

Medicinal Marijuana & Driving

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Introduction – What is marijuana?

Marijuana, also known as cannabis, comes from the cannabis plant and contains hundreds of chemical substances. More than 100 of these chemical substances are known as cannabinoids, which act on cell receptors in the brain and body⁴.

What effects does marijuana have?

Delta-9-THC (hereafter THC) and CBD are the two main cannabinoids that have been found to have therapeutic benefit⁵. THC is the principal psychoactive component in cannabis and the reason why marijuana is used recreationally. It may also be responsible for some of the medicinal effects of marijuana, like supporting sleep and appetite and minimising nausea, vomiting, pain and muscle spasms⁶.

Some of the physiological effects of THC include¹⁰:



Tachycardia: heart rate of more than 100 beats per minute¹²



Dry mouth/throat



Increased appetite



Vasodilation: the widening of blood vessels, resulting in a reduction of blood pressure¹³



Bronchodilation: relaxation of the muscles in the lungs and widening of the airways



Decreased respiration

Some of the major cannabinoids include¹⁰:

- Cannabigerol (CBG)
- Delta-9-Tetrahydrocannabinol (Delta-9-THC)
- Delta-8-Tetrahydrocannabinol (Delta-8-THC)
- Cannabidiol (CBD)
- Cannabichromene (CBC)
- Cannabigerovarin (CBGV)
- Tetrahydrocannabivarin (THCV)
- Cannabidivarin (CBDV)
- Cannabichromevarin (CBCV)
- Tetrahydrocannabiphorol (THCP)

Some of the behavioural and psychological effects of THC include¹⁰:



Euphoria



Sedation and/or relaxation



Disinhibition



Impaired short-term memory



Distortion of body/time



A perceived increase in auditory/visual acuity



Synesthesia: when one of your senses stimulates several of your senses¹⁵

CBD is a non-psychoactive cannabinoid and is responsible for numerous of the medicinal properties of marijuana³⁰.

Some of the physiological effects of CBD include¹⁰:



Dry mouth/throat



Increased appetite



Sleep aid



Potentially bronchodilation

Some of the behavioural and psychological effects of CBD include¹⁰:



Anxiety reduction



Deep relaxation



Non-hedonic

A 2018 review from The World Health Organisation (WHO) found that no evidence of recreational use of CBD or any public health-related problems associated with the use of pure CBD. It was found that CBD¹⁶:

- Exhibited no effects indicative of abuse potential
- Is generally well tolerated with a good safety profile

Medicinal and recreational marijuana: What is the difference?

The main differences include: transparency of substance origins, quality of substance, and regulations on what you can purchase and consume³⁰. While recreational marijuana is obtained without a prescription, medicinal marijuana can only be prescribed by a doctor for symptom relief³⁰. Medicinal cannabis products are tightly regulated, and many include isolated cannabinoids, which have been refined to minimise side effects³⁰. They can only be prescribed in specific circumstances and require approval from the Therapeutic Goods Administration (TGA)¹.

According to the AIHW National Drug Strategy Household Survey 2019¹⁷, 51% of people who had recently used marijuana for medicinal purposes (either always or sometimes) reported obtaining it from a friend and 22% from a dealer. Marijuana sourced by an individual online or without a prescription is not approved for use and may be illegal.

There are significant dangers associated with obtaining medicinal cannabis online: it is difficult to monitor dose, the substance composition is not transparent and you can't be sure what's in it, you may risk failing roadside or workplace drug tests, and your health care professionals will be unable to monitor potential drug interactions with your other medications¹.

Does medicinal marijuana contain THC?

The answer: It can.

In Australia, the three major types of medicinal marijuana prescribed are: mainly CBD, mainly THC, and CBD & THC combined.

The most common product prescribed in Australia is a pure CBD oil and contains no THC, meaning they have much less effect on mood, awareness, thoughts, feelings and behaviour⁷. The second most prescribed medicinal marijuana product contains mostly CBD and some THC.

How does medicinal marijuana work, and what conditions is it used for?

