Alcohol related brain impairment

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Alcohol has a toxic effect on the central nervous system and can cause significant brain impairment. ARBI is more likely in people who drink heavily over a long period of time, but excessive binge drinkers are also at risk. The symptoms depend on which part of the brain has been damaged, but can include problems with memory, thinking abilities and physical coordination.

Alcohol is one of the many causes of acquired brain injury. The problems caused by alcohol misuse are together called alcohol related brain impairment (ARBI). A person with ARBI might experience problems with memory, thinking-related abilities and physical coordination.

More than 2,500 Australians are treated for ARBI every year, with approximately 200,000 Australians currently undiagnosed. Around two million Australians are potentially at risk of developing ARBI due to their drinking habits.

Just how much damage is done depends on a number of factors, which can include your age, gender, nutrition and your overall alcohol consumption. A younger person has a better chance of improvement because of their greater powers of recovery. However, the effects of ARBI can be permanent for many people.

Alcohol and brain injury

Brain injury can be caused by alcohol because it:
- has a toxic effect on the central nervous system (CNS)
- results in changes to metabolism, heart functioning and blood supply
- interferes with the absorption of vitamin B1 (thiamine), which is an important brain nutrient
- may be associated with poor nutrition
- can lead to falls and accidents that injure the brain.

Alcohol consumption and ARBI

Alcohol is one of the most popular drugs in Australia. Around 40 per cent of Australian adults drink alcohol on a weekly basis and 10 per cent drink every day. Alcohol consumption ranges from light (social drinkers) to heavy consumption.

Alcohol related brain impairment is more likely to occur if a person drinks heavily on a regular basis over many years. A decline in thinking-related abilities is gradual and depends on how much alcohol is consumed and for how long. It is also possible to develop ARBI over a short period of time, if the drinking is excessive enough. This is known as ‘binge drinking’ or ‘heavy episodic drinking’ and is a short-term, high-risk way of drinking alcohol.

Men and women who consume more than four standard drinks on any single occasion are at risk. Mixing alcohol and other drugs – either illegal drugs or some prescription drugs – can cause serious health problems.

Guidelines to reduce health risks from alcohol

In 2009, the National Health and Medical Research Council (NHMRC) released guidelines to reduce the health risks from alcohol consumption. To avoid these health risks, the guidelines recommend:
- for men and women – a maximum of two standard alcoholic drinks a day
- children and young people – for children and young people under the age of 18 not drinking alcohol is the safest option. Children under 15 are at greatest risk of harm from drinking and so not drinking alcohol is most important for this group. Delaying the age at which drinking begins is strongly recommended for young people between the age of 15 and 17.
- pregnant and breastfeeding women – the safest choice is not to drink alcohol while breastfeeding, pregnant or if you are planning a pregnancy.

Disorders linked with ARBI

ARBI is associated with changes in cognition (memory and thinking abilities), difficulties with balance and coordination, and a range of medical and neurological
Some alcohol-related disorders include:

- **Cerebellar atrophy** – the cerebellum is the part of the brain responsible for muscle coordination. Damage results in difficulties with balance and walking, which is called ‘ataxia’.
- **Frontal lobe dysfunction** – the brain’s frontal lobes are involved in abstract thinking, planning, problem solving and emotion. Damage results in cognitive (thought) difficulties.
- **Hepatic encephalopathy** – many people with alcohol-related liver disease develop particular psychiatric symptoms, such as mood changes, confusion and hallucinations.
- **Wernicke’s encephalopathy** – this is a disorder caused by a severe deficiency of vitamin B1. Some of the symptoms include ataxia, confusion and problems with vision.
- **Korsakoff’s amnesic syndrome** – this includes a loss of short-term memory, an inability to acquire new information and ‘confabulation’ (the person fills in gaps in their memory with fabrications that they believe to be true).
- **Peripheral neuropathy** – the body’s extremities are affected by numbness, pain, and pins and needles.

### Behaviours linked with ARBI

Those people close to someone with ARBI may face a range of behaviours that cause problems. There are a number of possible causes or reasons for these types of behaviour, including medical problems, memory and thinking problems, physical discomfort, the side effects of medication or fatigue from lack of sleep. Alternatively, behaviours of concern may be a reaction to stress, anxiety, or a change or upset to daily routine.

Some common behaviours include:

- aggressive and angry outbursts
- moodiness
- confusion
- withdrawal
- lack of motivation
- untidiness and poor hygiene habits
- sexually inappropriate behaviour
- poor control of emotions.

#### Dealing with behaviours of concern

Helpful strategies include:

- Be prepared to listen – people with ARBI need to feel listened to and understood.
- Reassure the person that you are there to help them.
- Speak in a calm, soothing tone.
- Give praise when the person regains their composure after an outburst.
- Set clear and firm limits, and repeat them as often as possible.
- Reinforce and reward appropriate behaviour
- Ignore the behaviour if it is appropriate to do so and there is no risk of harm to the individual or others.

