

Peyronie's Disease

National Kidney and Urologic Diseases Information Clearinghouse



U.S. Department
of Health and
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What is Peyronie's disease?

Peyronie's disease is characterized by a plaque, or hard lump, that forms within the penis. The plaque, a flat plate of scar tissue, develops on the top or bottom side of the penis inside a thick membrane called the tunica albuginea, which envelopes the erectile tissues. The plaque begins as a localized inflammation and develops into a hardened scar. This plaque has no relationship to the plaque that can develop in arteries.

Cases of Peyronie's disease range from mild to severe. Symptoms may develop slowly or appear overnight. In severe cases, the hardened plaque reduces flexibility, causing pain and forcing the penis to bend or arc during erection. In many cases, the pain decreases over time, but the bend in the penis may remain a problem, making sexual intercourse difficult. The sexual problems that result can disrupt a couple's physical and emotional relationship and can lower a man's self-esteem. In a small percentage of men with the milder form of the disease, inflammation may resolve without causing significant pain or permanent bending.

The plaque itself is benign, or noncancerous. It is not a tumor. Peyronie's disease is not contagious and is not known to be caused by any transmittable disease.

A plaque on the topside of the shaft, which is most common, causes the penis to bend upward; a plaque on the underside causes it to bend downward. In some cases, the plaque develops on both top and bottom,

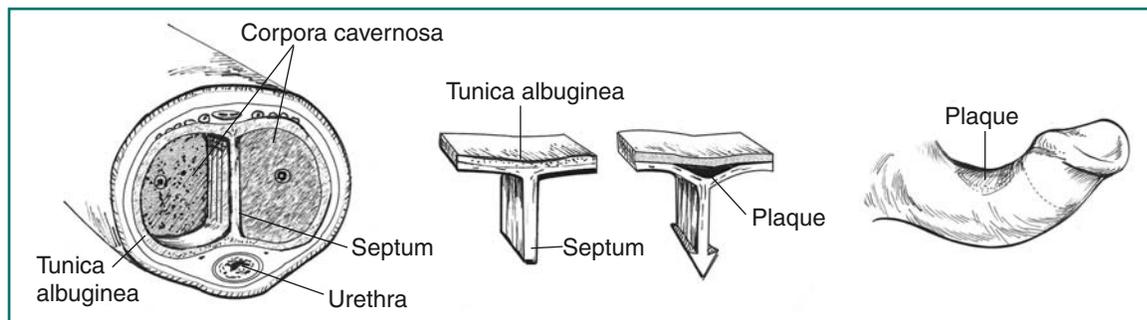
leading to indentation and shortening of the penis. At times, pain, bending, and emotional distress prohibit sexual intercourse.

Estimates of the prevalence of Peyronie's disease range from less than 1 percent to 23 percent.¹ A recent study in Germany found Peyronie's disease in 3.2 percent of men between 30 and 80 years of age.² Although the disease occurs mostly in middle age, younger and older men can develop it. About 30 percent of men with Peyronie's disease develop hardened tissue on other parts of the body, such as the hand or foot. A common example is a condition known as Dupuytren's contracture of the hand. In some cases, Peyronie's disease runs in families, which suggests that genetic factors might make a man vulnerable to the disease.

A French surgeon, François de la Peyronie, first described Peyronie's disease in 1743. The problem was noted in print as early as 1687. Early writers classified it as a form of impotence, now called erectile dysfunction (ED). Peyronie's disease can be associated with ED—the inability to achieve or sustain an erection firm enough for intercourse.

¹Wessells H, Joyce GF, Wise M, Wilt TJ. Erectile dysfunction and Peyronie's disease. In: Litwin MS, Saigal CS, editors. *Urologic Diseases in America*. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Washington, DC: U.S. Government Printing Office, 2007; NIH Publication No. 07-5512:483-530.

²Sommer F, Schwarzer U, Wassmer G, Bloch W, Braun M, Klotz T, Engelmann U. Epidemiology of Peyronie's disease. *International Journal of Impotence Research*. 2002;14:379-383.



A cross-section of the penis (left) displays the internal cavity that runs the length of the penis and is divided into two chambers—corpora cavernosa—by a vertical connecting tissue known as a septum. Scientists theorize that, during trauma such as bending, bleeding might occur at a point of attachment of the septum to the tunica albuginea lining the chamber wall (center). The bleeding results in a hard scar, or plaque, which is characteristic of Peyronie’s disease. The plaque reduces flexibility on one side of the penis during erection, leading to curvature (right).

However, experts now recognize ED as only one factor associated with the disease—a factor that is not always present.

How does Peyronie’s disease develop?

Many researchers believe the plaque of Peyronie’s disease develops following trauma, such as hitting or bending, that causes localized bleeding inside the penis. Two chambers known as the corpora cavernosa run the length of the penis. A connecting tissue, called a septum, runs between the two chambers and attaches at the top and bottom of the tunica albuginea.

If the penis is bumped or bent, an area where the septum attaches to the tunica albuginea may stretch beyond a limit, injuring the tunica albuginea and rupturing small blood vessels. As a result of aging, diminished elasticity near the point of attachment of the septum might increase the chances of injury. In addition, the septum can also be damaged and form tough, fibrous tissue, called fibrosis.

