

Erectile Dysfunction Patient Guide



Table of Contents

Urology Care Foundation Reproductive & Sexual Health Committee

Chuck’s Story	3
Introduction	3
GET THE FACTS	
What is Erectile Dysfunction or ED?	4
How do Erections Work?	4
What are the Symptoms of ED?	4
What Causes ED?	4
Physical Causes	5
Emotional Causes	5
GET DIAGNOSED	
How Does my Doctor Diagnose ED?	5
Health History	5
ED History	6
Stress and Emotional Health History	6
Physical Exam	6
Lab Tests	6
Other Tests	6
Advanced Erectile Function Test	6
GET TREATED	
Lifestyle Changes	7
Emotional Health Care	7
Medical Treatments	7
Oral Drugs	7
Vacuum Erection Device	8
Dietary Supplements	8
Testosterone Therapy	8
Intracavernosal and Intraurethral Therapies	8
Surgical Treatments	9
Penile Implants	9
What is the Surgery Like?	9
Recovery After Penile Implants	9
Clinical Trials	9
AFTER TREATMENT	10
GLOSSARY	11
About the Urology Care Foundation	[back cover]

CHAIR

Ajay K. Nangia, MBBS, FACS

COMMITTEE MEMBERS

Gregory Broderick, MD

Arthur L. Burnett, II, MD

Stan Honig, MD

Tobias S Kohler, MD

Akanksha Mehta, MD, MS

Charles ("Chuck") Kilhoffer's Story



My ED was a result of the radical prostatectomy surgery I had for prostate cancer more than a decade ago.

I first tried a vacuum pump to improve blood flow to my penis. It worked for a while, but for me, the compression was painful.

Then I tried my first surgery for ED. I opted to get an inflatable penile prosthesis. That prosthesis was a big disappointment at first. I didn't know there were size choices, so I wasn't fitted correctly. Fortunately, I was able to find a new doctor who told me about larger cylinders for the implant. My doctor was able to correct the size, but I also had to deal with several mechanical failures. The implant would require repairs when it wouldn't inflate.

I'm on my fifth revision now, with a new implant. Everything is working well. I realize that my case - with so many surgeries - is unusual. My experience has taught me that it's important to start with an experienced surgeon. Experience will raise the rate of satisfaction for men with a penile implant.

As I look back, I realize it's important to know what you're getting into before you begin. I would tell a new patient:

- If you consider an implant, make sure you work with a surgeon who's done this surgery and has had successful outcomes. Just being a doctor is not enough. Experience is everything.
- It's very important to do exactly what the surgeon tells you. If they tell you not to have intercourse for six weeks...don't do it. The costs could be severe. If I can follow directions, you can too!
- Be aware that after cancer surgery, you may lose sensation or it may be harder to climax with an implant.
- Try to talk with people who've already had the procedure. You can learn how they're doing. I wish more doctors would insist that patients talk with someone who's had the procedure before they move forward.

Bottom line: your love life can return. If you have ED, you should ask about what's available and learn as much as you can about helpful treatments and how they work.

Introduction

Studies show about 1 in 2 men over the age of 50 have some degree of erectile dysfunction (ED). While ED becomes more common as men age, growing old is not the only cause.

At one time, healthcare providers thought psychological problems, like stress and anxiety, were the main causes of ED. Recent studies show many cases are due to an underlying illness. ED can be an early warning sign of a more serious problem.

Diagnosing and treating the conditions that cause ED are important for your health, and your sex-life. With help, many men enjoy good health and sexual activity well into their senior years.

GET THE FACTS

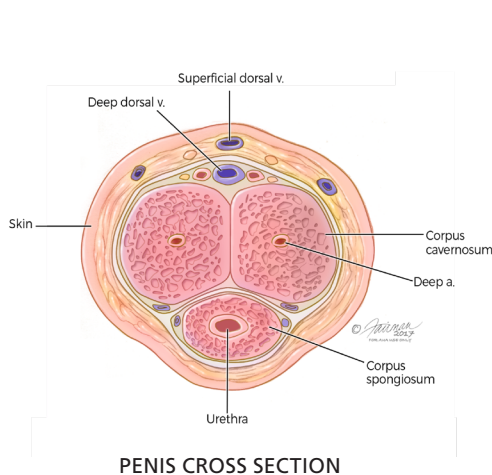
What is Erectile Dysfunction or ED?

