



# CANNABIS

answers to your questions

**AUSTRALIAN NATIONAL COUNCIL ON DRUGS**

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Prepared on behalf of the  
Australian National Council on Drugs

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# Introduction

While the cannabis plant has been used medicinally and recreationally for thousands of years, it wasn't until the early 19th century that the use of cannabis spread from Asia and the Middle East to the population of Europe. Widespread cannabis use emerged in Australia and other Western countries in the early 1970s and has been rising since. Today, cannabis remains the most commonly used illicit drug in Australia, with around 11.3% of the population having used the drug in the previous 12 months.

This review aims to answer key questions relating to cannabis and the risks associated with its use. It was commissioned by the Australian National Council on Drugs (ANCD) for an audience including the media, key decision makers and their advisers, the alcohol and other drug sector, and interested members of the community.

This review of the current research and clinical literature reflects the status of the evidence up to the end of 2004 and involved the review of around 700 papers in international peer-reviewed journals and high quality reports. In addition, several international experts reviewed this document and commended it as an accurate synthesis, reflecting complex evidence.

While there is a growing body of research on this important topic, more social and scientific research is required to provide the level of proof necessary to answer many of these questions conclusively.

The literature review on which this booklet is based is available from the ANCD as its Research Paper No. 11 and can be accessed from its website [www.ancd.org.au](http://www.ancd.org.au) or by contacting the National Secretariat Office on (02) 6279 1650 or [ancd@ancd.org.au](mailto:ancd@ancd.org.au).

# How is cannabis used in Australia?

Cannabis is the term used to describe the leaf and flowering heads of the marijuana plant *Cannabis sativa*. The terms cannabis and marijuana are often used interchangeably, though some authorities restrict the term marijuana to the leaf.

In Australia, cannabis is most usually taken as a cluster (“cone”) of the flowering heads of the female plant. The next most common form used is leaf. It is, much less commonly, produced in two other forms “hash”, which is the resin produced by the plant, and “hash oil”, which is the concentrated resin.

Cannabis can be taken in a variety of ways. It is usually smoked using a “bong” or a “joint”. A bong is a water-containing apparatus that cools the cannabis smoke before it is inhaled into the lungs. A joint is a form of cigarette containing mostly cannabis leaf but it may contain some of the flowering heads. Cannabis is mixed with tobacco by some people to help it to burn. Uncommonly cannabis is eaten in cakes or brewed as a tea.

## What is in cannabis?

Cannabis consists of some 60 chemicals which are technically termed ‘cannabinoids’. The principal one is delta-9-tetrahydrocannabinol, known as THC. The various parts of the marijuana plant differ widely in their concentration of THC. Leaf typically contains between 0.5%–4%. The flowering heads contain about 3–4 times this concentration. Hash contains about 4–20% THC concentration.

The relative concentration of the cannabinoids varies between plants. This may explain the different effects that various forms of cannabis have on people.

## Where does cannabis go?

When cannabis is smoked it is absorbed through the lungs into the blood stream. Cannabis can be detected in the blood within 1–2 minutes of smoking. It is then distributed through the body and brain and is also concentrated in the body’s fat stores. Some people try to increase the rate of absorption into the bloodstream by inhaling more deeply.

When cannabis is taken by mouth in the form of a cake or cookies or in tea, the absorption into the bloodstream is slower, taking 1–3 hours. The effects are typically less than when the drug is smoked but they may last longer.

## **Who uses cannabis in Australia?**

Cannabis is the most commonly used illicit drug in Australia. When people start using cannabis they are usually in their mid to late teens. Cannabis use is less common in people aged over 30 years and is not commonly used by people over 60 years.

A high proportion of young people have used cannabis at least once. One in five teenagers have smoked it in the last 12 months. Young men are more likely to have used than young women.

Among adults as a whole, 11% had used cannabis at least once in the last 12 months. Among some groups cannabis use is higher: 27% of Indigenous people reported using at least once in the last 12 months. People in Australia are beginning to use cannabis at an earlier age than they did in the past. The average age for first use of cannabis dropped from 19.1 years in 1995 to 18.5 years in 2001. More cannabis users are now beginning to use the drug in their teens.

