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## Polio and post-polio syndrome

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### Summary

- Polio is a preventable life-threatening disease.
  - Symptoms vary from mild, flu-like symptoms to paralysis and possibly death.
  - The late effects of polio (post-polio syndrome) cause muscle weakness and fatigue years after a bout of polio.
  - It is important to avoid physical overexertion if you suffer from post-polio syndrome.
  - Braces, walking sticks and electric scooters can help relieve the symptoms of the late effects of polio.
  - All adults and children need to be immunised to protect against polio.
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Poliomyelitis (polio) is a serious disease caused by infection with one of three types of poliovirus. The virus is spread through contact with food, water or hands that are contaminated with the faeces (poo) or throat secretions of an infected person.

Symptoms vary from mild, flu-like symptoms to life-threatening paralysis. In one to two per cent of cases, polio affects the nerves, resulting in paralysis of the arms, legs or the diaphragm (that controls breathing). Between two and five per cent of people who develop paralytic polio will die. Half of those who survive will have permanent paralysis.

Post-polio syndrome occurs years after an initial bout of polio, with new symptoms of weakness, joint and muscle pain and fatigue.

### Immunisation against polio

Immunisation is the best protection against polio and is recommended for all infants, children and adults. The polio vaccine is combined with vaccines for other infectious diseases when given to children at two, four and six months and at four years of age. Adults should have had at least three doses of polio vaccine in the past.

Protection against polio is available free of charge under the National Immunisation Program Schedule. In Victoria, immunisation against polio is free for:

- Babies at two, four and six months – immunisation in the form of a diphtheria, tetanus, whooping cough, hepatitis B, polio and *Haemophilus influenzae* type b (Hib) vaccine (six-in-one vaccine)
- Children at four years – a booster dose in the form of a diphtheria, tetanus, whooping cough, polio vaccine (four-in-one vaccine)
- Children up to and including nine years of age – catch up immunisation with combination vaccines is available.
- Aboriginal and Torres Strait Islander people, refugees and asylum seekers from ten years of age – catch-up immunisations with a polio-only vaccine are available for people who have not been fully vaccinated.

All adults should make sure that they have been vaccinated against polio. Adults having the polio vaccine for the first time should receive a course of three injections with an interval of four weeks between the doses. If you have not received at least three doses of polio vaccine, speak to your doctor about catch-up doses.

Adults do not need a booster dose unless they are at special risk. You are at risk and should arrange with your doctor to get a booster if you:

- intend to travel to areas where polio is present – check with your doctor if you are travelling outside of Australia, especially to Nigeria, India, Pakistan, Afghanistan, Angola or Chad

- are a healthcare worker where contact with people with polio is possible
- are likely to handle laboratory specimens that contain live poliovirus.

## Symptoms of polio

Polio symptoms generally appear between three and 21 days after infection. However, many people infected with poliovirus have no symptoms and may not even know they are affected.

In mild polio cases, symptoms include:

- fever
- tiredness and weakness (malaise)
- headache
- nausea and vomiting
- muscle stiffness.

If the virus spreads to the nervous system, major illness such as meningitis (brain infection) and paralysis can occur. The onset of paralysis is generally quite rapid – usually within three to four days. Symptoms include:

- severe muscle pain
- stiffness of the neck and back – with or without paralysis
- swallowing and breathing problems
- long-term disability – due to paralysis of the muscles
- death – in severe cases, when breathing and swallowing muscles are paralysed.

## Causes of polio

The poliovirus is spread when food, water or hands that are contaminated with the faeces (poo) or the throat or nasal secretions of an infected person enter the mouth of an uninfected person.

A person may develop symptoms within three to 21 days of coming into contact with the virus and will be most infectious seven to 10 days before and after the beginning of symptoms. People remain infectious for as long as the virus continues to be excreted in their faeces (poo), which may continue for several weeks. Typically, the virus remains in the throat for one to two weeks.

## Risk factors for polio

You are most at risk of infection with the poliovirus if you haven't been immunised against polio. Pregnant women, the elderly, the very young and people with a weakened immune system, such as those with HIV, are especially susceptible to infection. This is especially the case in parts of the world where sanitation is poor and immunisation programs are not widespread.