Erectile dysfunction, or ED, is the most common sex problem men report to their doctor. ED is defined as trouble getting or keeping an erection that's firm enough for sex.

Though it's not rare for a man to have problems with erections from time to time, ED that comes on slowly over time or regularly with sex is not normal. It should be treated.

ED can happen:

- When blood flow in the penis is limited or nerves are harmed
- With stress or for emotional reasons
- As an early warning of a more serious illness, like **atherosclerosis** (hardening or blocked **arteries**), heart disease, high blood pressure or high blood sugar from **diabetes**



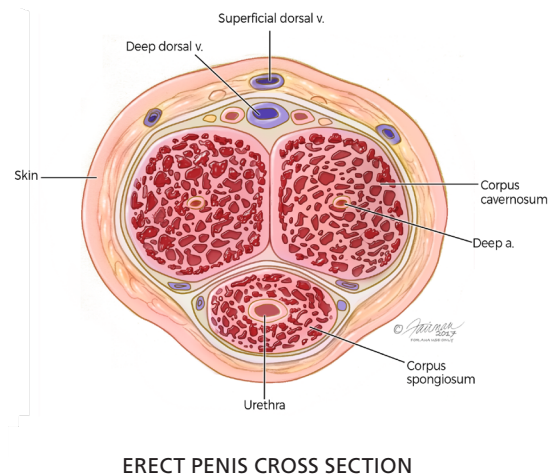
PENIS CROSS SECTION

How do Erections Work?

During sexual arousal, the brain signals nerves to release chemicals that increase blood flow into the penis. Blood flows into two erection chambers made of spongy muscle tissue (the corpus cavernosum). The corpus cavernosum chambers are not hollow. During an erection, the spongy tissues relax and trap blood. The blood pressure in the chambers make the penis firm, causing an erection.

When a man has an orgasm, a second set of nerve signals reach the penis and cause the muscular tissues there to contract. Blood is released back into a man's circulation and the erection comes down.

When you are not sexually aroused, the penis is soft and limp. Men may notice the size of the penis varies with warmth, cold or worry. This is normal, and reflects the balance of blood coming into and leaving the penis.



ERECT PENIS CROSS SECTION

What are the Symptoms of ED?

Symptoms for ED may include:

- getting an erection, but it not lasting long enough for sex
- getting an erection, but not when you want to have sex
- not being able to get an erection at all

When ED becomes bothersome, your primary care provider or a **urologist** can help.

ED may be a major warning sign of cardiovascular disease. It can signal blockages in a man's vascular system. Some studies have shown men with ED are at higher risk of a heart attack, stroke or circulatory problems in the legs.

What Causes ED?

Finding the cause(s) of your ED will help to treat the problem. ED can result from health problems, emotional issues, or from both.

Some known risk factors for ED are:

- Injury to the pelvis
- Surgery from cancers of the **prostate**, colon, rectum or bladder
- Heart disease
- **Peripheral artery disease** (narrowed arteries slowing blood flow)

- High blood pressure
- High blood sugar (diabetes)
- Alcohol use
- Drug use
- Smoking or vaping
- Some medicines
- Emotional stress from depression, anxiety or relationship problems

Even though ED becomes more common as men age, growing old does not always cause ED. Some men are sexually functional into their 80s.

THE PHYSICAL CAUSES OF ED

- **Factors that affect vessels or nerves and restrict blood flow to the penis**

Many health issues can reduce blood flow to the penis. For example: peripheral artery disease or atherosclerosis, heart disease, high blood sugar (diabetes) and smoking.

