develop a full erection lasting for more than 4 hours, you should call your doctor at once or go to the emergency room.

Q16. I've heard that Sudafed and Benadryl as well as Terbutaline can reduce a prolonged erection. When should these be used?

A16. If the erection lasts more than 2 hours. If it is still a problem after 4 hours call your doctor or go to the emergency room.

Q17. Can I use an ice pack to reduce an erection? Where and how should it be applied?

A17. Yes, on the penis or inner part of thighs. (A cold shower also works.) Again, if it is still a problem after 4 hours call your doctor or go to the emergency room.

INJECTION MECHANICS

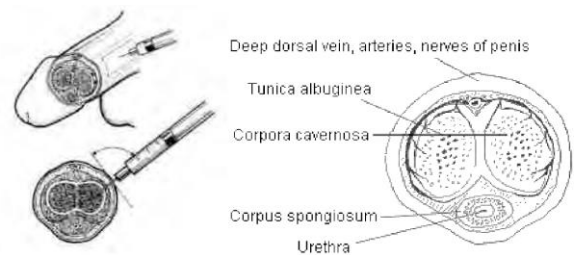
Q18. When filling the syringe, I have heard that that the plunger should be pulled down to the 1.0 cc mark before pushing the needle through the rubber stopper. Once the needle is pushed through the rubber stopper, the plunger should be pressed on, pushing the air into the ampoule before withdrawing the medication. Is there an advantage to this procedure?

A18. It makes withdrawing the medication easier.

CORRECT PLACE TO INJECT

Q 19. Where in the penis do I want the medication to go? What structures am I aiming for and which do I want to avoid?

A19. Alternate between injecting at the 3 and 9 o'clock positions. You will be injecting into the corpus cavernosum (erectile bodies). When choosing an injection site, avoid any area where a blood vessel is clearly visible.

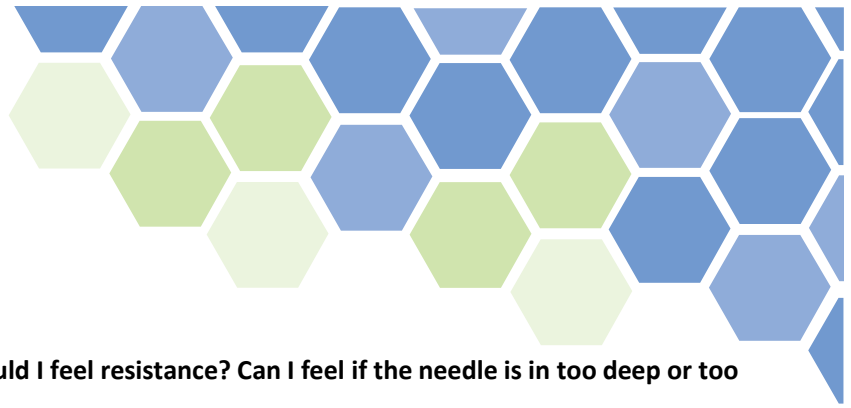


Q20. Besides the 3 and 9 o'clock positions, I've also been told that I can inject at 2, 4, 8 and 10 o'clock positions. Does it matter?

A20. 2, 4, 8, and 10 are all OK, but 3 and 9 are the best.



Intra-cavernous injection therapy. After cleaning with alcohol swab, insert needle into side of penis and inject medication.



Q21. What should I feel when I inject? Will it hurt? Should I feel resistance? Can I feel if the needle is in too deep or too shallow?

A21. As there are few nerve endings for pain in this area, there will probably be just a slight momentary discomfort. The needle should be pushed firmly until it is fully in the penis, slight resistance may be felt. An autoinjector may reduce even further this momentary pain.

Q22. Are there any cues you can give me to tell when I'm in the right place? Sometimes I feel more resistance to the plunger than other times; when that happens, the injection usually fails. Why? What should I do?

A22. The amount of resistance to pushing the plunger is one of the best indicators of good needle placement. If a lot of resistance is felt, then the needle may be in too far or not far enough. Pull the needle back a little or push it in further. If that does not work withdraw the needle and reinsert it in another suggested place. The plunger should depress quite easily. Your doctor can demonstrate. Do not inject if the resistance is strong.

Q23. If I don't get any response to an injection can I follow up with another injection maybe to a different side of the penis and perhaps using a smaller dose?

A23. No, the first injection may have punctured the urethra or other tissue. A second injection may cause more bleeding in the wrong area. The next time you inject (on another day) do it on the other side of the penis.

Q24. I'm bothered by the pain of the injection, are there topical anesthetics that I can use?

A24. Yes, any local anesthetic such as xylocaine jelly or cream will help. EMLA, a combination of 2.5% lidocaine and 2.5% prilocaine, is available with a prescription. ELA-Max, 4% or 5% lidocaine is available over the counter.

Q25. Are there thinner needles available that could be used to reduce discomfort?

A25. This is not recommended. Needle breakage has been reported with 30-gauge needles and smaller. (See question on auto injectors.)