There are some responses you should try to avoid when dealing with behaviours of concern, including:

- Avoid arguing or reacting to any provocation.
- Avoid using a bossy tone or ordering the person around.
- Ignore negative, critical or aggressive comments.
- Do not take the behaviour personally.
- Avoid adopting defensive postures such as standing with your arms crossed.

### Treatment for ARBI

A person with a suspected ARBI should have their health assessed by a doctor. They may benefit from referral for a more specialist assessment by a neuropsychologist or neurologist.

Treatment depends on the person and the type of brain damage sustained. Good nutrition is really important. Sometimes, doctors will prescribe multivitamins (especially thiamine) to reduce the risk of further severe brain injury. Alcohol and other drug (AOD) treatments may need to be modified for a person with an ARBI.

### Where to get help

- Your doctor
- A neuropsychologist, neurologist or AOD treatment service
- arbias – specialist services for people with acquired brain injury including alcohol and substance related brain impairment Tel. (03) 8388 1222
- Family Drug Help – for information and support for people concerned about a relative or friend using drugs Tel. 1300 660 068

### Things to remember

- Alcohol has a toxic effect on the central nervous system and can cause significant brain impairment.
- ARBI is more likely in people who drink heavily over a long period of time, but excessive binge drinkers are also at risk.
The symptoms depend on which part of the brain has been damaged, but can include problems with memory, thinking abilities and physical coordination.

References

- Australian guidelines to reduce health risks from drinking alcohol, 2009, National Health and Medical Research Council. More information here.
Brains and nerves

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- Brain and nerve basics
- Brain and head injury
- Brain tumours
- Brain related conditions
- Epilepsy and seizures
- Nerve related conditions
- Spinal cord
- Speech and language
- Tests and procedures

Brain and nerve basics

- Brain
  Messages relay between the brain and the motor and sensory nerves of the body in a constant ‘conversation’...

- Brain surgery
  Brain surgery is performed for a number of reasons, including alterations in brain tissue, brain blood flow and cerebrospinal fluid...

- Central nervous system birth defects
  Folic acid taken before conception, and during at least the first four weeks of pregnancy, can prevent around seven out of 10 cases of neural tube defects...

- Coma
  A wide range of illnesses, conditions and events can cause coma...

- Epilepsy and seizures
  Epilepsy is the world’s most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve...

- Nervous system
  The nervous system helps all the parts of the body to communicate with each other...

Brain and head injury

- Acquired brain injury
  The long-term effects of brain injury will be different for each person and can range from mild to profound...

- Alcohol related brain impairment
  A person with alcohol related brain impairment (ARBI) might experience problems with coordination, thinking, planning and memory...

- Alcohol related brain impairment - memory loss
  If a person with alcohol related brain impairment is aware of their memory limits, they can learn how to deal with them...

- Alcohol related brain impairment - support
  People with alcohol related brain impairment benefit when their life is organised and follows a good structure...

- Brain injury and sexual issues
  A brain injury can change the way a person experiences and expresses their sexuality...

- Head and spinal injuries first aid
Head injuries can be serious and require urgent medical attention. A hard blow to the head from a fall, knock or assault can injure the brain, even when there are no visible signs of trauma to the...

- **Head injuries and concussion**
  
  There is no specific treatment for mild head injury other than plenty of rest, and not overdoing things...

- **Subarachnoid haemorrhage**
  
  A subarachnoid haemorrhage is any bleed located underneath one of the protective layers of the brain known as the arachnoid layer...

- **Subdural haematomas**
  
  Subdural haematomas are blood clots formed underneath one of the protective layers of the brain...

**Brain tumours**

- **Acoustic neuroma**
  
  In its earlier stages, an acoustic neuroma can present similar symptoms to other, less serious conditions, which may delay diagnosis and treatment...

- **Brain tumours - cancer**
  
  Brain cancer symptoms and treatment depend on which part of the brain is affected...

- **Brain tumours - gliomas**
  
  Gliomas are brain tumours associated with the three types of glial cell in the brain...

- **Meningioma**
  
  A meningioma is a non-cancerous brain tumour and responds well to treatment...

- **Pituitary tumour**
  
  Generally, pituitary tumours are benign and slow growing, and pituitary cancers are extremely rare...

**Brain related conditions**

- **Amnesia**
  
  Loss of memory can be temporary or permanent, but ‘amnesia’ usually refers to the temporary variety...

- **Creutzfeldt-Jakob disease (CJD)**
  
  Creutzfeldt-Jakob disease is characterised by physical deterioration of the brain, dementia and walking difficulties...

- **Dementia explained**
  
  Dementia is not a normal part of ageing and can happen to anybody...

- **Epilepsy and Young People - Diagnosis (video)**
  
  Epilepsy is the world’s most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve...

- **Headache**
  
  Although nearly all of us will experience a headache during our lifetime, persistent headaches need to be medically investigated with tests such as scans, eye tests or sinus x-rays...

- **Headache – migraine**
  
  Migraine causes a severe and throbbing headache, usually on one side of the head, as well as symptoms such as nausea...