## **Where is cannabis used?**

People who use cannabis typically smoke it with a partner, in a small group or at a party. People who use cannabis report that half their friends also use the drug. The most common place to smoke cannabis is in people's own homes or at a friend's house. The next most common location is at a private party.

## **Use of cannabis with other drugs**

Cannabis is often mixed with tobacco which is added to help burning. Most cannabis smokers also smoke tobacco. Indeed cannabis may lead to regular tobacco smoking and can increase the risk of cannabis dependence.

Alcohol is also commonly used at the same time as cannabis is smoked: 95% of cannabis users have done this. Smaller proportions have used amphetamines together with cannabis (26%) or ecstasy with cannabis (20%).



# 2

## What is the current legal status of cannabis in Australia?

Cannabis is an illegal drug throughout Australia. More specifically, the possession, use and supply of cannabis is illegal. Each state and territory has its own legislation which provides for either civil or criminal penalties for cannabis offences. All states and territories have programs where some non-violent, minor and early cannabis offenders are diverted from the legal system into a program of education and/or treatment.

The possession, use and supply of cannabis is illegal in all states and territories in Australia. Each jurisdiction has its own laws covering cannabis-related offences. These include criminal penalties for cannabis possession, use and supply, such as incarceration and major fines, as well as civil penalties or diversion programs for minor cannabis offences.

Although states and territories differ in whether particular cannabis offences attract criminal or civil penalties, all have

programs where non-violent, minor and early cannabis offenders are diverted from the legal system into education and/or treatment. This diversion process means that it is unlikely that first-time minor offenders will receive a criminal record.

Below is a table of the key features of current schemes for minor cannabis offences, not including possession of implements.

Jurisdiction	Penalty Schemes
	<b>Prohibition with civil penalty schemes (Infringement Notices)</b>
SA (1987)	Less than 100 grams and no more than one non-hydroponically grown plant Fines between \$50 and \$150. Adults have 60 days to pay the fine and failure to pay usually results in a conviction.
ACT (1992)	Not more than 25 grams or two non-hydroponically grown plants \$100 fine. Adults and adolescents have 28 days to pay. Failure to pay does not usually lead to a conviction.
NT (1996)	Less than 50 grams and no more than two plants \$100 fine. Adults have 28 days to pay and failure to pay results in a debt to the state but no conviction.
WA (2004)	Less than 30 grams and no more than two non-hydroponically grown plants — \$100–200 fine or alternatively attend a specified education session. Adults have 28 days to pay.
	<b>Prohibition with cautioning and diversion to treatment (No state allows plants to be included in cautioning schemes, only harvested cannabis.)</b>
TAS (1998)	Less than 50 grams and plants excluded. Caution for first three offences (with increasing requirements e.g. brief interventions for second offence, assessment for third.)
VIC (1998)	Less than 50 grams and plants excluded. Up to two formal cautions, aged over 17 years.
NSW (2000)	Less than 15 grams. Up to two formal cautions.
QLD (2001)	Less than 50 grams. Mandatory assessment and brief intervention session.

# 3 Why do people use cannabis?

Most people who use cannabis do so to experience a sense of mild euphoria and relaxation a “high”. Cannabis causes changes in the user’s mood, and how they think and perceive their environment. For some people, however, the experience is unpleasant.

The main reason people give for using cannabis is to experience a sense of mild euphoria and relaxation the “high”. The mental effects of cannabis cause an altered sense of time and heightened senses such that everyday activities like eating, watching television or listening to music are described as more intense. Some users report laughter, increased appetite (sometimes known as ‘the munchies’), talkativeness and a desire to be around people. Some experience confusion and problems with thinking and memory. Physical effects include a raised heartbeat and minor changes in blood pressure. The cannabis “high” is often followed by drowsiness and a desire to sleep.

For some people cannabis use is not a pleasant experience. Using the drug may cause anxiety, depression, paranoia and panic. Some users even report hallucinations or delusions. These effects are more common in inexperienced users and patients using cannabis for medical reasons.

How cannabis affects the brain is gradually being revealed. Like other drugs such as heroin, alcohol and cocaine, cannabis causes the brain to produce more of a chemical named dopamine. This seems to be the mechanism by which it results in a feeling of euphoria.

