

Neurological disorders



When your nervous system is working as it should, you don't notice the way it supports healthy mind and body function. But when an illness or injury causes neurological symptoms, you want expert help.

Our specialists provide cutting edge care for people with neurological disorders. We offer leading approaches to diagnosis and management of neurological symptoms.

What is a neurological disorder?

Your nervous system controls and regulates all aspects of body function. It includes your brain, spinal cord, peripheral nerves, nerve roots, autonomic nervous system, and the junctions between your nerves and muscles. Neurological disorders can affect any part of the nervous system. They can have a significant impact on your function and quality of life.

Common neurological conditions

More than 600 types of neurological disorders have been identified. Here are some common neurological conditions.

Stroke

A stroke occurs when blood supply to the brain is disrupted, leading to brain cell damage. The two main types are ischaemic stroke (caused by a blood vessel blockage), and haemorrhagic stroke (caused by bleeding from a blood vessel).

Epilepsy

Epilepsy is a neurological condition in which a person has recurring seizures. Seizures are caused by altered electrical activity in the brain. This can lead to various symptoms, including convulsions (fits), sensory disturbances and loss of consciousness.

Parkinson's disease

Parkinson's disease is a progressive neurological condition that affects movement. While the cause isn't fully understood, it is related to degeneration of brain cells that produce dopamine (a brain chemical that's important for many body functions, including movement control). Symptoms include stiffness, slowed movements, tremor, and balance problems. Parkinson's disease can also affect a person's speech, swallowing, and cognitive (thinking) function.

Multiple sclerosis (MS)

MS is an autoimmune condition in which the immune system mistakenly attacks the protective layer surrounding nerve pathways in the brain and spinal cord. This can lead a wide range of symptoms, including fatigue, muscle weakness, balance and coordination problems, and cognitive difficulties.

Alzheimer's disease

Alzheimer's disease is a progressive neurological disorder characterised by a build-up of abnormal protein deposits in the brain. This causes brain cell damage and death. Alzheimer's disease mainly affects memory, thinking, and behaviour.

Migraine

Migraine is a chronic neurological disorder characterised by persistent moderate to severe headaches. These are often accompanied by other symptoms such as nausea, visual disturbances (known as auras) and hypersensitivity to light and sound.

Peripheral neuropathy

This term is used to describe a range of conditions that cause damage or dysfunction of the peripheral nerves (the nerves connecting the brain and spinal cord to the rest of the body). Symptoms include pain, numbness, tingling, and weakness in the affected areas.

Motor neurone disease

Motor neurone disease is a progressive neurological disorder that affects the nerve cells involved in controlling voluntary movement. It leads to muscle weakness and problems with speech, swallowing, and breathing. It is also known as amyotrophic lateral sclerosis or ALS.

Huntington's disease

Huntington's disease is an inherited neurological condition that causes progressive brain cell degeneration. It leads to difficulties with movement, cognition and mental functioning. Symptoms include involuntary movements, coordination problems, and mood and behaviour changes.

Tourette syndrome

Tourette syndrome is a chronic neurological disorder characterised by repetitive involuntary movements and vocalisations (known as tics). Tics can range in intensity from mild to severe and sometimes have a significant effect on everyday function.

This list covers a small sample of neurological disorders. Neurologists are experts in conditions of the nervous system. Getting an appointment with one is a good place to start if your GP suspects you have a neurological problem.

Symptoms of neurological conditions

Your nervous system is complex and extends to every part of your body, so neurological disorder symptoms vary widely. They will depend on which nerves are involved, how severe the condition is, and the cause. The symptoms of neurological conditions can include:

- sudden or persistent headaches
- sensations of tingling or numbness
- weakness or reduced muscle strength
- problems with balance or coordination
- sight changes such as double vision
- difficulties with memory or concentration
- difficulty speaking or understanding
- altered consciousness level
- unexplained pain or stiffness
- tremors
- seizures.

Importantly, many neurological conditions cause similar symptoms. It's essential to see a neurological specialist to get an accurate diagnosis and treatment plan.

What causes neurological disorders?

Various conditions can affect the nervous system and lead to neurological symptoms. Common causes of neurological conditions include:

- blood vessel disorders
- inherited conditions
- autoimmune disorders
- degeneration
- structural problems
- injury or trauma
- infections.