Our body makes natural cannabinoids (anandamide and 2-AG), which are part of the endocannabinoid system (ECS), which keeps the body in internal balance (homeostasis) and has a protective function in certain medical condition. In these conditions, medicinal cannabis aids the ECS to alleviate the condition symptoms¹.



Some of the medical conditions approved via the special access scheme (SAS) include¹:

- Cancer related pain
- Fibromyalgia
- Cachexia
- Chemotherapy induced nausea and vomiting*
- Spasticity from neurological conditions*
- Anorexia and wasting associated with chronic illness
- Chronic pain*
- ADHD and/or Autism
- Depression and/or Anxiety
- Palliative care indications
- PTSD
- Epilepsy / seizure management*
- Alzheimer's
- Inflammation

*indicates scientifically proven benefits³¹

Does marijuana use impair driving?

There is substantial evidence that there is a statistical association between marijuana use and increased motor vehicle crash risk¹⁸. Marijuana use has consistently been found that impair driving performance, cognitive functions, and increase the risk of a crash¹⁹⁻²⁴.

In fact, acute use has been shown to "moderately diminish virtually every driving-related capacity"³, including:³



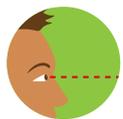
Psychomotor functions



Cognition



Attention and vigilance



Tracking



Reaction time



Coordination

Marijuana use has been associated with changes in driving behaviours including³:



Slower speed



Less passing



Higher following distance



Lane position (weaving)

In studies examining the relationship between marijuana use and motor vehicle crashes, marijuana use is often measured by the presence of THC metabolites detected in drivers¹⁸. THC produces many effects on the brain, attaching to sites called cannabinoid receptors, affecting the way those cells work. These receptors are plentiful in brain areas that regulate movement, coordination, learning, memory and higher-level cognitive functions²⁵.