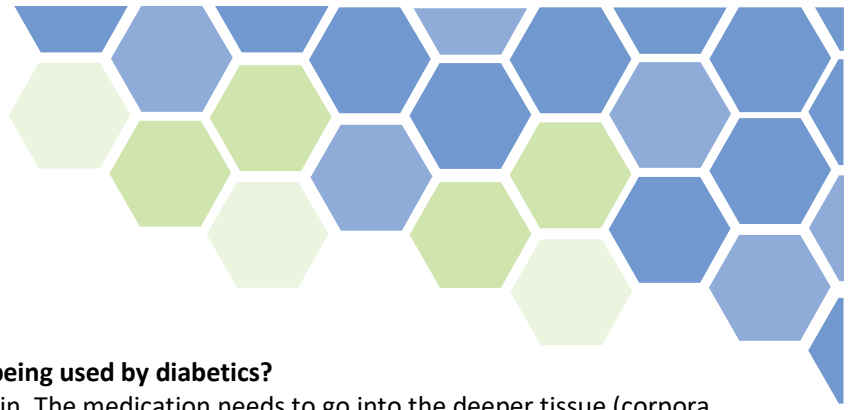
Q26. What's an autoinjector and how might it help me?

A26. An auto-injector is a spring-loaded device, which inserts the needle into the penis very quickly, minimizing the discomfort and psychological "hesitancy." It comes in two forms, a simple non-prescription device designed to insert the needle for you and a prescription-required device that also depresses the plunger for you. You can check with your local drug store to obtain the simple auto-injector (no prescription required). Moreover, many men prefer the autoinjector that does not inject the medications for them because they maintain the necessary feel to know that they have injected in the right place and to the right depth (The patient still pushes the plunger, there is no pain associated with this.) If the plunger does not push easily, as happens on occasion, withdraw the needle a little and try the plunger again. If it is still difficult to push the plunger then use the autoinjector in a different location in the penis.



Figure 1 Auto-Injection Technique. The medication is drawn into the autoinjector. The side of the penis is cleaned with an alcohol swab and the injector placed against the penis. Pressing a button activates the injector and the needle is automatically inserted.

Many men are happy using the autoinjector. Check with your local drug store to obtain one. Some men have personal experience with the Becton Dickinson "Inject-Ease" automatic injector, but there are other brands available. They are not very expensive.



Q27. Can I use 'needle-less' injections systems like are being used by diabetics?

A27. No, they only place medications into the skin. The medication needs to go into the deeper tissue (corpora cavernosa).

Q28. At what angle should the needle enter the penis? Should it be 90 degrees or a shallower angle to stay away from the urethra?

A28. The angle of injection can be defined in two different mutually independent ways.

One way is as seen from above and the other way is as seen in a “front view.” Ninety degrees should be used in every view.

Injecting the needle at 90 degrees will ensure that you will not puncture the urethra. A shallow injection should not be used because the medication will not get into the corpora cavernosa, and not be effective.

Q29. Sometimes I see a tiny amount of blood from the injection site just when the needle is withdrawn and sometimes I don't. Why? Is it a problem either way?

A29. It depends on whether or not you hit a small blood vessel. It is not a problem.

Q30. What's the best way to hold the penis for the injections? Should the penis be pulled to maximum extension? Should I pull just the outer layer or the whole penis?

A30. If you need to, you should pull the whole penis. But some men find it best to lay the penis along one leg while injecting, without pulling.

Q31. Is it important to apply pressure to the injection site for a full 5 minutes after injections? Aren't a few minutes enough?

A31. Five minutes is best. On the needle site, using an alcohol swab. Immediately apply pressure to the penis with the thumb and index finger for 5 minutes, or longer if there is still bleeding.

Q32. Should I vary the injection site? What is the best way to do that?

A32. The places for injection are limited by the anatomy of the penis and you must adhere to these. Changing injection sites from left to right and back again is recommended.

Q33. Is it important to get all the bubbles, even the littlest, out of the syringe before injection?

A33. Removing those as small as poppy seeds is not necessary.

DOSAGE, etc.

Q34. How is the correct dosage determined? How do I know when I have the right dose?

A34. Dose consists of both the strength of the medication and the amount used. With the appropriate strength and amount of drug as determined by a physician (usually less than 1 cc), erections usually occur in 5 to 10 minutes, last for approximately 30 minutes to an hour, and become more rigid if sexual stimulation occurs.



Q35. Is sexual stimulation required for an erection? Can I use less medication if I have more stimulation?

A35. Stimulation is not required but may speed things up a bit. You may be able to use less medication with stimulation.

Q36. Sometimes a dose that has worked fine before, produces no erection. I'm sure I injected in the right place. What happened?

A36. You were probably in the wrong place or too deep or too shallow, or the medication had expired (lost its effectiveness).

Q37. My instructions say not to inject more than twice a week. What's the reason for not injecting every day, for example?

A37. Injecting into the penis frequently may cause scarring.

