

Section One: Understanding brain tumours

Tekiona Tahi

Te whai māramatanga mō
ngā puku roro



Key points:

- The brain is the control centre of the body. It helps us to think, feel, learn, and move. It also controls our memory, personality, and behaviour, and helps regulate important body functions such as breathing and heart rate.
- A brain tumour is the growth of abnormal cells in a part of the brain.
- Primary brain tumours may spread to other parts of the nervous system but do not usually spread to other parts of the body.
- Symptoms depend on how slowly or quickly the tumour grows and where it is in the brain.

Ngā kōrero matua:

- Ko te pū whakahaere o te tinana te roro. Ka āwhina i a tātou ki te whakaaro, ki te rongō, ki te ako me te nekeneke haere. He whakahaere anō hoki i ō tātou pūmahara, ō tātou tuakiri, o tātou whanonga me tōna āwhina ki te whakarite i ētahi mahinga nui o te tinana pērā ki te mahi whakahā, me te tere o te manawa.
- Ko te tipu o ngā pūtau tino rerekē ki tētahi wāhi o te roro, te puku roro.
- Tērā pea ka hōrapa haere ētahi puku roro ki ētahi atu wāhi o te pūnaha io tōpū engari, i te nuinga o te wā, kīhai e hōrapa ki wāhi kē o te tinana.
- Ka hāngai ngā tohumate ki te pōturi, ki te tere rānei o te tipu o te puku, me te wāhi e tau ana ki roto i te roro.

What is a brain tumour?

A brain tumour is a growth of abnormal cells in a part of the brain. The growth is known as a tumour. Brain tumours can be primary or secondary (metastatic), depending on where they start.

Primary brain tumour

A brain tumour that starts in the brain is called a primary brain tumour. Primary brain tumours may spread to other parts of the nervous system, but do not usually spread to other parts of the body.

Secondary (metastatic) brain tumour

Secondary brain tumours are made up of cancer cells that start in another part of the body. For example, lung cancer that spreads to the brain is called lung cancer with brain metastases.



This booklet is about primary brain tumours.

For more information on cancer that has spread to the brain, see the Cancer Society's *Living Well with Advanced Cancer* booklet, available on our website: cancer.org.nz/advanced-cancer

What is the brain?

The brain is the control centre of the body. It helps us to think, feel, learn, and move. It also controls our memory, personality, and behaviour, and helps regulate important body functions, such as breathing and heart rate.

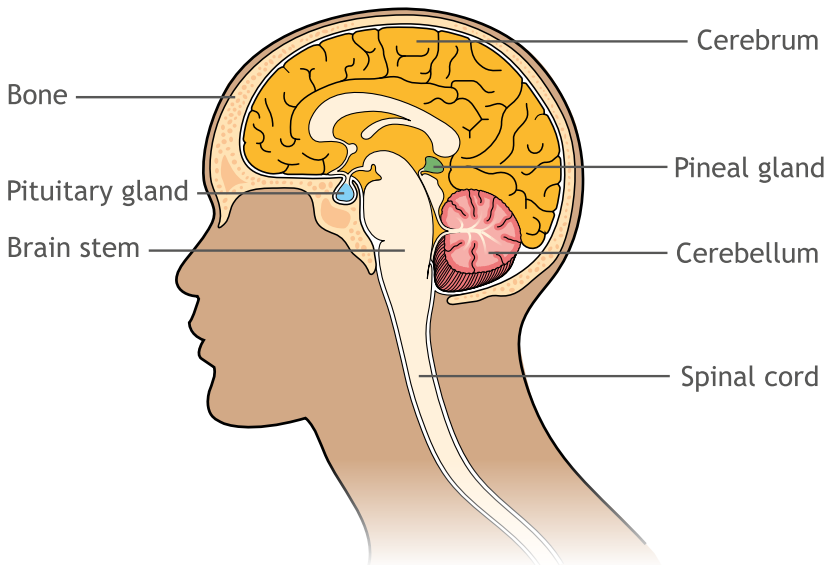
It is made of billions of nerve cells called neurons. Neurons are held in place by supporting cells called glial cells. There are different types of glial cells, including astrocytes, oligodendrocytes, and ependymal cells.

How is the brain connected to the rest of the body?

The brain is connected to the rest of the body by the spinal cord. The brain and spinal cord are known as the central nervous system (CNS).

The spinal cord is a long column of nerves down the middle of the spine (backbone). It starts at the base of the brain and goes down to the small of the back. The nerves from the spinal cord send messages back and forth between the brain and the rest of the body. The bones of the spine (vertebrae) protect the spinal cord.

The brain and spinal cord are covered by three thin membranes called meninges. The spaces between the meninges are filled with a watery fluid called cerebrospinal fluid (CSF), which cushions the brain and spinal cord. The brain is also protected by a covering of bone called the skull.