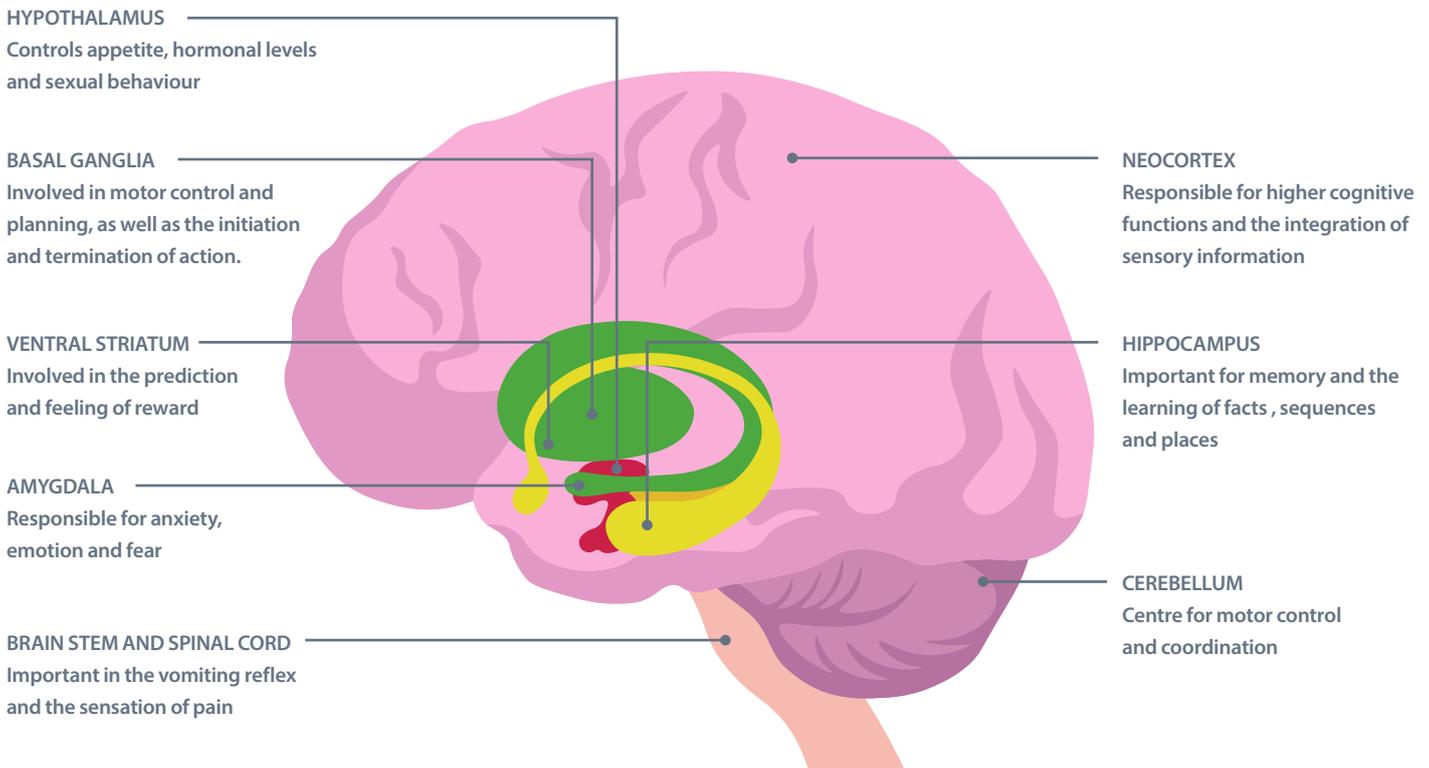


diagram based off © Alice Y. Chen, 2004.
Adapted from *Scientific American*.

While myths have circulated that the presence of CBD in marijuana attenuates the impairing effects of THC, robust literature indicates that marijuana which includes CBD and THC together, create similar (or worse) impairment²⁶.

NOTE: As with many other prescription medications, the impairment effects of marijuana are amplified when consumed with alcohol⁴. A greater level of intoxication and motor control problems has been found when individuals combine marijuana and alcohol, with these impairments greater than when either substance is taken alone⁴. Additionally, impairment may be amplified when marijuana is consumed with other central nervous system depressants (e.g. benzodiazepines, barbiturates, opioids, antihistamines, or muscle relaxants)⁴.

Does CBD-only medication affect your ability to drive?

According to the WHO: "At present no public health problems (e.g. driving under the influence of drugs cases, comorbidities) have been associated with the use of pure CBD."¹⁶

While behavioural pharmacologist Tom Arkell indicates that it is unlikely that CBD has an impact on driving (from a research perspective), insufficient research has been conducted to definitively conclude this³².

Is it illegal to drive while taking medicinal marijuana in Australia?

Presently, in Australia, is it an offence to drive³⁰:

- With the presence of THC in oral fluid, blood or urine; or
- Under the influence of THC.

The cut-off amount of THC under police testing is zero⁵, and there is no medical defence for driving with the presence of (or impaired by) THC⁷.

While driving with THC in your system is illegal Australia-wide, each state and territory will have different driving laws. Consult the transport driving authority in your residence for specific information.

Those taking CBD-only medicines can lawfully drive if they are not impaired². Drivers are responsible for checking whether their medication contains THC, which should be stated clearly on the product and should be verified with a healthcare professional². As such, it's important to obtain medicinal marijuana from legitimate channels to be certain that their products are THC free².

Despite this, up to 1 in 3 medicinal marijuana users drive within 3 hours of using their treatment³³.



The marijuana landscape in Australia is changing rapidly, and the medicinal marijuana space is active and growing rapidly³⁰

As of January 2021, the TGA has approved in excess of 91,000 applications for medicinal cannabis products²⁷, and it is likely this number will continue to increase with the rapid legislative and other changes occurring in Australia. In fact, in 2020 some of the major developments surrounding marijuana in Australia included:

- Cannabis was decriminalised in the ACT – penalties for adults who possess minor amounts of cannabis were removed so individuals could get support without fear of criminal reprimand.²⁸
- The TGA announced a decision to allow certain low-dose CBD containing products to be purchased over-the-counter by a pharmacist without a prescription.²⁹
- A bill was proposed in Victoria for medicinal marijuana patients with a prescription containing THC to be allowed to drive legally, provided they are not impaired.⁷

As such, it's important to stay informed about the changing regulations around marijuana, as well as new studies and information which seek to further elucidate the impact of medicinal marijuana on driving.

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