

## Motor neurone disease

Motor neurone disease (MND) is a rare condition which is caused by the breakdown of the nerve cells in the brain that control movement muscles. Unfortunately, for now there is no cure, and most people with MND die from it within a few years. However, much research is underway to understand the causes, and eventually to find a cure.

MND usually begins between the ages of 50 and 70, and is rare - only about one person in 25,000 in the UK develops the disease at some time in their lives.

It affects the movement muscles (voluntary muscles), but not the nerves dealing with sensation, so there is no numbness or pins and needles. The parts of the brain dealing with intelligence and awareness also remain unaffected.

There are three main types of MND, depending on which nerves are involved:

- amyotrophic lateral sclerosis (ALS) which affects about half of people with MND
- progressive muscular atrophy
- bulbar palsy

The cause of MND isn't known. Some symptoms are like polio, so it was originally thought to be due to a virus. However, no virus has ever been discovered, and there's no evidence that it is contagious.

Some types run in families, so a genetic link has been suspected, but even the most common genetic forms are incredibly rare, occurring in only one in every 250,000 people.

MND is known as an autosomal recessive condition, which means that both parents have to be carriers of the faulty gene to pass it on to an affected child.

### Symptoms

MND usually begins very gradually, and there may just be a feeling of tiredness to start with. Clumsy fingers and a weak grip are often the first sign of muscle problems. After a while, turning door handles becomes difficult. This is usually followed by difficulties in speech and swallowing.

When the foot muscles are affected, raising the foot with each step can be difficult, causing the feet to drag on the floor ("foot-drop"). The muscles of the chest wall may be affected, leading to breathing difficulties and lung infections.

In bulbar palsy, the throat muscles are principally involved, and difficulties in swallowing and speech may be the main features. Patients with speech difficulties have a typically "quacking" voice.

Sometimes, the muscles can be seen to twitch (fasciculation), and pain and stiffness can develop around any joint where the muscles are affected.

Most people who have MND will die from it within three years. As the disease progresses, artificial ventilation is often needed. A tracheostomy - a surgical opening in the windpipe (trachea) - is also sometimes carried out to make breathing easier. Despite these measures, chest infections and pneumonia often cause complications, and can lead to death.

There are some notable exceptions, however. Stephen Hawking, the famous physicist, noticed his first symptoms - clumsiness in his hands - 42 years ago.

### Diagnosis

There is no test for MND. The diagnosis is usually made on the basis of symptoms and what a specialist finds when examining the nervous system. These will rule out other conditions, such as multiple sclerosis (MS). MS affects the nerves dealing with sensation, and sufferers often complain of other symptoms, such as numbness and pins and needles, as well as muscle-related problems.

Tests to help diagnose MND include:

- an electromyogram, where the muscles are electrically stimulated and their strength measured
- a muscle biopsy, which involves removing a small piece of muscle under local anaesthetic, and examining it under a microscope

### Treatment

There's no cure for MND. Riluzole (Rilutek) is the only drug currently licensed to treat ALS, and it only slows the progress of the disease by a couple of months.

However, several pharmaceutical companies are researching treatments for MND at the moment.

Avenues being pursued include:

- antioxidants to "mop up" waste molecules before they damage nerve cells
- creatine, a chemical involved in the distribution of energy within cells
- oxandrolone, an anabolic steroid which helps to maintain body weight and muscle mass

## Support

Giving people with MND enough information to help them understand their illness and how to deal with their disability is important. Physiotherapists, occupational therapists and speech therapists can all offer advice and support. Relaxation and breathing exercises regularly will help to keep stress levels under control.

The support of family and friends is invaluable. Just being there for the patient and helping them with their inevitable bouts of anxiety and stress may be just as important as any help that qualified professionals can give.

## Further information

**Motor Neurone Disease (MND) Association**

<http://www.mndassociation.org>

**National Institute of Neurological Disorders and Stroke**

[http://www.ninds.nih.gov/health\\_and\\_medical/disorders/](http://www.ninds.nih.gov/health_and_medical/disorders/)

**Scottish Motor Neurone Disease Association**

[www.scotmnd.org.uk](http://www.scotmnd.org.uk)

**The Patients Association**

[www.patients-association.com](http://www.patients-association.com)

**Healthwise (Health Information Resource Centre)**

Tel : (852) 2849 2400

Fax : (852) 2849 2900

Email : [info@healthwise.org.hk](mailto:info@healthwise.org.hk)

Homepage : [www.healthwise.org.hk](http://www.healthwise.org.hk)

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