When cannabis is smoked, its effects are felt within minutes and last for two to three hours. The duration of the “high” depends on many factors such as the experience of the user and the amount and type of cannabis used. Although the effects generally wear off within four hours, some users may still feel the consequences of cannabis use for up to eight hours after smoking.

There is little research examining the reasons why people use cannabis. It has been suggested that they believe that the risks of use are low and they perceive it as socially acceptable.

# 4

## Are greater amounts of cannabis being used today and is it stronger now than in the 1970s?

Cannabis use is more common today than a generation ago. There is surprisingly little known about the potency of cannabis now compared with the past.

The available information shows that the average THC content of cannabis has increased a little over the last 20 years. The main difference is what part of the plant people smoke. It is more common for people today to smoke the flowering heads of the plant which are much more potent than marijuana leaf. In addition, people are more likely to smoke cannabis in a “bong”. Because of these changes it is likely that they are taking in higher levels of THC than in the past. There has been no systematic investigation of whether hydroponically grown cannabis is stronger than naturally grown cannabis.

### **Evidence for change in strength (potency) of cannabis**

Although there have been reports that cannabis is now “30 times stronger” than it used to be, evidence from Australia, New Zealand and the United States indicates only small to moderate rises in average THC levels in cannabis plants. Testing over the past two decades shows average THC levels in the United States being just over 6%, with a slightly lower figure (2–4%) in New Zealand. Unlike New Zealand and the United States, Australia has no program for testing cannabis potency and our information comes from police seizures and small independent studies that have produced varying results. In some cases, testing has revealed quite high THC levels but in the majority of Australian cannabis samples tested, THC levels have remained relatively low, under 5% THC, throughout the last 20 years.

### **Evidence for an increase in the amount of cannabis smoked by individuals**

There has been a considerable shift in the form of cannabis used over the last 20 years; from the leaf to the flowering heads of the plant, which have a greater THC concentration. This makes it likely that people are taking in larger amounts than was usual 20 years ago.

In Australia, younger cannabis users prefer the stronger forms of the drug, typically “heads”, while older users tend to choose the less potent leaf of the plant. This trend towards smoking the stronger part of the plant is most obvious in those aged 14 to 29 years. Younger cannabis users also tend to smoke cannabis through water pipes or “bongs” rather than joints, which are typically preferred by older users. In this way young people may be exposed to higher levels of THC than older users.

Although we know a lot about the number of cannabis users in Australia and how that has changed over time, we know little about whether there has been an increase in the actual *frequency* of cannabis use or the *quantity* of cannabis smoked during this time.

### **Hydroponic production**

The term hydroponics refers to the growing of a plant indoors under artificial light using a water bath and nutrients. This growing method has some advantages to the producer, such as growing a larger amount of cannabis without it being so easily detected and a greater frequency of cropping. The proportion of Australian cannabis that is hydroponically grown varies considerably. In 2000–01 approximately 90% of seizures in South Australia and 38% of seizures in Tasmania were hydroponically grown.

Some users express concern that growers use additives such as fertilisers, pesticides and hormones in hydroponic cultivation to try and increase yield and therefore their profits. There have been claims that these substances may contribute to problems such as increased migraines and possibly mental health problems. It is not clear, however, how widespread this practice is, and whether these additives increase the health risks.

### **Domestically produced versus imported cannabis**

The amount of cannabis imported into Australia is believed to be small. Little is known about the differences in potency or potential health effects between domestic and imported cannabis. As yet, there have been no investigations or reports into differences in potency or potential health effects between domestic and imported cannabis. However, it would be unlikely that imported cannabis would be significantly more potent than domestic cannabis given the evidence that THC levels of cannabis seizures in Australia do not differ dramatically from the United States or New Zealand.

# 5

## What are the main physical health effects of cannabis?

Prolonged, heavy use of cannabis causes a range of physical health problems. Many of these are similar to those experienced by tobacco smokers, such as heart disease and respiratory problems, and there may be an increased risk of cancer.

### Short-term physical health effects

In contrast to many other drugs, there have been no reports of fatal overdose due to cannabis poisoning. Short-term use is unlikely to lead to major physical problems in healthy individuals. Persons who have existing medical conditions such as asthma, bronchitis, high blood pressure or heart disease place themselves at risk of aggravating those conditions.