- **Hydrocephalus**
  
  Hydrocephalus is the abnormal enlargement of the brain cavities (ventricles) caused by a build-up of cerebrospinal fluid...

- **Leukodystrophy**
  
  Leukodystrophy refers to a group of inherited disorders that affect the white matter of the brain, which causes loss of normal brain functions...

- **Stroke explained**
  
  A stroke interrupts blood flow to an area of the brain and is a medical emergency...

**Epilepsy and seizures**

- **Epilepsy and employment**

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Many people living with epilepsy are successfully employed across a range of professional fields.

- Epilepsy
  Medication can provide seizure control for approximately 70 per cent of people with epilepsy.

- Epilepsy and exercise
  It is rare for a person with epilepsy to have a seizure during physical activity, but you should always take safety precautions when exercising.

- Epilepsy and Young People - Diagnosis (video)
  Epilepsy is the world's most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve.

- Epilepsy - first aid and safety
  Good seizure management is an important part of reducing the risks associated with epilepsy.

- Epilepsy in children
  Children with epilepsy generally have seizures that respond well to medication, and they enjoy a normal and active childhood.

- Epilepsy - lifestyle issues
  Learn about your epilepsy so that you can make informed decisions about your lifestyle.

- Fever - febrile convulsions
  A febrile convulsion is a fit that occurs in children when they have a high fever.

- Fibromyalgia
  Fibromyalgia is a condition associated with widespread pain and tenderness.

- Medicinal cannabis
  Medicinal cannabis is a legal, high quality medicine that can be prescribed for people by their doctor.

Nerve related conditions

- Bell's palsy
  The majority of people with Bell's palsy, around 90 per cent, will recover completely with time.

- Carpal tunnel syndrome
  Carpal tunnel syndrome can be caused by repetitive hand movements, pregnancy and arthritis.

- Complex regional pain syndrome (CRPS)
  Complex regional pain syndrome (CRPS) is a painful condition of a person's arm, hand, leg or foot, which occurs after an injury, such as a fracture.

- Diabetes type 2
  Type 2 diabetes may be prevented, but it cannot be cured.

- Diabetic neuropathy
  Diabetes is the most common cause of neuropathy.

- Eyes - optic neuritis
  Optic neuritis is inflammation of the optic nerve that causes blurred, grey and dim vision.

- Friedreich's ataxia
  To the casual observer, a person with Friedreich ataxia may seem to be drunk.

- Guillain-Barré syndrome
  Most people with Guillain-Barré syndrome experienced some form of viral or bacterial infection before the onset of symptoms.

- Neuralgia
  Neuralgia is pain in a nerve pathway. Generally, neuralgia isn't an illness in its own right, but a symptom of injury or a particular disorder.

- Pins and needles
  Pins and needles is a sensation of uncomfortable tingling or prickling, usually felt in the hands or feet.

**Spinal cord**

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Quadriplegics - tendon transfer surgery
Many quadriplegics could live more independent lives with a highly specialised operation called tendon transfer surgery.

Spina bifida
Folate can prevent up to 70 per cent of spina bifida cases if taken daily for one month before conception and during the first three months of pregnancy.

Spinal cord injury - paraplegia
Most people who have a spinal cord injury are young males, who have a greater tendency to indulge in risky behaviour.

Spinal muscular atrophy (SMA)
A child with spinal muscular atrophy type 1 rarely lives beyond three years of age.

Syringomyelia
Syringomyelia is the growth of a cyst in the spinal cord that may result in paraplegia or quadriplegia if not treated.

Speech and language

Childhood apraxia of speech
Childhood apraxia of speech affects a person’s ability to organise the muscles used in speech.

Dyslexia
Dyslexia is a type of specific learning difficulty (SLD) in which the person has difficulties with language and words.

Stuttering
Children who stutter should see a speech pathologist, preferably before they start school.

Tests and procedures

CT scan
The CT scan is a medical imaging procedure that uses X-rays and digital computer technology to create detailed images of the body.

EEG test
In a person with epilepsy, an electroencephalogram (EEG) may show bursts of abnormal discharges in the form of spikes and sharp wave patterns.

MRI scan
The MRI scan is a medical imaging procedure that uses a magnetic field and radio waves to take pictures inside the body.

PET scan
PET scans are tests that show how an organ or tissue is working.

X-ray examinations
An X-ray examination uses a special machine to take two-dimensional pictures of internal body structures to help diagnose conditions or injuries.

Related Information

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Acquired brain injury
The long-term effects of brain injury will be different for each person and can range from mild to profound.

Brain injury and sexual issues
A brain injury can change the way a person experiences and expresses their sexuality.

Head injuries and concussion
There is no specific treatment for mild head injury other than plenty of rest, and not overdoing things.

Home
Related information on other websites

- arbias - Information
- Australian Drug Foundation
- Australian Government - Alcohol
- Brainlink
- Looking Forward – Acquired Brain Injury

Support Groups

- AA Times - Alcoholics Anonymous Meetings and Events in Victoria, Australia

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