The cause of many neurological conditions is not fully understood, and research continues to explore why some people develop them. Regardless of the cause, the most important thing is that expert care is available.

Referral for management of a neurological condition

If you have a neurological condition, your GP might refer you to a neurologist for expert assessment and management.

To start your treatment with us, ask your GP for a referral to one of our experienced neurological specialists.

Your doctor can address the referral to a specific specialist, or simply to 'Dear Doctor'.

Neurological disorder prevention

It's not always possible to prevent a neurological condition. However, you can do things to help your nervous system stay healthy. The Brain Foundation recommends these strategies to support brain health:

- being physically active
- eating a healthy diet and drinking alcohol in moderation
- challenging your brain with stimulating activities
- focusing on safety – by wearing a helmet, driving safely, and taking it seriously if you have a head injury
- looking after your mental health
- learning to relax and getting good sleep
- getting regular check-ups for diabetes, cholesterol, blood pressure and heart rate
- not smoking or using illegal drugs.

How are neurological disorders diagnosed?

If you have a suspected neurological condition, your specialist will conduct a thorough assessment. The investigations they choose will depend on your symptoms and the probable cause. You might need several tests to get an accurate diagnosis. Your healthcare team will talk to you about which of the following tests are suitable.

Physical examination

Your doctor will do physical tests to check your nervous system function. For example, they might look at your muscle strength, walking, co-ordination, balance, vision, sensation, and reflexes.

Blood tests

Blood tests can detect underlying problems such as infections and autoimmune disorders. Some neurological conditions also have specific markers that show up on blood testing.

Lumbar puncture (spinal tap)

This procedure involves inserting a fine needle into the lower back to collect a sample of the fluid that surrounds the brain and spinal cord (cerebrospinal fluid or CSF). The sample is analysed in a laboratory. A lumbar puncture can aid with diagnosis of infection, inflammation, and some neurological disorders.

Genetic testing

Genetic testing might be advised if your specialist suspects you have an inherited neurological condition such as Huntington's disease.

Biopsy

This involves collecting a sample of tissue for testing in a laboratory. A biopsy can help with diagnosis of brain tumours and some inflammatory conditions of the nervous system.

X-ray

X-rays provide an image of the bones in the skull, face and spine. They can help to identify fractures, bone deformities, and other bony irregularities that may be contributing to neurological symptoms.

CT (computerised tomography) scan

This test uses X-rays to take multiple images of your brain and spine, which a computer puts together to provide detailed pictures. A CT scan can help to identify fractures, bleeding, tumours, and other abnormalities.

Positron emission tomography (PET) scan

This test involves injecting a radioactive substance that is taken up by cells, allowing doctors to see areas of the brain where metabolic activity is high. PET scans can help with diagnosing conditions such as Alzheimer's disease or epilepsy.

MRI (magnetic resonance imaging)

In an MRI scan, the machine uses a powerful magnet, radio waves and a computer to generate detailed, cross-sectional images of the brain, spinal cord and other structures. MRI scans can be helpful for detecting tumours, strokes, multiple sclerosis lesions, or structural issues.

Electroencephalogram (EEG)

This test involves placing electrodes over the scalp to record the brain's electrical activity. It is often used to diagnose and monitor epilepsy, sleep disorders, and some other brain abnormalities.

Nerve conduction studies and electromyography

These tests assess the electrical activity and function of peripheral nerves and muscles. They can aid diagnosis of conditions such as peripheral neuropathy, nerve compression issues, or muscle disorders.

How are neurological conditions treated?

Treatment for a neurological disorder will depend on various things, including the cause, severity, and location of the problem. Your age and general health may also affect management decisions.

Some acute neurological conditions can be treated effectively and may resolve completely. However, many neurological disorders are chronic and progressive, which means they tend to get worse over time. Management of chronic neurological conditions revolves around controlling symptoms, optimising function, and improving quality of life. Here are some common treatment approaches for neurological disorders.

Medications

You might be prescribed medications to relieve symptoms, slow disease progression, or treat the underlying cause of your condition. Examples include:

- anti-seizure medications for epilepsy
- dopamine-based medications for Parkinson's disease
- immune modifying drugs for multiple sclerosis
- medications to relieve pain or muscle spasms
- medications to manage underlying conditions such as high blood pressure
- medications to support your mood and mental health.

