Chronic Traumatic Encephalopathy (CTE)

Chronic Traumatic Encephalopathy (CTE) is a neurodegenerative disease that has been linked to repeated head injuries, which can take the form of concussion (mild traumatic brain injury) and/or hits to the head that do not result in concussion symptoms, called subconcussive hits.

Repeated head injuries often occur from participation in contact sports, but can also occur in non-sporting situations (e.g. military service, domestic and family violence, workplace accidents).

Though there is still much we don't know about CTE, research into this condition is ongoing and our understanding will improve with time. If you have any concerns, it's a good idea to seek help early.

Who is at risk of CTE?

CTE has been identified in individuals with a known history of repeated head injuries. This includes athletes who have participated in contact (e.g. boxing, football) as well as non-contact sports (e.g. competitive cycling, equestrian). Outside of sports, CTE may occur from repeated head injuries from violent assault, explosions or blast trauma, or frequent falls that lead to head impacts.

Not everyone who has experienced repeated head injuries will go on to develop CTE. A single or low number of head impacts is unlikely to be a problem.

Signs and Symptoms

CTE can result in a wide range of **signs** (things that you can see) and **symptoms** (things that a person says they are experiencing) that can affect a person's thinking, mood, and behaviour. CTE signs and symptoms can appear gradually and many years (10+ years) after the repeated head injuries have occurred.

CTE Signs and Symptoms		
Thinking	**Mood**	**Behaviour**
• Memory loss • Confusion • Concentration/attention difficulties • Brain fog with headache or head pressure • Difficulty learning new things • Impaired judgement • Loss of sense of direction • Difficulty with driving • Changes in sleeping patterns • Loss of awareness of having difficulties	• Irritability • Emotional lability (mood swings) • Depression or suicidal thinking • Anxiety • Panic • Impulsivity • Loss of empathy	• Episodes of rage, including road rage • Agitation • Loss of motivation • Reduced social activity • Wandering • Slowness, or Parkinson's disease-like changes

Diagnosing CTE

Currently, CTE can only be diagnosed after death through brain tissue analysis. There is currently no single test for diagnosing CTE while a person is living.

However, a doctor and medical team qualified in assessing brain injury can help identify the likelihood of having CTE. This team may include neurologists, geriatricians, sports physicians, psychologists, and rehabilitation specialists.

If you have any concerns about CTE, it is a good idea to seek help early. Speaking to your general practitioner (GP) is a good place to start.

A check-up with your doctor may help to identify any other conditions resulting from head injury, such as persistent post-concussion symptoms and post-concussion headache.

Your GP can also help to arrange any referrals for further investigation that may be required.

It's important to recognise that there are other conditions that can mimic CTE and factors that can impact a person's cognition.

Examples include alcohol use disorder, depression, post-traumatic stress disorder (PTSD), sleep disorders, smoking, stroke, and migraine. You may wish to discuss these when you first see your doctor.

Detecting and managing other medical conditions can form an important part of the overall care for someone with CTE.

Scan the QR code to learn more about specialists.

Treatment and Management Options

There is currently no cure for CTE. However, it may be possible to manage CTE symptoms with a range of medications and other forms of therapy. Your GP and specialist medical team will advise on which ones are the best for you.

Having a general practitioner who can coordinate care is an important part of good CTE management. Regular check-ins with your GP and medical specialists will help assess symptom stability and monitor progress over time. GPs/specialists can provide advice on what support services may be available to you and your family/carers.

Avoid things that may worsen thinking, such as alcohol and smoking. If sleep is affected, consider getting a sleep assessment and treating conditions such as obstructive sleep apnoea.

Risk Reduction

Although there is no cure, care for those at risk of CTE is vital for good quality of life. CTE can be prevented by avoiding and minimising the risk of (repetitive) head injury. Basic safety precautions that can help reduce your risk of getting a head injury include:

- **Fastening your seatbelt** when travelling in a car.
- **Taking action to prevent falls** such as avoiding standing on unstable surfaces, removing or securing small area rugs, improving lighting, and installing handrails.
- **Enforcing rules and policies** that penalise head contact, rough play, or impact with the ground in contact sports at all levels of play.
- **Taking time to recover from injuries.**

More information

Connectivity Traumatic Brain Injury Australia is an Australia-wide not-for-profit organisation working to raise awareness of concussion and traumatic brain injury in the community. For more information on concussion, you can speak to your doctor, healthcare professional, or visit the Connectivity website at www.connectivity.org.au

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