The tunica albuginea has many layers, and little blood flows through those layers. Therefore, the inflammation can be trapped between the layers for many months. During that time, the inflammatory cells may release substances that cause excessive fibrosis and reduce elasticity. This chronic process eventually forms a plaque with excessive amounts of scar tissue and causes calcification, loss of elasticity in spots, and penile deformity.

While trauma might explain some cases of Peyronie’s disease, it does not explain why most cases develop slowly and with no apparent traumatic event. It also does not explain why some cases resolve or why similar conditions such as Dupuytren’s contracture do not seem to result from severe trauma.

Some researchers theorize that Peyronie’s disease may be an autoimmune disorder.

How is Peyronie's disease evaluated?

Doctors can usually diagnose Peyronie's disease based on a physical examination. The plaque can be felt when the penis is limp. Full evaluation, however, may require examination during erection to determine the severity of the deformity. The erection may be induced by injecting medicine into the penis or through self-stimulation. Some patients may eliminate the need to induce an erection in the doctor's office by taking a digital or Polaroid picture at home. The examination may include an ultrasound scan of the penis to pinpoint the location(s) and calcification of the plaque. The ultrasound can also be used to evaluate blood flow into and out of the penis if there is a concern about erectile dysfunction.

How is Peyronie's disease treated?

Men with Peyronie's disease usually seek medical attention because of painful erections, penile deformity, or difficulty with intercourse. Because the cause of Peyronie's disease and its development are not well understood, doctors treat the disease empirically; that is, they prescribe and continue methods that seem to help. The goal of therapy is to restore and maintain the ability to have intercourse. Providing education about the disease and its course often is all that is required. No strong evidence shows that any treatment other than surgery is universally effective. Experts usually recommend surgery only in long-term cases in which the disease is stabilized and the deformity prevents intercourse.

Because the course of Peyronie's disease is different in each patient and because some patients experience improvement without

treatment, medical experts suggest waiting 1 year or longer before having surgery. During that wait, patients often are willing to undergo treatments whose effectiveness has not been proven.

Medical Treatments

Researchers conducted small-scale studies in which men with Peyronie's disease who were given vitamin E orally reported improvements. Yet, no controlled studies have established the effectiveness of vitamin E therapy. Similar inconclusive success has been attributed to aminobenzoate potassium (Potaba). Other oral medications that have been used include colchicine, tamoxifen, and pentoxifylline. Again, no controlled studies have been conducted on these medications.

Researchers have also tried injecting chemical agents such as verapamil, collagenase, steroids, and interferon alpha-2b directly into the plaques. Verapamil and interferon alpha-2b seem to diminish curvature of the penis. The other injectable agent, collagenase, is undergoing clinical trial and results are not yet available. Steroids, such as cortisone, have produced unwanted side effects, such as the atrophy or death of healthy tissues. Another intervention involves iontophoresis, the use of a painless current of electricity to deliver verapamil or some other agent under the skin into the plaque.

Radiation therapy, in which high-energy rays are aimed at the plaque, has also been used. Like some of the chemical treatments, radiation appears to reduce pain, but it has no effect on the plaque itself and can cause unwelcome side effects such as erectile dysfunction. Although the variety of agents and methods used points to the lack of a proven treatment, new insights into the wound healing process may one day yield more effective therapies.

Surgery

Three surgical procedures for Peyronie's disease have had some success. One procedure involves removing or cutting of the plaque and attaching a patch of skin, vein, or material made from animal organs. This method may straighten the penis and restore some lost length from Peyronie's disease. However, some patients may experience numbness of the penis and loss of erectile function.

A second procedure, called plication, involves removing or pinching a piece of the tunica albuginea from the side of the penis opposite the plaque, which cancels out the bending effect. This method is less likely to cause numbness or erectile dysfunction, but it cannot restore length or girth of the penis.

A third surgical option is to implant a device that increases rigidity of the penis. In some cases, an implant alone will straighten the penis adequately. If the implant alone does not straighten the penis, implantation is combined with one of the other two surgical procedures.

Most types of surgery produce positive results. But because complications can occur, and because many of the effects of Peyronie's disease—for example, shortening of the penis—are not usually corrected by surgery, most doctors prefer to perform surgery only on the small number of men with curvature severe enough to prevent sexual intercourse.

Points to Remember

- Peyronie's disease is characterized by a plaque, or hard lump, that forms within the penis.
- In severe cases, the hardened plaque reduces flexibility, causing pain and forcing the penis to bend or arc during erection.
- The plaque itself is benign, or noncancerous. It is not a tumor. Peyronie's disease is not contagious and is not known to be caused by any transmittable disease.
- Treatments for Peyronie's disease include oral medicines, injections, and surgery.
- Medical experts suggest waiting 1 year or longer before attempting to correct Peyronie's disease surgically.

Hope through Research

Researchers from universities and Government agencies are working to understand the causes of Peyronie's disease. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) supports a project designed to define a common process that causes fibrosis in the penis and arterial stiffness—or arteriosclerosis—throughout the body. By studying this process at a cellular and molecular level, researchers hope to develop an effective antifibrotic therapy.

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit www.ClinicalTrials.gov.

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