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Parts of the brain

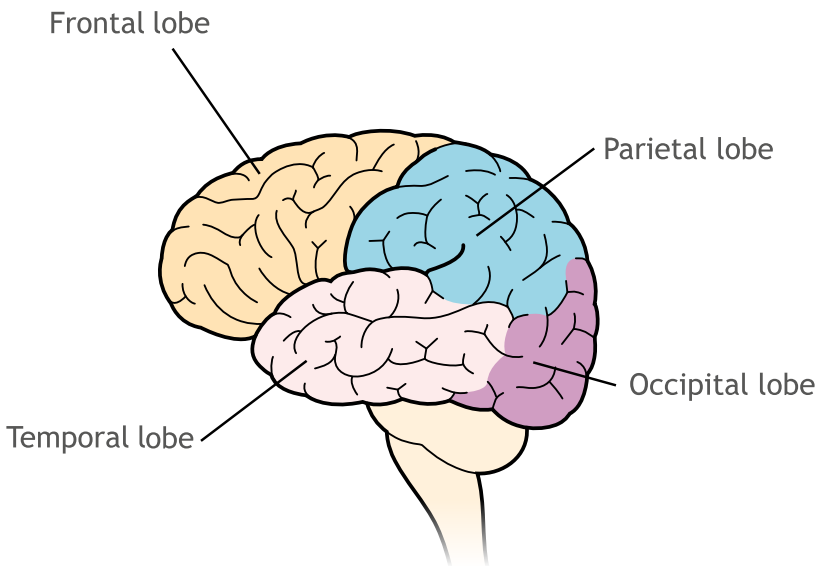
The main parts of the brain are the cerebrum, cerebellum, brain stem, cranial nerves, and pituitary and pineal glands.

Cerebrum

The cerebrum is the largest part of the brain and is made up of two halves, called hemispheres. The right half of the cerebrum controls the left side of the body, and the left half of the cerebrum controls the right side of the body.

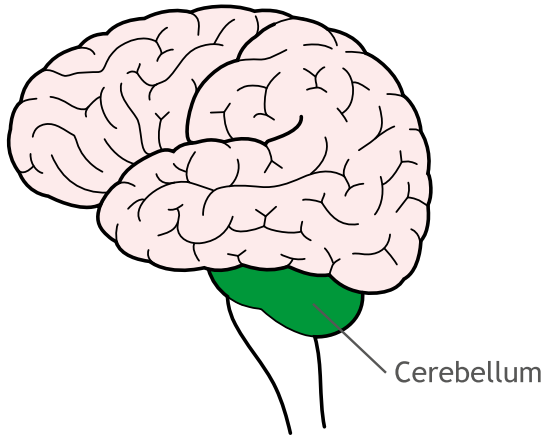
Each half of the cerebrum is divided into four areas, called lobes, which control different body activities.

- Frontal lobe: emotions, personality, thinking, and planning
- Temporal lobe: understanding sounds and memory
- Parietal lobe: awareness and understanding of the things around you
- Occipital lobe: vision



Cerebellum

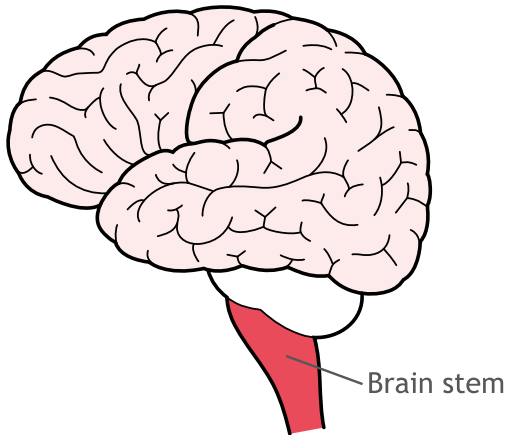
The cerebellum is below the cerebrum, at the back of the brain. It controls balance and coordination.



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Brain stem

The brain stem connects the brain to the spinal cord. It controls basic body functions that keep us alive, including breathing, blood pressure, and temperature.



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Cranial nerves

Cranial nerves run from the brain and the brain stem to the eyes, nose, ears, tongue, face, and shoulders. The nerves carry messages about sensations such as taste, smell, sight, and hearing to the brain.

The pituitary gland

The pituitary gland is a small gland the size of a pea, found behind the nose and just below the base of the brain. It makes hormones, which are chemical messengers that control how your body works. The pituitary gland also controls hormones made by many other glands of the body.

The pineal gland

The pineal gland is a small gland found deep in the brain. It makes melatonin, the hormone that helps control sleep.

What are the risk factors for a brain tumour?

Anything that can increase your chances of cancer is called a risk factor. Having one or more risk factors does not mean that you or members of your whānau will develop cancer. Most of us have at least one risk factor but may never develop cancer. Others with cancer may have no known risk factors.

Risk factors that we know make some people more at risk of a brain tumour than others include:

- age – most types of primary brain tumour are more common in older people
- gender – men are more likely than women to develop most types of primary brain tumour
- inherited or genetic conditions – some brain tumours are more common in people with certain rare inherited or genetic conditions, such as neurofibromatosis and Lynch syndrome
- previous radiation treatment to the head.

Symptoms of a brain tumour

Symptoms depend on how slowly or quickly the tumour grows, and where it is in the brain. They may include:

- weakness in part of the body
- loss of balance or coordination
- feeling sleepy (drowsy)
- changes in memory
- personality or behaviour changes
- changes in thinking, including difficulty in recognising words
- changes in speech or vision
- blackouts, or a fit known as a seizure, which can be severe (body convulsion) or mild (a brief disturbance of awareness or sensation, or jerking muscles).

As a tumour grows it takes up more space in the skull and pushes on the brain. This results in swelling (oedema), which can affect the supply of blood and oxygen to healthy brain cells. It is known as raised intracranial pressure and can lead to symptoms such as:

- headaches – often worse when you wake up in the morning
- feeling sick (nausea) or being sick (vomiting).

These symptoms can all be caused by conditions other than brain tumours. That is why it is important to have your GP or whānau doctor check any of these symptoms.