- **The penis cannot trap blood during an erection**

If blood does not stay in the penis, a man cannot keep an erection. This issue can happen at any age.

- **Nerve signals from the brain or spinal cord do not reach the penis**

A certain disease, injury or surgery in the pelvic area can harm nerves to the penis.

- **Cancer treatments near the pelvis affect how the penis functions**

Surgery and/or radiation for prostate, colorectal or bladder cancer may leave men with ED. Cancer survivors should see a urologist for sexual health concerns.

- **Drugs used to treat other health problems negatively impact erections**

Patients should talk about drug side effects with their primary care doctors.

THE EMOTIONAL CAUSES OF ED

Sex needs both the mind and body to work together. Emotional or relationship problems can cause or worsen ED.

Some emotional issues that can lead to ED are:

- Anxiety
- Depression
- Relationship conflicts
- Stress at home or work
- Stress from social, cultural or religious conflicts
- Worry about sexual performance

GET DIAGNOSED

How Does my Doctor Diagnose ED?

Diagnosing ED starts with a conversation. Your healthcare provider will ask you questions about your general health and your erection problem. Your provider may also give you a physical exam, order lab tests or refer you to a urologist. It's important to find the cause of your ED to help direct your treatment.

Be ready to answer a number of questions. Some of these questions will be personal and may seem embarrassing. Honest answers will help find the cause and best treatment for your ED.

HEALTH HISTORY

It's important to speak openly with your doctor. To start, your doctor will want to know about your health history

and lifestyle. It is very important to tell your healthcare provider about any drugs you take – both prescription and over-the-counter. If you smoke, tell them how much. If you drink, tell them how much. Your doctor will also ask about recent stressors in your life.

Questions about your health history may include:

- What prescription drugs, over-the-counter drugs or supplements do you take?
- Do you use recreational drugs?
- Do you smoke or vape? What do you smoke, and how much?
- How much alcohol do you drink?
- Have you had surgery or radiation therapy in the pelvic area?
- Do you have any urinary problems?
- Do you have other health problems (treated or untreated)?

ED HISTORY

Your experience will help your provider learn if your ED stems from your desire for sex, erection function, **ejaculation** or orgasm (**climax**). Some of these questions may feel private, but your doctor is a medical professional and your answers will help find the cause of the problem.

These are the types of questions your doctor will likely ask:

- How long have you had these symptoms? Did they start slowly or all at once?
- Do you wake in the morning or during the night with an erection?
- If you do have erections, how firm are they? Is penetration difficult?
- Do you have problems with sex drive or arousal?
- Do your erections change at different times, like when entering a partner, during stimulation by mouth, or with masturbation?
- Do you have pain with erections?

STRESS AND EMOTIONAL HEALTH HISTORY

Your healthcare provider may ask you questions about your emotional health and if you feel depressed or anxious at times. He or she may ask about problems in your relationship with a partner. Some healthcare providers ask if they can talk with your sex partner as well.

Question about your emotional health may include:

- Are you often under a lot of stress, or has something recently upset you?
- Does anything cause you to feel anxious or depressed? Do you have a different mental health issue?
- Are you taking any drugs for your mental health?
- How satisfied are you with your sex life? Has there been any change lately?
- How is your relationship with your partner? Has there been any change lately?

PHYSICAL EXAM

The physical exam is a way to check your total health. For ED, it often starts with an exam of your genitals (penis and **testicles**). Based on your age and risk factors, the exam may focus on your heart and blood system (heart, peripheral pulses and blood pressure). Based on your age and family history, your doctor may do a rectal exam to check the prostate. These tests are usually not painful.

LAB TESTS

Your healthcare provider may order blood tests and collect a **urine** sample to look for other health problems not found through a physical exam that may lead to your ED.

OTHER TESTS

Questionnaires are often used by health experts to rate your ED problem. These may ask about your ability to start and keep erections, gauge your satisfaction with sex, and identify problems with being able to have an orgasm.

