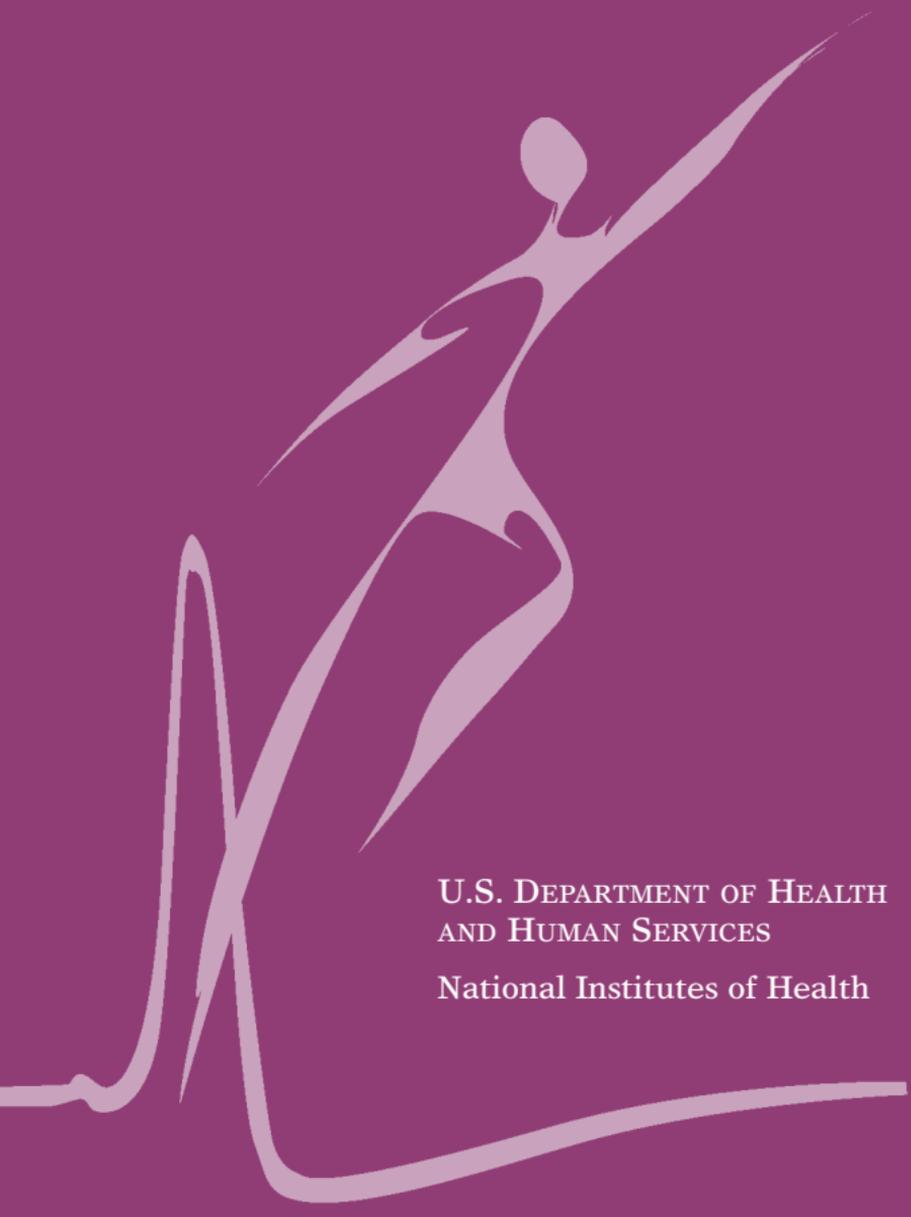


# Bell's Palsy

A stylized graphic in a light purple color. It features a silhouette of a person with their arms raised in a gesture of triumph or relief. Below the figure is a thick, white pulse line that starts on the left, has a small initial bump, then a large, sharp peak that overlaps the person's legs, followed by a deep trough and then a long, horizontal tail extending to the right edge of the page.