### Long-term physical health effects

Heavy cannabis use can cause dependence (see Question 11). Cannabis use over time causes a range of respiratory (breathing) problems, such as wheezing, episodes of bronchitis, aggravation of asthma and chronic obstructive airways disease. Cannabis increases the heart rate and through this and other mechanisms it may increase the possibility of heart attack in people who have risk factors for heart disease (e.g. obesity and/or cigarette smoking). Like cigarette smoke, the smoke from cannabis contains agents that increase the risk of cancer. Regular and prolonged cannabis smoking, especially combined with tobacco use, increases the risk of developing mouth and throat cancer.

Although cannabis has been found to reduce sperm count and testosterone levels in male animals, it is not established that this occurs in humans. However, there is some evidence that cannabis may affect female fertility. Cannabis should not be used when pregnant or when planning a pregnancy.

### Effects of cannabis on the foetus (unborn child)

Using any drug while pregnant may have a range of effects on the unborn child. Similar to other drugs such as alcohol and tobacco, cannabis passes from mother to foetus during pregnancy. Smoking cannabis during pregnancy may result in a lower birth weight baby. However, cannabis use during pregnancy does not appear to increase the risk of miscarriage. Although alcohol or tobacco exposure during pregnancy may cause increased risks of birth abnormalities or lower IQ, there is no evidence to suggest that the same problems exist for cannabis exposure. However, some studies suggest that children who have been exposed to cannabis in the womb may have more difficulties with problem-solving and attention, and these problems may continue as they get older, impacting negatively on education potential.

### Medical benefits of cannabis

Some people report that cannabis helps them relieve the symptoms of some medical disorders including glaucoma, multiple sclerosis, HIV-related wasting disorders and pain. Some of the symptoms that cannabis appears to relieve include nausea and vomiting, particularly in people having chemotherapy, weight loss, pain and muscle spasms. Recently, Sativex® (a commercial preparation of herbal cannabis) has been registered for medical use in Canada for treatment of pain.

# 6

## What is the relationship between cannabis use and mental health disorders?

Cannabis use has a range of mental effects on people. The expectation of cannabis smokers is that they will experience a short-term pleasurable effect. However, some people experience adverse effects from single use such as anxiety and panic. In high doses cannabis can cause confusion, disordered thoughts and hallucinations. Some people are more vulnerable to the mental effects of cannabis than others. These people include those with a history themselves of a mental health disorder or a family history of mental illness.

### Can cannabis cause psychosis?

This is a complex question. Although it is rare, after a session of heavy cannabis use people may experience a short-term psychotic episode. This can last from several hours up to 2–3 days. In this, there is a loss of contact with reality, disordered thoughts, often suspiciousness (paranoia) about other people and objects, and sometimes hallucinations (seeing and hearing things that do not exist in reality). Such an episode is really a temporary intoxication caused by the direct effects of cannabis on the brain. Cannabis use has been reported to cause a psychosis that lingers for weeks or months but this is extremely uncommon.

Most people who experience psychosis after cannabis use have a vulnerability to developing a mental health disorder or actually have such a disorder. Cannabis use by these vulnerable individuals may trigger an episode of their illness. In addition people who have a family history of mental illness (and this may not be known by many people) may experience negative mental effects, including episodes of psychosis, if cannabis is used regularly.

There is a lot of debate as to whether cannabis causes schizophrenia. Schizophrenia is one of the more serious mental disorders, which in most people causes mental health problems over many years. The characteristic symptoms include thought disorder, delusions which are often bizarre, paranoia and hallucinations. People who smoke cannabis in their teens may have an increased risk of developing schizophrenia when compared to non-cannabis users; however, it is not established that cannabis use directly causes actual cases of schizophrenia in people who are not at risk of this condition. More likely it triggers an episode in people who are likely to develop schizophrenia at some time.

Some people with mental illness report that they use cannabis to relieve their symptoms. This is not an accurate perception of the effect of cannabis on symptoms of schizophrenia as it actually makes their condition worse. If a person smokes cannabis when they already suffer from schizophrenia, their symptoms may become more severe and difficult to manage.