ADVANCED ERECTILE FUNCTION TESTS

For some men, specialized testing may be needed to guide treatment or assess next steps if treatment fails. These tests include:

- Blood work to check testosterone and other male hormones
- Blood work to measure blood sugar (diabetes)
- Ultrasonography (Penile Doppler) to check blood flow
- An injection into the penis with a vascular stimulant to cause an erection
- Nocturnal penile tumescence (NPT) to check for sleep erections overnight
- Note: Pelvic x-rays like arteriography, MRI or CT scanning are rarely needed to check ED unless there is history of trauma or cancer

Nothing happens in the body without the brain. Worrying about your ability to get an erection may make it difficult to get one. This is called performance anxiety. It can be helped with education and treatment.

GET TREATED

If ED is affecting your well-being or relationships, it should be treated. Treatment aims to fix or improve erectile function, support circulatory health and help the quality of a man's life.

Lifestyle Changes

The treatment for ED starts with taking care of your heart and vascular health. Your doctor may point out 'risk factors' that can be changed or improved. You may be encouraged to:

- Improve your eating habits (like eating more plant-based foods, and limiting high-fat or processed foods)
- Maintain a healthy weight
- Stop smoking
- Increase exercise
- Limit drugs and alcohol
- Sleep more (ideally 7-8 hours per night)

Your doctor may suggest adjusting the prescribed drugs you take. Please do not stop or change prescription drugs without first talking to your healthcare provider.

Emotional Health Care

Your healthcare provider may also suggest treating emotional problems. These could stem from relationship conflicts, life's stressors, depression or anxiety from past problems with ED (performance anxiety). You can ask for a referral to a sexual health counselor or a general mental health counselor. Find someone who is highly trained, and can offer proven mental health strategies to help you manage life's challenges.

Medical Treatments

Non-invasive treatments are often tried first. Most of the best-known treatments for ED work well and are safe. Still, ask your healthcare provider about side effects that could result from each option.

ORAL DRUGS

Oral drugs known as PDE type-5 inhibitors increase penile blood flow. These are drugs that are taken as a pill by mouth.

The only oral agents approved in the U.S. by the Food and Drug Administration for ED are:

- Viagra® (sildenafil citrate)
- Levitra® (vardenafil HCl)
- Cialis® (tadalafil)
- Stendra® (avanafil)

For best results, men with ED should take these pills about an hour or two before having sex. PDE-5 inhibitors improve blood flow to create a strong erection. To work, they require normal nerve function to the penis. About 7 out of 10 men do well and have better erections with these agents. Response rates are lower for people with diabetes or cancer.

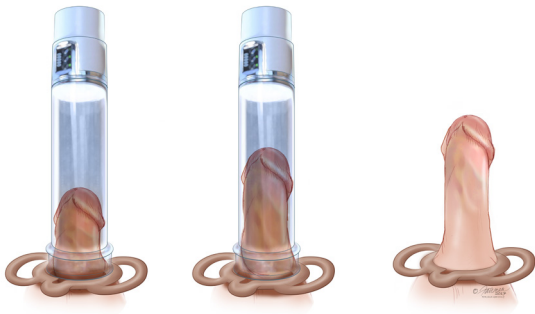
*If you are taking nitrates for your heart, you **SHOULD NOT** take any PDE-5 inhibitors. Always speak with your healthcare provider before using a PDE-5 inhibitor to learn how it might affect your health. Always use these drugs as directed.*

Most often, the side effects of PDE-5 inhibitors are mild and last just a short time. The most common side effects are:

- Facial flushing
- Headache
- Indigestion
- Muscle aches
- Stuffy nose

Most side effects linked to PDE-5 inhibitors are related to other tissues in the body. These drugs increase blood flow to your penis, so they can also impact other vascular tissues. Talk with your urologist about possible concerns.

