Cannabinoids.

What are cannabinoids?

The word cannabinoid refers to every chemical substance, regardless of structure or origin, that joins the cannabinoid receptors of the body and brain and that have similar effects to those produced by the Cannabis Sativa plant.[1] The three types of cannabinoids that people use are recreational, medicinal and synthetic.

Research has found that the cannabis plant produces between 80 and 100 cannabinoids and about 300 non-cannabinoid chemicals.[1] The two main cannabinoids are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). The most commonly known of the two is delta-9-tetrahydrocannabinol (THC), which is the chemical that is responsible for the psychoactive effects of cannabis.[2]

The main difference between the two cannabinoids is that THC has strong psychoactive effects, meaning it makes a person 'high', whereas CBD is thought to have an anti-psychoactive effect that controls or moderates the 'high' caused by the THC. CBD is also thought to reduce some of the other negative effects that people can experience from THC, such as anxiety.[3]

The endocannabinoid system

The endocannabinoid system is a unique communications system found in the brain and body that affects many important functions.[5] It is made up of natural molecules known as cannabinoids, and the pathways they interact with. Together, these parts work to regulate a number of activities, including mood, memory, sleep and appetite.[3]

What do cannabinoids do?

Similar to opioids, cannabinoids produce their effects by interacting with specific receptors, located within different parts of the central nervous system. Simply put, cannabinoids regulate how cells communicate—how they send, receive, or process messages.[4]

Types of cannabinoids

- Cannabis - the dried leaves and flowers (buds) of the cannabis plant that are smoked in a joint or a bong. This is the most common form.
- Hemp - the fibre of the cannabis plant, extracted from the stem and used to make rope, strong fabrics, fibreboard, and paper.
- Medicinal cannabinoids including pharmaceutical cannabis products that are approved by an organisation such as the Therapeutic Goods Administration (TGA), including nabiximols (Sativex®) and synthetic cannabinoids such as Dronabinol®.[5]
- HU-210 - a synthetic analogue of THC, first synthesised in Israel in 1988 and considered to have a potency of at least 100 times that of THC. [5]
- UR-144 - similar effects to THC, though slightly less potent than THC.[6]
- JWH - a series of synthetic cannabinoids created in 1994 by Dr John W. Huffman for studies of the cannabinoid receptors.[7]
- 5F-ADB - a synthetic cannabinoid that was first identified in late 2014 from post-mortem samples taken from an individual who had died after using a product containing this substance.[8]
- CUMYL-PEGACLONE emerged in late 2016 on the German drug market.[9] Anecdotal reports suggest that there are a number of adverse effects associated with CUML-PEGACLONE.

How are they used?

Illicit and synthetic cannabinoids are usually smoked, vaporised or eaten. Pharmaceutical or medicinal cannabinoids come in a variety of products including raw (botanical) cannabis which may be vaporised for medicinal purposes, as well as oils, liquids and oral sprays. Gels have also been developed for direct application to the skin.[5]

Effects of cannabinoids

The effects of cannabis may be felt immediately if smoked or vaporised, or within an hour or two if eaten. General effects may include:

- euphoria
- feelings of well being
- spontaneous laughter and excitement
- increased appetite
- dry mouth
- quiet and reflective mood.[10]

What are synthetic cannabinoids?

Over the years a number of synthetic cannabinoid products have been produced. They are similar to those of natural cannabis, yet, these drugs can be more potent and have been associated with a number of adverse effects.

Synthetic cannabinoids are molecules designed to mimic the effects of THC. Like THC, these synthetic cannabinoids target the cannabinoid type 1 receptor (CB1R) in the brain, which is responsible for the psychoactive effects of THC in cannabis.[11]

Many of these substances have developed to the extent that they no longer fit with the traditional cannabinoid classification system.

Cannabinoids and other drugs

The effects of mixing cannabis with other drugs, including alcohol, prescription medications and over-the-counter medicines, are often unpredictable.

Using alcohol and cannabis at the same time can increase the unpleasant effects, including nausea, vomiting and feelings of panic, anxiety and paranoia.

Some people use cannabinoids to 'come down' from stimulants such as amphetamines and ecstasy. The mixing of cannabis and ecstasy has been linked to reduced motivation, impaired memory and mental health problems.[12,13]

Health and safety

Use of cannabinoids is likely to be more dangerous when:

- taken in combination with alcohol or other drugs, particularly stimulants such as crystal methamphetamine ('ice') or ecstasy
- driving or operating heavy machinery
- judgment or motor coordination is required
- alone (in case medical assistance is required)
- the person has a mental health problem
- the person has an existing heart problem.[14]

There is no safe level of drug use. Use of any drug always carries some risk. It's important to be careful when taking any type of drug.

Dependence and tolerance

Regular cannabinoid use, particularly when started in adolescence, is associated with dependence and lasting cognitive impairment (e.g. lower IQ), poor educational outcome, diminished life satisfaction and achievement, and an increased risk of psychotic disorders.[15]

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Always call an ambulance on triple zero (000) if an overdose is suspected: tell the paramedic exactly what has been taken. Paramedics are there to help and will not involve the police unless there is a danger to themselves or others.

Other help, support services and resources

Links to further help and support • adf.org.au/help-support/

Information on different types of cannabis • adf.org.au/insights/various-cannabis-use/

Further information

DrugInfo • 1300 85 85 84
Free confidential information and advice about alcohol and other drugs (9am - 5pm, Mon-Fri)

Family Drug Help • 1300 660 068 • www.familydrughelp.com.au (Victorian-based)
Services are available to support those around you who may be affected by your drug use. As well as providing understanding, they can provide information about how best to help during treatment.

Family Drug Support • 1300 368 186 • www.fds.org.au (Australia-wide)

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