### **Cannabis, depression and suicide**

People who use cannabis are more likely than others to experience depression. The exact nature of the relationship between cannabis use and depression is difficult to establish because many cannabis users have other personal and lifestyle factors that may lead to depression, such as alcohol use and living in difficult social circumstances. Nonetheless studies that have accounted for factors like these have found that cannabis-related depression is more likely to occur in young women than young men.

The issue of suicide risk and cannabis use is important, given the high rate of suicide in young Australian males and the common use of cannabis among this group. There are many factors that place a person at risk of suicide, including personal and family history, social disadvantage, alcohol and heavy cannabis use.

### **Cannabis and anxiety**

Some people experience severe anxiety and indeed panic when they smoke cannabis. These effects are usually short lived but it represents an aversive experience for them.

There has been concern that cannabis use may cause long-lasting forms of anxiety disorders such as panic disorder. Personal characteristics, family history and use of other drugs are also important influences on the development of anxiety disorders and can play a more important role than cannabis.

### **Cannabis and violence**

Cannabis is a sedating drug and is less likely to cause violence than other substances such as alcohol and stimulants (amphetamines and cocaine). Cannabis users who commit violence typically have a history of violent acts before they started to use the drug. Separately, a cannabis withdrawal state may result in abusive and aggressive behaviour because of the irritability associated with it.

# 7

## Does cannabis use impair or delay intellectual, social and emotional development in young people?

While there are serious concerns about the potential effects of cannabis use on memory and learning, it is still unclear whether cannabis causes lasting problems in these areas. Adolescent cannabis use has been linked to a range of social problems. Many of these effects may be due to younger cannabis users being more likely to mix with peers who are involved in a range of risky behaviours.

Lack of motivation is a very commonly reported effect of cannabis use. People also talk about the “amotivational syndrome”, where users report loss of interest, being less productive, having difficulty in carrying out long-range plans, tiredness, depression, and difficulties with concentration and attention. These problems, however, are believed to be due to the user being depressed and/or chronically intoxicated rather than a particular syndrome.

While there are serious concerns regarding the effects of cannabis use on memory and learning, it is still unclear whether cannabis causes lasting problems in these areas. Although current heavy cannabis use may decrease IQ test scores, this seems to disappear after cannabis use has stopped.

Adolescent cannabis use is associated with poorer school performance, more absent days and leaving school early. Young people

who begin using cannabis at an early age (before age 16 years) are more likely to leave school without qualifications. Whether this is due to learning problems or lack of motivation, or because cannabis users mix with peers who are involved in risky behaviour, has not been established.

Using cannabis at an early age is also linked to problematic behaviours such as leaving the family home, early sexual activity and teenage pregnancy. Early cannabis users are also more likely to have formed their own families by late adolescence and be divorced by young adulthood.

Although it is accepted that cannabis use, delinquency and crime are associated, understanding which is the primary driving behaviour is not clear.



# 8

## What are the current best-practice treatments available for cannabis-related problems?

Compared to some other drugs, there are fewer specific treatments available for cannabis-related problems. Most involve counselling, although various drug treatment options are currently being investigated.

### Is treatment needed?

As the number of cannabis users who have problematic cannabis use has increased, so has the number of people seeking treatment. People request treatment because of the physical or mental effects of cannabis use, and/or because they feel they have become dependent on it.

Using cannabis regularly can result in people feeling the need to take the drug on a continuing basis. It can lead to the person continuing to use cannabis even though they are having problems as a result of its use. People who are cannabis dependent typically find it difficult to stop using the drug. These experiences are typical of cannabis dependence. In the past, cannabis was not seen as a drug that could produce withdrawal. However, studies have revealed that heavy cannabis users experience increased irritability, anxiety and depression, and decreased appetite. The withdrawal symptoms appear similar to those of tobacco.

### What treatment is available?

There is a smaller range of treatment options available for cannabis-related problems than there are for drugs like alcohol or heroin. We are learning more about this area, and useful treatments are emerging.

About 20–40% of people are abstinent while in treatment. Unfortunately, as with other drugs, many people start using cannabis again after they have completed treatment. Despite this, treatment improves their lives by helping them reduce the amount of cannabis they use and associated health and social problems.