VACUUM ERECTION DEVICE



A vacuum erection device is a plastic tube that slips over the penis, making a seal with the skin of the body. A pump at the other end of the tube makes a low-pressure vacuum around the erectile tissue. Pressure from the pump results in an erection. An elastic ring is then slipped onto the base of the penis to hold the blood in the penis. It can create an erection for up to 30 minutes. With proper training, 75 out of 100 men can get a working erection using a vacuum erection device.

DIETARY SUPPLEMENTS

Dietary **supplements** (also called “herbal remedies”) are popular, but may not be safe or even work. Check with your healthcare provider before you take any supplements to self-treat ED. The FDA has warned consumers not to use unapproved drugs for ED. Supplements may include the PDE-5 inhibitors, sometimes at overly high doses. They may also contain undisclosed ingredients.

TESTOSTERONE THERAPY

In rare cases where a low sex drive and low levels of testosterone are found in the blood, **testosterone therapy** may help increase your sexual drive (libido). It may be combined with ED drugs (PDE-5 inhibitors) to help with erections.

INTRACAVERNOSAL (ICI) AND INTRAURETHRAL (IU) THERAPIES

If oral drugs don't work, the drug Alprostadil is approved for use in men with ED. This drug can be given through an injection in the penis (intracavernosal injection or “ICI”). Or, it can be given through a medicated pellet placed in the **urethra** (called intraurethral or “IU therapy”).

Self-Injection Therapy

To cause an erection, Alprostadil is injected into the side of penis with a very fine needle. The success rate for getting an erection firm enough to have sex with ICI is as high as 85 percent. Many men who do not respond to oral PDE-5 inhibitors can be ‘rescued’ with ICI. It produces a reliable erection, which comes down after 20-30 minutes or with climax.

If Alprostadil alone does not work or causes aching, different injectable penile medications are combined for greater strength. The most popular injectable is called ‘Trimix’. This combination of medicines is usually mixed by a pharmacist and requires a prescription. The amount of each drug in the mix can change, based on the severity of your ED and your provider’s judgement. You will be trained on how to inject, how much to inject, and how to safely raise the drug’s dosage at home. It’s of great value to practice the first shot in the urologist’s office before doing this on your own.

The most common side effect of ICI (and IU therapy) is a prolonged erection, called **priapism**. Priapism is an erection that lasts longer than four hours. It is painful and damages penile tissues. Patients experiencing priapism should go to an Emergency Room for treatment. Reversing priapism requires the removal of trapped blood in the penis, plus the injection of a reversal agent. Men must be carefully monitored during priapism reversal, and may need surgical help. Priapism causes varying degrees of deep tissue penile damage (fibrosis). Penile fibrosis will worsen ED, or cause complete ED.

Men using ICI who have penile erections that last longer than two to four hours should seek Emergency Room care.

Intraurethral (IU) Therapy

For IU therapy, a tiny medicated pellet of the drug Alprostadil is placed in the urethra (the tube that carries urine out of your body). It dissolves in the urethra to work. Using the drug this way means you don't have to give yourself an injection. Unfortunately, it may not work as well as ICI. IU therapy should be tested in the urologist’s office before using it at home.

The most common side effect of IU Alprostadil is a burning feeling in the penis. Also, a prolonged erection (priapism) can be a problem and would require Emergency Room treatment. (See information about priapism in the ICI section)

Surgical Treatments

The main surgical treatment of ED involves a penile **implant**, also called a penile prosthesis. For men who haven't had success with other treatments, or who have ED as a result of a prostatectomy for prostate cancer, penile implants can be a good next step.

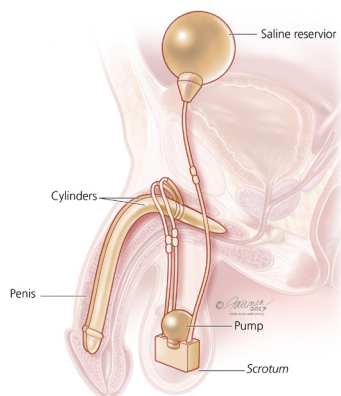
PENILE IMPLANTS

Penile implants are placed fully inside your body. They make a stiff penis that lets you have normal and spontaneous sex. Although penile implant surgery (like all surgery) carries risks, these implants have a high rate of success and satisfaction among ED patients. This is a very good choice for many men.