U.S. DEPARTMENT OF HEALTH  
AND HUMAN SERVICES

National Institutes of Health



# Bell's Palsy

## What is Bell's palsy?

**B**ell's palsy is a form of temporary facial paralysis resulting from damage or trauma to one of the two facial nerves.

The facial nerve—also called the 7th cranial nerve—is a paired structure that travels through a narrow, bony canal (called the *Fallopian canal*) in the skull, beneath the ear, to the muscles on each side of the face. For most of its journey, the nerve is encased in this bony shell.

Each facial nerve directs the muscles on one side of the face, including those that control eye blinking and closing, and facial expressions such as smiling and frowning. Additionally, the facial nerve carries nerve impulses to the *lacrimal* or tear glands, the saliva glands, and the muscles of a small bone in the middle of the ear called the *stapes*. The facial nerve also transmits taste sensations from the tongue.

When Bell's palsy occurs, the function of the facial nerve is disrupted, causing an interruption in the messages the brain sends to the facial muscles. This interruption results in facial weakness or paralysis.

Bell's palsy is named for Sir Charles Bell, a 19th century Scottish surgeon who was the first to describe the condition. The disorder, which is not related to stroke, is the most common cause of facial paralysis.

Generally, Bell's palsy affects only one of the paired facial nerves and one side of the face, however, in rare cases it can affect both sides.

### **What are the symptoms?**

**B**ecause the facial nerve has so many functions and is so complex, damage to the nerve or a disruption in its function can lead to many problems. Symptoms of Bell's palsy, which vary from person to person and range in severity from mild weakness to total paralysis, may include twitching, weakness, or paralysis on one or both sides of the face, drooping of the eyelid and corner of the mouth, drooling, dryness of the eye or mouth, impairment of taste, and excessive tearing in one eye. Most often these symptoms, which usually begin suddenly and reach their peak within 48 hours, lead to significant facial distortion.

Other symptoms may include pain or discomfort around the jaw and behind the ear, ringing in one or both ears, headache, loss of taste, hypersensitivity to sound on the affected side, impaired speech, dizziness, and difficulty eating or drinking.

### **What causes Bell's palsy?**

**B**ell's palsy occurs when the nerve that controls the facial muscles is swollen, inflamed, or compressed, resulting in facial weakness or paralysis. Exactly what causes this damage, however, is unknown.

Most scientists believe that a viral infection such as viral meningitis or the common cold sore virus—*herpes simplex*—causes the disorder. They believe that the facial nerve swells and becomes inflamed in reaction to the infection, causing pressure within the Fallopian canal and leading to an infarction (the death of nerve cells due to insufficient blood and oxygen supply). In some mild cases (where recovery is rapid), there is damage only to the myelin sheath of the nerve. The myelin sheath is the fatty covering—which acts as an insulator—on nerve fibers in the brain.

The disorder has also been associated with influenza or a flu-like illness, headaches, chronic middle ear infection, high blood pressure, diabetes, sarcoidosis, tumors, Lyme disease, and trauma such as skull fracture or facial injury.

### Who gets it?

**B**ell's palsy afflicts approximately 40,000 Americans each year. It affects men and women equally and can occur at any age, but it is less common before age 15 or after age 60. It disproportionately attacks pregnant women and people who have diabetes or upper respiratory ailments such as the flu or a cold.

## How is it diagnosed?

**A** diagnosis of Bell's palsy is made based on clinical presentation—including a distorted facial appearance and the inability to move muscles on the affected side of the face—and by ruling out other possible causes of facial paralysis. There is no specific laboratory test to confirm diagnosis of the disorder.

Generally, a physician will examine the individual for upper and lower facial weakness. In most cases this weakness is limited to one side of the face or occasionally to the forehead, eyelid, or mouth. A test called electromyography (EMG) can confirm the presence of nerve damage and determine the severity and the extent of nerve involvement. An x-ray of the skull can help rule out infection or tumor. A magnetic resonance imaging (MRI) or computed tomography (CT) scan can eliminate other causes of pressure on the facial nerve.

