What is priapism?
Priapism is an erection of the penis that lasts for more than 4 hours without physical and mental stimulation. It develops when blood becomes trapped in the penis and is unable to drain. It is often painful. Priapism is relatively rare in general (<1 case per 100,000 people each year).

Symptoms of priapism
- Rigid erection with or without sexual stimulation
- Erection lasts more than 4 hours
- Penile pain or sensitivity

Priapism is a medical emergency that may result in permanent erectile dysfunction. Symptoms include: penile pain and a rigid erection. If you think you might have priapism, don’t try to treat it yourself. Instead, get medical care right away.

Your doctor may ask:
- How long have you had the erection?
- How long do your erections usually last?
- Have you used any drugs, legal or illegal, recently?
- Did the symptoms occur after an injury?

What causes priapism?
In most cases, the cause of priapism is unknown (idiopathic). However, patients who suffer from blood disorders, especially sickle cell disease, may develop priapism. Some blood, metabolic, or nervous system disorders and medications put patients at higher risk. In rare cases, priapism can affect children with sickle cell disease.

There are three types of priapism:
- **Low-flow (ischaemic) priapism** is the most common type. It happens when blood gets trapped in the penis. If not treated right away, it can lead to scarring and permanent erectile dysfunction.
- **Intermittent (stuttering) priapism** is a type of low-flow priapism characterised by repeating episodes of painful, prolonged erections.
- **High-flow (non-ischemic) priapism** is rarer and usually less painful. It typically happens after an injury to the penis or the area between the scrotum and the anus (perineum). The injury prevents blood in the penis from circulating normally.
Diagnosing priapism

The penis is composed of two chambers (corpora cavernosa) and a mass of spongy tissue (corpus spongiosum). Erection results from relaxation of smooth muscle and increased blood flow into the corpora cavernosa. This causes engorgement and rigidity (see image below). In priapism, the corpus spongiosum and glans penis (the head) are not typically engorged.

Differentiating low-flow from high-flow priapism is critical because treatment for each is different. Your doctor will review your medical history and perform a physical examination to help determine the cause of priapism. Once the emergency is resolved, further blood tests might be prescribed to assess your blood health.

Potential causes of low-flow priapism

<table>
<thead>
<tr>
<th>Diseases of the blood (haematological disease)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sickle cell disease</td>
</tr>
<tr>
<td>• Thalassemia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabolic disorders</td>
</tr>
<tr>
<td>• Amyloidosis</td>
</tr>
<tr>
<td>• Fabry’s disease</td>
</tr>
<tr>
<td>• Gout</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neurogenic disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Spinal cord injury</td>
</tr>
<tr>
<td>• Stroke</td>
</tr>
<tr>
<td>• Brain tumour</td>
</tr>
<tr>
<td>• Spinal anaesthesia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New abnormal tissue growth (neoplasm) that has infiltrated surrounding tissue or spread to the organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medications</td>
</tr>
<tr>
<td>• Recreational drugs, including alcohol, marijuana, and cocaine</td>
</tr>
<tr>
<td>• Prescription medications. including antidepressants, blood thinners, and calcium channel blockers (used to lower blood pressure)</td>
</tr>
</tbody>
</table>

![Diagram of penis in flaccid and erect states](image)
Treating priapism
The goal of any treatment for priapism is to make the erection go away and to prevent permanent erectile dysfunction.

- Low-flow priapism is an emergency and should be treated as soon as possible. The duration of the erection affects the severity of erectile dysfunction that can result.
- High-flow priapism might not require emergency treatment because blood flow to the penis is not reduced. However, only your doctor can distinguish between the two types of priapism.

If you suspect priapism, please contact your doctor immediately and do not attempt any home treatment.

If you have any cardiovascular disease, be sure you tell your doctor before any treatment is performed.

Conservative, first- and second-line treatments
Conservative treatment options include exercise, ejaculation, and ice packs. However, they are rarely successful in resolving prolonged erections caused by low-flow priapism.

First-line treatment options are performed by a doctor. They are suggested for patients who have low-flow priapism of >4 hours duration. These treatment options are less likely to be successful when duration of priapism lasts > 72 hours.

Second-line treatment typically refers to penile surgery. Surgery should be considered in cases of emergency, only when conservative and first-line treatment options have failed. Surgery is performed to minimize tissue damage from low blood flow to the penis and to reduce the changes of permanent erectile dysfunction.

Treating low-flow priapism
The first line treatment for low-flow priapism is drawing blood from the corpus cavernosum. The penis is numbed, aspirated for blood, and then irrigated with saline and drugs called alpha-agonists (if necessary) injected into corpus cavernosum. This procedure has a high rate of success and can be repeated in time.

Second-line treatment typically refers to penile surgery. It should be used in case of emergency, only after conservative and first-line treatments have failed.