There are two types of penile implants.

Semi-Rigid Implant (Bendable)

The simplest kind of implant is made from two easy-to-bend rods that are made from silicone and metal. These rods give a man's penis the firmness needed for sexual penetration. The implant can be bent down for urination and up for sex.



Inflatable Implant

With an inflatable implant, fluid-filled cylinders are placed lengthwise in the penis. Tubing joins these cylinders to a pump placed inside the scrotum (between the testicles). When pumped, pressure inflates the cylinders and makes the penis stiff.

Inflatable implants make a normal looking erection and are natural feeling for your partner. With the implant, men can control firmness and, sometimes, the size of the erection. Inflatable implants allow couples to take part in spur-of-the-moment intimacy.

There should be little or no change to a man's penile sensation and orgasm. Penile implants may help with erections, but they can't repair damage to sensation, orgasm or ejaculation from cancer or its treatment.

WHAT IS THE SURGERY LIKE?

Penile implant surgery is most often done with the use of anesthesia. Usually, one small surgical cut is made. The cut is either above the penis where it joins the belly or under the penis where it joins the scrotum. No tissue is removed. Blood loss tends to be small. A patient will either go home the same day or spend one night in the hospital.

RECOVERY AFTER PENILE IMPLANTS:

- Most men will feel pain at first. A short-term narcotic pain-relief drug is often prescribed. It can be used safely for one to two weeks. After the first week, over-the-counter pain drugs (such as acetaminophen or ibuprofen) may be used instead of the narcotic drug.
- Discomfort, bruising and swelling after surgery will last for a few weeks.
- For the first month, men should limit their physical activity. The surgeon will explain when and how much exercise is helpful during the healing period.
- Most men can start having sex with their penile implants by week eight after surgery. If swelling or pain remains, using the implant may be delayed. The surgeon or your healthcare expert will show you how to safely inflate and deflate the implant.

At first, implant surgery can cause bleeding, infection, tenderness and pain while healing. Over time, there is a risk of device failure. This would require another surgery for replacement. Many men find it helps to talk with someone who's had implant surgery before going forward with it.

If you get an infection after surgery, the implant will likely be removed. If a penile prosthesis is removed, other non-surgical treatments may no longer work. For the most part, the devices are reliable. If there is a mechanical problem, the device or a part of the device will need to be replaced surgically.

Most men with penile implants and their partners say that they're satisfied with the results.

Clinical Trials

Several treatments are being studied for ED treatment:

- Extracorporeal shock wave therapy (ESWT) – low-intensity shock waves to help repair erectile tissues and restore natural erections.
- Intracavernosal injection of stem cells – to help cavernous tissue regrow.
- Intracavernosal injection autologous platelet rich plasma (APRP) – to help cavernous tissue regrow.

These are not currently approved by the FDA, but they may be offered through research studies (clinical trials). Patients who are interested should ask about them. Before entering a clinical study, you will discuss the risks and benefits (informed consent) of the treatment. Most therapies that aren't yet approved by the FDA are not covered by insurance (government or private).

AFTER TREATMENT

After Treatment

All of the treatments for ED are used, as needed, for sex and then wear off. The exception to this is implant surgery. Though these treatments help the symptoms, they do not fix the underlying problem in the penis. Men should learn about the underlying cause and aim to manage any medical or emotional issues that may be the cause of the problem.

The good news is that you don't have to give up on your love life. ED can be prevented or treated safely!

QUESTIONS TO ASK

- Can you help me with ED, or do I need a specialist?
- If I need a specialist (urologist), do you have a referral for me?
- Can you check my heart and blood health?
- Are there other tests I should take to find the cause of my ED?
- Can I do anything to prevent ED?
- Are there any lifestyle changes that could help my symptoms?
- What types of treatments are available for me and why?
- What are the pros and cons of each type of treatment you suggest?

