

Poliomyelitis (polio)

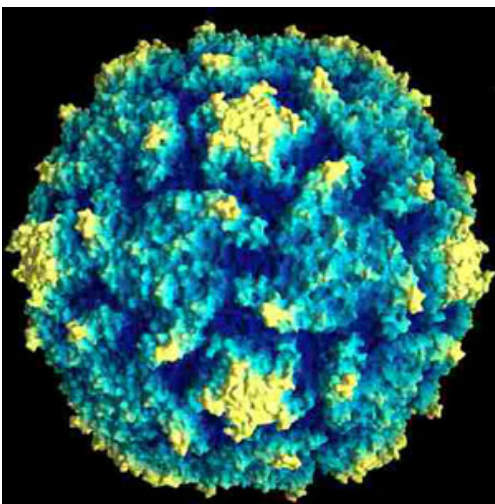
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Poliomyelitis, more commonly known as **polio** is a disease caused by one of three polioviruses. Although all three viruses are infectious, type 1 is more prevalent in nature. Due to widespread vaccinations and strong eradication efforts, the risk of becoming infected is limited to only a few areas around the world. In these areas, however, it is a severe problem affecting people of all ages.

The poliovirus is found in the throat and intestinal tract of infected persons. The virus then enters the environment through human excrement. Because of poor hygiene and contaminated hands, the virus is spread from person-to-person contact. People with vaccinations can also be infected but will not develop polio. They will be carriers of the virus and could transmit the disease to others with sub-standard hygiene.

Once the virus establishes itself within the intestines, an infected person may exhibit symptoms such as fevers, fatigue, headache, vomiting, stiffness in the neck and pain in the limbs. From the intestine, the virus enters the bloodstream to attack the nervous system, particularly the central nervous system. The virus destroys the nerve fibers of motor neurons, which sends signals to produce muscle movement. Because of the nature of nerve cells, extensive destruction can result in paralysis due to the lack of connection between the muscles and nerves. Limbs can develop acute flaccid paralysis (AFP), where they demonstrate a lifeless and floppy condition. However, only 0.5% of people infected with the virus develop irreversible paralysis. The muscles of the legs are more affected than those in the arms.

In more severe cases of polio, the virus will attack nerve cells of the spinal cord. Depending on the level of destruction, nerve cells controlling the muscles of the trunk and those of the upper body can be affected, resulting in quadriplegia. Bulbar polio, the most extreme case, is where the motor neurons of the brain stem are destroyed, which affects breathing ability. Of those who become paralyzed, only 5-10% die because the virus reaches their respiratory muscles.



Unfortunately, there is no cure for polio. There are, however, preventative measures that help reduce the number of infections, including vaccination.

Treatment is symptomatic, which includes physical therapy and heat to stimulate muscle movement. Antispasmodic drugs are used for muscle relaxation. These treatments will help with mobility, but will not reverse paralysis due to infection.

Figure-Close-up view of the poliovirus.

Expert in Poliomyelitis? DSES is always looking for volunteers to teach or give presentations!!

Resources and Additional Information

National Center on Physical Activity and Disability; www.ncpad.org

Global Polio Eradication Initiative; www.polioeradication.org

Centers for Disease Control and Prevention; www.cdc.gov