Physical and occupational therapy

Many neurological conditions affect movement and physical function. Therapies which focus on maintaining these are therefore often a mainstay of treatment.

Physical therapy and occupational therapy can help to improve your mobility, strength, coordination, and ability to do everyday things like dress, shower and get on and off the toilet. These therapies may include exercises, stretching, balance training, functional task practice and adaptive strategies to improve your independence and quality of life.

Speech and language therapy

Some neurological disorders can affect your ability to speak, understand and swallow. Speech and language pathologists support people with communication and swallowing difficulties caused by a wide range of problems, including neurological conditions. Treatment may include speech exercises, prescription of devices to aid communication, and swallowing strategies.

Psychological support

Discovering you have a chronic or progressive neurological condition can understandably be very unsettling for you and your loved ones. It can help to talk to a mental health professional such as a counsellor or psychologist. They can help you come to terms with the diagnosis and develop strategies for building your resilience and coping with the changes you may experience.

Lifestyle changes

Healthy living can have a positive effect on most neurological conditions. You might be advised to make some changes to support your health, such as being more active, eating a healthy diet, and getting enough sleep. You might also need to avoid things that make your symptoms worse, such as certain foods or environmental triggers.

Assistive technologies

Assistive devices and technologies can help people with neurological conditions maintain their independence and ability to participate in home and community life.

Examples include:

- mobility aids such as walkers, canes, and wheelchairs
- orthotic devices and braces to support affected areas
- communication devices.

Surgical procedures

In some cases, surgery may be recommended for managing a neurological condition. Surgery can sometimes treat the underlying condition. It may also be helpful for relieving symptoms. Examples include surgeries to:

- remove or reduce the size of a tumour
- ease pressure on nerves
- stabilise the spine
- correct structural abnormalities
- implant devices, such as deep brain stimulation for Parkinson's disease.

Supportive care

Supportive care plays a vital role in managing many neurological conditions. It often involves assistance with daily living activities, help with household tasks, and education for the patient and their carers. Support groups can also be a valuable source of advice, information and support.

Your specialist will talk to you about management options and help you decide on the best approach.

Recovery from a neurological disorder

While recovery is sometimes possible, many neurological disorders are chronic or progressive. It can be more helpful to think in terms of learning to live well with your condition. Along with slowing disease progression, long-term care focuses on managing symptoms, maintaining function, and supporting good quality of life. Here are some factors that can influence the progress of neurological disorders.

Timely diagnosis and management

Getting an accurate diagnosis and starting treatment soon after the onset of symptoms can have a significant impact. Identifying and managing the underlying cause or gaining effective symptom control can help prevent further damage to the nervous system and optimise outcomes. However, it can be difficult to get the diagnosis right, so don't be discouraged if you don't get answers right away. It's important to persevere and try to remain positive.

Sticking with your treatment

It may sound obvious, but therapies are only effective if you stick with them. For the best results, it's important to:

- take any medications as prescribed
- attend therapy sessions and complete your home exercises
- follow advice for healthy living
- go for check-ups at recommended times.

Your healthcare professionals are committed to helping you stay as healthy and independent as possible. Having good relationships with the people in your healthcare team can support effective treatment outcomes. It's important to communicate openly with them and ask any questions you have about your treatment plan.

Rehabilitation and therapy

As noted above, allied health therapies play a crucial part in maximising recovery and independence. Your rehabilitation team will work with you to create a plan for restoring or maintaining your functional capacity, or to devise strategies that enable you to continue doing things that matter to you.

Individual factors

Each person's experience with a neurological disorder is unique. It is influenced by factors such as your age, general health, and other medical conditions. It's important to have realistic expectations and work with your healthcare professionals to create meaningful and achievable goals.

Many people with a neurological disorder can benefit from having a multidisciplinary team involved in their care. In addition to a neurologist, this may include an orthopaedic surgeon, community nurse, physiotherapist, occupational therapist, dietitian, psychologist, speech-language pathologist, and others.

Your healthcare team can provide ongoing support to help you recover or live well with your condition.

Sources

Information provided and reviewed by A/Prof Andrew Davidson, Neurosurgeon at Melbourne Private Hospital.

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