## How is it treated?

**T**here is no cure or standard course of treatment for Bell's palsy. The most important factor in treatment is to eliminate the source of the nerve damage.

Bell's palsy affects each individual differently. Some cases are mild and do not require treatment as the symptoms usually subside on their own within 2 weeks. For others, treatment may include medications and other therapeutic options.

Recent studies have shown that steroids are an effective treatment for Bell's palsy and that an antiviral drug such as **acyclovir**—used to fight viral infections—combined with an anti-inflammatory drug such as the steroid **prednisone**—used to reduce inflammation and swelling—may be effective in improving facial function by limiting or reducing damage to the nerve. Analgesics such as aspirin, acetaminophen, or ibuprofen may relieve pain.

Another important factor in treatment is eye protection. Bell's palsy can interrupt the eyelid's natural blinking ability, leaving the eye exposed to irritation and drying. Therefore, keeping the eye moist and protecting the eye from debris and injury, especially at night, is important. Lubricating eye drops, such as artificial tears or eye ointments or gels, and eye patches are also effective.

Physical therapy to stimulate the facial nerve and help maintain muscle tone may be beneficial to some. Facial massage and exercises may help prevent permanent contractures (shrinkage or shortening of muscles) of the paralyzed muscles before recovery takes place. Moist heat applied to the affected side of the face may help reduce pain.

Other therapies that may be useful for some individuals include relaxation techniques, acupuncture, electrical stimulation, biofeedback training, and vitamin therapy (including vitamin B<sub>12</sub>, B<sub>6</sub>, and zinc), which may help nerve growth.

In general, decompression surgery for Bell's palsy—to relieve pressure on the nerve—is controversial and is seldom recommended. On rare occasions, cosmetic or reconstructive surgery may be needed to reduce deformities and correct some damage such as an eyelid that will not fully close or a crooked smile.

### **What is the prognosis?**

**T**he prognosis for individuals with Bell's palsy is generally good. The extent of nerve damage determines the extent of recovery. Improvement is gradual and recovery times vary. With or without treatment, most individuals begin to get better within 2 weeks after the initial onset of symptoms and most recover completely, returning to normal function within 3 to 6 months. For some, however, the symptoms may last longer or may never completely disappear. In rare cases, the disorder may recur, either on the same or the opposite side of the face.

### **What research is being done?**

**W**ithin the Federal Government, the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health (NIH), is responsible for supporting and conducting research on brain and nervous system disorders, including Bell's palsy. The NINDS conducts research in its laboratories at the NIH, in Bethesda, Maryland,

and supports research through grants to major medical institutions across the country.

The NINDS conducts and supports an extensive research program of basic science to increase understanding of how the nervous system works and what causes the system to sometimes go awry, leading to dysfunction. Part of this research program focuses on learning more about the circumstances that lead to nerve damage and the conditions that cause injuries and damage to nerves. Knowledge gained from this research may help scientists find the definitive cause of Bell's palsy, leading to the discovery of new effective treatments for the disorder. Other NINDS-supported research is aimed at developing methods to repair damaged nerves and restore full use and strength to injured areas, and finding ways to prevent nerve damage and injuries from occurring.

### **Where can I go for more information?**

**A** private, voluntary organization that may be able to offer information to those affected by Bell's palsy is:

**American Academy of Otolaryngology-  
Head and Neck Surgery, Inc.**

1 Prince Street  
Alexandria, VA 22314  
(703) 836-4444  
*www.entnet.org*

For more information on the research programs of the NINDS, contact the Institute's Brain Resources and Information Network at:

**BRAIN**

P.O. Box 5801

Bethesda, MD 20824

(301) 496-5751

(800) 352-9424

*[www.ninds.nih.gov](http://www.ninds.nih.gov)*





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