NOTES

GLOSSARY

ARTERIES

The blood vessels that carry oxygen and nutrients from your heart to the rest of your body.

ATHEROSCLEROSIS

The narrowing of the arteries caused by a buildup of plaque, fats, cholesterol or other elements. It is also called hardening of the arteries.

CLIMAX

The most intense or exciting point of something. A sexual climax is also called an orgasm. It can result from stimulating the penis in males, ending with ejaculation.

DIABETES

A disease that occurs when your blood glucose, also called blood sugar, is too high.

EJACULATION

The release of semen from the penis during sexual climax (ejaculate).

ERECTILE DYSFUNCTION (ED)

Trouble getting or keeping an erection that's firm enough for sex.

IMPLANT

To insert or fix tissue or a medical object in a person's body through surgery.

ORAL DRUG

A medicine taken by mouth.

PERIPHERAL ARTERY DISEASE (PAD)

A common blood circulation problem where narrowed arteries limit blood flow to the limbs. It signals a more serious problem of fatty deposits in the arteries (atherosclerosis).

PROSTATE

The male gland that sits between the bladder and the penis.

PRIAPISM

An erection that lasts longer than four hours. It is painful and damages penile tissues.

RADICAL PROSTATECTOMY

Surgery to remove the entire prostate and cancerous tissues. There are two types: retro-pubic and perineal.

SCREENING TESTS

Tests that check for disease, hopefully at an early stage when treatment can help.

SPERM

Also called spermatozoa. These are male reproductive cells made in the testicles that can fertilize a female partner's eggs.

SUPPLEMENT

Vitamins, minerals, herbs, enzymes or other ingredients made to offer some health benefit. These are not regulated by the Food and Drug Administration (FDA).

TESTICLES

Paired, egg-shaped glands located in a pouch (scrotum) below the penis. They produce sperm and testosterone.

TESTOSTERONE THERAPY

A treatment where medicine is given for low testosterone levels in the blood (and other symptoms). Testosterone therapy is given by a shot, pill, gel (through the nose), pellets under the skin, or with a cream, patch, or gel on the skin.

URETHRA

The tube that leads from the bladder through the penis to move urine out of the body. Semen travels through this tube during ejaculation.

URINE

Liquid waste filtered from the blood by the kidneys. It is first stored in the bladder then moved through the urethra and out of the body (called urinating or voiding).

UROLOGIST

A medical doctor who specializes in issues of the urologic system as well as male and female sexual dysfunction.

ABOUT THE UROLOGY CARE FOUNDATION

ABOUT THE UROLOGY CARE FOUNDATION

The Urology Care Foundation is the world's leading urologic foundation – and the official foundation of the American Urological Association. We provide information for those actively managing their urologic health and those ready to make health changes. Our information is based on the American Urological Association's resources and is reviewed by medical experts.

To learn more, visit the Urology Care Foundation's website, [UrologyHealth.org/UrologicConditions](https://www.UrologyHealth.org/UrologicConditions) or go to [UrologyHealth.org/FindAUrologist](https://www.UrologyHealth.org/FindAUrologist) to find a doctor near you.

DISCLAIMER:

This information is not a tool for self-diagnosis or a substitute for professional medical advice. It is not to be used or relied on for that purpose. Please talk to your urologist or healthcare provider about your health concerns. Always consult a healthcare provider before you start or stop any treatments, including medications.

For copies of printed materials about Erectile Dysfunction and other urologic conditions, visit [UrologyHealth.org/Order](https://www.UrologyHealth.org/Order) or call 800-828-7866.

For more information, contact:

Urology Care
FOUNDATION™
The Official Foundation of the
American Urological Association

1000 Corporate Boulevard,
Linthicum, MD 21090
1-800-828-7866
UrologyHealth.org

For copies of other printed material and other urologic conditions, visit www.UrologyHealth.org/Order.