There are two main types of surgery for low-flow priapism: penile shunt surgery and penile prosthesis implantation.
Penile shunt surgery
Penile shunt surgery is performed to restore an exit for blood and to re-establish blood circulation within the penis. A connection (“shunt”) is created between the corpora cavernosa and the glans of the penis. Talk to your doctor if you would like more information about the techniques used.

Penile prosthesis implant
Penile prosthesis implantation can be performed immediately if shunt surgery does not work or if low-flow priapism has lasted 48-72 hours. Prolonged low-flow priapism can cause fibrous tissue to develop in the penis and cause permanent damage.
Treating high-flow priapism
Blood flow to the penis is not reduced in high-flow priapism, so it does not require emergency treatment. However, only your doctor can distinguish between high- and low-flow priapism. Please see your doctor immediately if you think you have priapism, and do not attempt any home treatment.

Ice packs to the perineum or compression of the injury may bring down swelling for high-flow priapism. Your doctor will block the blood vessel that is causing the problem (artery embolization). When a ruptured artery causes priapism, your doctor will perform an operation to tie it off (surgical ligation). This procedure is a final treatment option if blocking the artery has failed.

Treating intermittent (stuttering) priapism
The primary goal for treatment of intermittent priapism is the prevention of future episodes. This can usually be achieved with drug therapy, although there is not a universally accepted treatment. Treatment is generally adapted to the patient.

Suggested drug therapies include:
- Hormonal therapies, which can be used for patients who have reached sexual maturity.
- Phosphodiesterase type 5 inhibitors (for example, Viagra), which can alleviate and prevent intermittent episodes in patients with priapism that is idiopathic (unknown cause) or associated with sickle cell disease. Treatment should be initiated only when the penis is flaccid. Read more about Phosphodiesterase type 5 inhibitors in EAU Patient Information on Erectile Dysfunction at patients.uroweb.org.

Other systemic drugs can be considered but are not supported by research.

<table>
<thead>
<tr>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low-flow priapism</strong></td>
</tr>
<tr>
<td>Conservative</td>
</tr>
<tr>
<td>First-line</td>
</tr>
<tr>
<td>Second-line</td>
</tr>
<tr>
<td><strong>High-flow priapism</strong></td>
</tr>
<tr>
<td>Conservative</td>
</tr>
<tr>
<td>First-line</td>
</tr>
<tr>
<td>Second-line</td>
</tr>
<tr>
<td><strong>Intermittent (stuttering) priapism</strong></td>
</tr>
<tr>
<td>First-line</td>
</tr>
<tr>
<td>Drug therapy</td>
</tr>
</tbody>
</table>

What’s the outlook?
Most people who experience priapism recover completely if treated quickly. Treating priapism quickly reduces the risk of permanent problems getting and keeping erections.
**Glossary**

**Amyloidosis**
A disease that occurs when a substance called amyloid builds up in your organs. Amyloid is an abnormal protein that is usually produced in your bone marrow and can be deposited in any tissue or organ.

**Aspiration**
The process of drawing a substance (eg, blood) from the body.

**Corpus cavernosum (plural, corpora cavernosa)**
Two chambers that run the length of the penis and are filled with spongy tissue. Blood flows in and fills the open spaces in this spongy tissue to create an erection.

**Corpus spongiosum**
The mass of spongy tissue surrounding the male urethra within the penis.

**Doppler ultrasound**
A noninvasive test that can be used to estimate your blood flow through blood vessels by bouncing high-frequency sound waves (ultrasound) off circulating red blood cells.

**Fabry’s disease**
Abnormal deposits of a fatty substance called globotriaosylceramide in blood vessel walls throughout the body.

**Glans**
The rounded part forming the end of the penis.

**Irrigation**
Injection of a solution into the body to cleanse and administer drugs at a specific site.

**Ischemia**
A restriction in blood supply to tissues, causing a shortage of oxygen and glucose needed to keep tissue alive. Ischemia is generally caused by problems with blood vessels and causes damage to tissue.

**Penis**
The male reproductive organ that also carries urine out of the body.

**Sickle cell disease**
A condition in which there are not enough healthy red blood cells to carry adequate oxygen throughout the body.

**Thalassemia**
A blood disorder characterized by less haemoglobin and fewer red blood cells in the body than normal.

**Neoplasm**
New abnormal growth of tissue.
This information was last updated in March 2017.

This leaflet contains general information about Priapism. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information was produced by the European Association of Urology (EAU) Patient Information Working Group.
Dr. G. Patruno Rome, Italy
Dr. M. Ortac Istanbul, Turkey

The content of this leaflet is in line with the EAU Guidelines.

Illustrations by: Mark Miller Art
Missouri, United States of America

Edited by: Jeni Crockett-Holme
Virginia, United States of America