Factors that can increase your risk include:

- travelling to an area where polio is common or where an outbreak has recently occurred
- living with or caring for someone who may be infected with the poliovirus
- being unimmunised and having contact with someone recently immunised with the oral polio vaccine.

## Diagnosis of polio

Diagnosis involves a doctor taking a medical history and performing a physical examination for symptoms such as neck and back stiffness, abnormal reflexes, and swallowing and breathing problems. The diagnosis also attempts to rule out other possible explanations for symptoms.

To confirm the diagnosis, the doctor will take a sample of throat secretions, faeces or the fluid surrounding the

brain and spinal cord (cerebrospinal fluid) to test for the poliovirus.

## **Treatment for polio**

There is no cure for polio. Treatment aims to manage the effects of the disease. Supportive treatment options include:

- antibiotics – for secondary infections
- pain-relieving medication
- portable ventilators to assist breathing
- medication to reduce muscle spasms
- moderate exercise
- massage
- physiotherapy
- heat treatments
- a nutritious diet.

## **Post-polio syndrome**

Long after the initial bout of poliomyelitis, some people suffer from further symptoms including new weakness, joint and muscle pain and fatigue. These symptoms are known as the 'late effects of polio' or 'post-polio syndrome'. Not everyone who has had polio will develop post-polio syndrome. People who were severely paralysed by polio are more commonly affected, with approximately 20 to 40 per cent of people who had paralysis developing late effects.

## **Symptoms of post-polio syndrome**

Late effects of polio can develop years or decades after the initial bout of infection. The most common symptoms include:

- decreasing strength and endurance
- breathing, swallowing or speaking difficulties
- pain in muscles and joints
- fatigue and an inability to stay alert.

## **Causes of post-polio syndrome**

The late effects of post-polio syndrome are not caused by re-infection with the poliovirus. Scientists believe that post-polio syndrome could develop because:

- Nerve cells that control muscle movements were damaged by the initial polio infection.
- Some of the nerve cells recovered, while others 'sprouted' new nerve fibres that work hard to take over the work of nerves that died.
- After many years of increased workload, the sprouted nerve fibres start to break down. As a result, new muscle weakness is experienced.

## **Diagnosis of post-polio syndrome**

There is no test that will definitely show that you have post-polio syndrome. Diagnosis is based on medical history. The medical history of a person with post-polio syndrome will include:

- a polio infection in the past – with or without paralysis
- new symptoms of pain and weakness

- no other clinical explanations for the symptoms.

### **Treatment for post-polio syndrome**

There is no specific treatment for post-polio syndrome. Symptoms may be controlled or improved if you:

- avoid physical overexertion or stress
- keep comfortably warm and avoid exposure to cold temperatures
- modify daily activities to conserve energy – for example, sit rather than stand at a workbench
- use callipers, braces, walking sticks and electric scooters
- ensure that all exercise is pain free and does not cause excessive tiredness.

Surgery can relieve a number of problems, such as:

- a torn rotator cuff tendon in the shoulder – this can occur after years of using the arms to push up and out of wheelchairs
- foot deformities that can cause falls.

The onset of the late effects of polio can cause many people to feel emotional about past polio experiences. Joining a support group may help.

### **Rehabilitation for post-polio syndrome**

After a full assessment with a rehabilitation specialist, you may be referred to:

- a physiotherapist – for weakness, pain or mobility problems
- a respiratory therapist – for breathing difficulties
- an orthotist – for leg braces
- an occupational therapist – for help with functioning at work, home or in the community
- a speech pathologist – for help with speaking or swallowing
- a pain clinic – for chronic pain
- a psychologist – for depression or other mood difficulties.

As people with the late effects of polio cannot do vigorous exercise, advice from a dietitian can help you to maintain a healthy weight.

### **Where to get help**

- Your doctor
- In an emergency, always call triple zero (000)
- Emergency department of your nearest hospital
- Your local government immunisation service
- Maternal and Child Health Line (24 hours) Tel. 132 229
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- Immunisation Program, Department of Health, Victorian Government Tel. 1300 882 008
- National Immunisation Information Line Tel. 1800 671 811
- Your local pharmacist
- Polio Network Victoria Tel. 1300 704 456

### **Things to remember**

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- Symptoms vary from mild, flu-like symptoms to paralysis and possibly death.

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Polio Services Victoria

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