

# Post-Polio Syndrome

## **DEFINITION**

Post-polio syndrome (PPS) refers to a cluster of potentially disabling signs and symptoms that appear decades — an average of 30 to 40 years — after the initial polio illness.

Polio was once one of the most feared diseases in America, responsible for paralysis and death. Shortly after polio reached its peak in the early 1950s, the inactivated polio vaccine was introduced and greatly reduced polio's spread.

Today, few people in developed countries get paralytic polio, thanks to the polio vaccine.

According to some studies, however, up to half the people who had polio at a young age may experience certain effects of the disease many years later — post-polio syndrome

(Source: Reprinted from the MayoClinic.com article "Post-polio syndrome: Definition" <http://www.mayoclinic.com/health/post-polio-syndrome/DS00494>)

---

## **SYMPTOMS**

Common signs and symptoms of post-polio syndrome include:

- Progressive muscle and joint weakness and pain
- General fatigue and exhaustion with minimal activity
- Muscle atrophy
- Breathing or swallowing problems
- Sleep-related breathing disorders, such as sleep apnea
- Decreased tolerance of cold temperatures

In most people, post-polio syndrome tends to progress slowly, with new signs and symptoms followed by periods of stability.

### **When to see a doctor**

If you're experiencing weakness or fatigue that seems to be getting worse, see your doctor. It's important to rule out other causes of your signs and symptoms that may require different therapy from what's currently advised for post-polio syndrome.

(Source: Reprinted from the MayoClinic.com article "Post-polio syndrome: Symptoms" <http://www.mayoclinic.com/health/post-polio-syndrome/DS00494/DSECTION=symptoms>)

---

## **CAUSES**

Nobody knows exactly what causes the signs and symptoms of post-polio syndrome to appear so many years after the first episode of polio. Currently, the most accepted theory regarding the cause of post-polio syndrome rests on the idea of degenerating nerve cells.

When poliovirus infects your body, it affects nerve cells called motor neurons — particularly those in your spinal cord — that carry messages (electrical impulses) between your brain and your muscles.

# Post-Polio Syndrome

Each neuron consists of three basic components:

- A cell body
- A major branching fiber (axon)
- Numerous smaller branching fibers (dendrites)

A polio infection often leaves many of these motor neurons destroyed or damaged. To compensate for the resulting neuron shortage, the remaining neurons sprout new fibers, and the surviving motor units become enlarged. This promotes recovery of the use of your muscles, but it also places added stress on the nerve cell body to nourish the additional fibers. Over the years, this stress may be more than the neuron can handle, leading to the gradual deterioration of the sprouted fibers and, eventually, of the neuron itself.

Another theory is that the initial illness may have created an autoimmune reaction, causing the body's immune system to attack normal cells as if they were foreign substances.

(Source: Reprinted from the MayoClinic.com article "Post-polio syndrome: Causes" <http://www.mayoclinic.com/health/post-polio-syndrome/DS00494/DSECTION=causes>)

---

## **RISK FACTORS**

Factors that may increase your risk of developing post-polio syndrome include:

- **Severity of initial polio infection.** The more severe the initial infection, the more likely that you'll have signs and symptoms of post-polio syndrome.
- **Age at onset of initial illness.** If you acquired polio as an adolescent or adult, rather than as a young child, your chances of developing post-polio syndrome increase.
- **Recovery.** The greater your recovery after acute polio, the more likely it seems that post-polio syndrome will develop. This may be because greater recovery places additional stress on motor neurons.
- **Physical activity.** If you often perform physical activity to the point of exhaustion or fatigue, this may overwork already stressed-out motor neurons and increase your risk of post-polio syndrome.
- **Gender.** Females are more likely to develop post-polio syndrome.

(Source: Reprinted from the MayoClinic.com article "Post-polio syndrome: Risk Factors" <http://www.mayoclinic.com/health/post-polio-syndrome/DS00494/DSECTION=risk-factors>)

---

## **COMPLICATIONS**

Generally, post-polio syndrome is rarely life-threatening, but severe muscle weakness can lead to complications:

- **Falls.** Weakness in your leg muscles makes it easier for you to lose your balance and fall. A fall may result in a broken bone, such as a hip fracture, leading to other complications.
- **Malnutrition, dehydration, pneumonia.** People who've had bulbar polio, which affects nerves leading to muscles involved in chewing and swallowing, often have difficulty with these activities as well as other signs of post-polio syndrome. Chewing and swallowing problems can lead to

# Post-Polio Syndrome

inadequate nutrition and to dehydration, as well as aspiration pneumonia, which is caused by inhaling (aspirating) food particles into your lungs.

- **Acute respiratory failure.** Weakness in your diaphragm and chest muscles makes it harder to take deep breaths and cough, which can ultimately lead to accumulation of fluid and mucus in your lungs. Obesity, smoking, curvature of the spine, anesthesia, prolonged immobility and certain medications can further decrease breathing ability, possibly leading to acute respiratory failure. This is characterized by a sharp drop in blood oxygen levels and may require you to receive treatment to help you breathe (ventilation therapy).
- **Osteoporosis.** Prolonged inactivity and immobility are often accompanied by loss of bone density and osteoporosis, in both men and women. If you have post-polio syndrome, you may wish to be screened for osteoporosis.

(Source: Reprinted from the MayoClinic.com article "Post-polio syndrome: Complications"  
<http://www.mayoclinic.com/health/post-polio-syndrome/DS00494/DSECTION=complications>)