Q38. Does the medication lose potency over time even if stored correctly?

A38. Yes, after about six months the medication will be less effective.

Q39. Will I develop a tolerance over time requiring an increasing dose?

A39. This occurs infrequently but if it does, your physician may have to readjust the dosage of medication.

PROBLEMS

Q40. What, if any lasting damage can be done to the penis by the wrong injection technique? Can just one injection if done incorrectly cause permanent damage?

A40. Yes, although it is rare, scarring can occur (Peyronie's disease). If a patient injects too much medication it could cause priapism and damage to the erectile tissue. Not compressing the injection site after injection may cause internal bleeding and scar tissue.

Q41. After an injection I've seen blood coming from the urethra. What happened? What should I do immediately if this happens?

A41. You have punctured the urethra. Grab the whole penis and squeeze for 5-7 minutes.

Q42. What happens if I accidentally hit a large blood vessel? What should I do?

A42. If bleeding continues after applying pressure, abstain from intercourse until bleeding stops. Continue to apply firm pressure until bleeding stops.

Q43. Do infections ever develop from injections? How common is this?

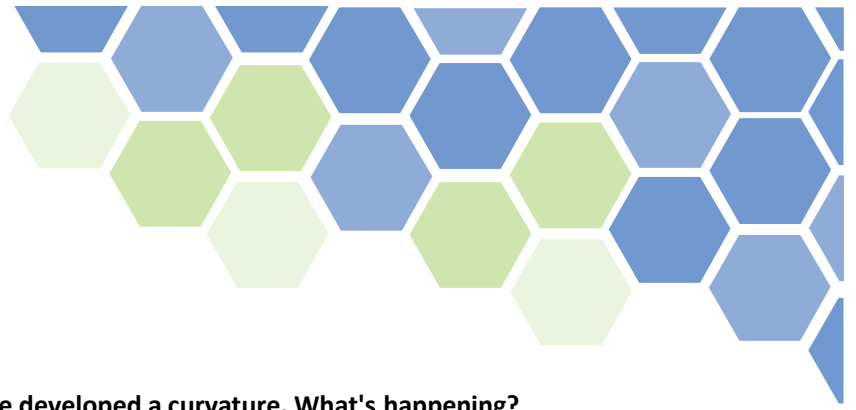
A43. This happens very rarely.

Q44. Does the injection site make me more susceptible for contracting a sexually transmitted disease?

A44. Possibly, but not likely. If in doubt, put on a condom.

Q45. Can injections be used while taking Viagra orally? If so, can a lower dose be used?

A45. You should not inject and take Viagra at the same time. Using both treatments together causes an increased possibility of priapism. (Consider alternating using Viagra and injections.)



Q46. After using injections for a while my erections have developed a curvature. What's happening?

A46. The injections may have caused some scar tissue to have formed. This condition is called Peyronie's disease. Talk to your doctor about causes and treatment.

Q47. Does this curvature develop for all men using injections?

A47. No, only in 3-8 percent of men.

Q48. Can this problem be the result of improper injection technique?

A48. Yes. The patient must make sure that he maintains pressure on the injection site for 5 minutes to stop bleeding; including possible internal bleeding that will not be seen.

Also, attention must be paid to the doctor's instructions on where to inject, the alternation of injection sites, and the frequency of injections.

Q49. It is difficult for me to inject on both sides, because I am right-handed, I have difficulty injecting on one side. I inject less than 100 times a year. Is it crucial to inject both sides?

A49. It is better if you can inject both sides. You can't go wrong with alternating sides even if you only use injections monthly. However, you do not need to change sides if injections are used less than twice a week.

Q50. Can just one injection cause Peyronie's disease?

A50. If too much medication is injected or if the medication is injected incorrectly it is possible but not likely.

Q51. Can men that develop curvature continue to safely use injections?

A51. If it is a mild curvature.

Q52. Are there medications that can be helpful? (to treat curvature of the penis?)

A52. Colchicine may be helpful in the early phases of Peyronie's disease.

Q53. Can surgery be useful?

A53. Yes, but only when the condition has stabilized, and after non-surgical treatments have failed.

IN THE FUTURE

Q54. What kinds of medications or procedures are on the horizon to help men with erectile dysfunction?

A54. Prostaglandin, which is currently injected and used as a urethral suppository, is being tested in a clinical trial for a new use. This trial is to put prostaglandin gel to the urethral opening at the tip of penis. New pills and nasal sprays are being tested in the laboratory and in clinical trials including medications that would be given at the time of prostate surgery to protect the cavernous nerve.



Successful Self Injection – Patient Information Document
Department of Urology, Box 1695
University of California, San Francisco
San Francisco, CA 94143-1695

QUESTIONS?

If you would like to talk about the Successful Self Penile Injection booklet with a member of the group that prepared it, please contact Stan Rosenfeld, UCSF volunteer and prostate cancer advocate. Stan can be reached by telephone at 415-459-4668 or by email at vegstan2@ix.netcom.com