### Psychological interventions

Research on psychological interventions for cannabis use has included a range of counselling approaches, particularly those based on cognitive behavioural therapy (CBT) and motivational interviewing. CBT includes teaching and practice of behavioural and cognitive skills to deal with risk factors (i.e. drug refusal, coping with craving, managing mood, avoiding high risk for use environments, finding alternative activities etc). It essentially focuses on how the person feels about and responds to thoughts and experiences and ways of tackling negative thoughts.

Motivational interviewing has recently been developed for cannabis problems. Motivational interviewing does not confront individuals about the need to change, but works to encourage and build motivation to change. Many young people have managed to significantly reduce cannabis use and related problems. Among young people with complex psycho-social and substance use related problems, intensive family therapy-based interventions show particular promise.

### **Pharmacological interventions**

There are several drugs that may either ease the symptoms of cannabis withdrawal or block the effects of cannabis. These are still in an experimental stage. Recently antagonists have been developed. An antagonist is a drug that blocks the effects of another drug by stopping it affecting the brain. There is some evidence that an antagonist rimonabant blocks the effects of smoked cannabis, though more work needs to be done to find out whether it reduces use in those people who are dependent on cannabis. The clinical safety and effectiveness of this medication is still under investigation.

### **Peer support**

Whilst there is little known about the success of peer support programs for cannabis users specifically, there are Narcotics Anonymous (NA) meetings available that provide support for anyone who wishes to stop using drugs. Marijuana Anonymous (MA) groups have been formed along similar lines, specifically to help people with cannabis-related problems. There are few of these meetings available in Australia.

# 9

## Are there effects of passive cannabis smoking?

Passive smoking is the inhalation of smoke produced by other people's smoking.

As cannabis smoke contains many of the dangerous substances that are found in tobacco smoke (tar, carbon monoxide and cancer-inducing chemicals) it can cause similar problems to those experienced by passive tobacco smokers. Traces of cannabis can be found in body fluids as a result of passive cannabis smoking.

Cannabis is often used in social situations, such as at parties. As a result, second-hand cannabis smoke can be inhaled by people spending time with the smoker. Heavy passive exposure to cannabis smoke in a confined space can result in cannabis being found in body fluids and can even cause slight intoxication. In most cases however, it would be unlikely that a non-user would expose themselves to such high levels of cannabis smoke under normal circumstances.

We know little about the short-term or long-term health effects of passive cannabis smoking. However, tobacco and cannabis

smoke contain many of the same harmful compounds (tar, carbon monoxide and carcinogens). Also, many cannabis smokers mix cannabis with tobacco, and are also cigarette smokers. Research shows that in children, passive tobacco smoking can cause breathing problems, including asthma and therefore it may also lead to heart disease and possibly even lung cancer, in later life.

Given that cannabis smoking is mostly sporadic, whereas tobacco smoking is usually more regular and lasts for many years, far more people are exposed to second-hand tobacco smoke than cannabis smoke.

# 10 What are the links between, and health impacts of, smoking tobacco and cannabis?

Most people who try cannabis have previously used tobacco and many current cannabis smokers also smoke cigarettes. Smoking both cannabis and tobacco results in a greater health risk than smoking either alone.

Most people who try cannabis have previously used tobacco and many current cannabis smokers also smoke cigarettes. There is an association between cigarette smoking and higher rates of cannabis dependence, particularly among daily cigarette smokers. People who are cannabis dependent and smoke cigarettes do not respond to treatment as well as non-cigarette smokers. Cannabis use may also result in relapse to tobacco smoking.

Smoking both cannabis and tobacco results in a greater health risk than smoking each alone. For example, while heavy cannabis

use affects the larger airways and tobacco smoking affects the small airways, those who smoke both may experience each of these problems. Heavy smokers of cannabis and tobacco develop more lung problems than those who smoke only cannabis or cigarettes alone.

Early onset tobacco smoking may also act as a gateway to cannabis use. Nicotine dependence may be more likely to occur if cannabis is used in combination with tobacco. As such, continued smoking of cannabis with tobacco may hinder efforts to quit tobacco smoking amongst those people.



# Who is more likely to develop problems with cannabis use?

Some cannabis users will have great problems with the drug, such as dependence, others less so. Around one in ten people who ever try cannabis will become dependent on it at some point in their lives. The risk of dependence increases as use becomes more regular and the younger the age of commencing use. Mixing with drug-using peers, poorer parenting, school drop-out, genetic factors and daily cigarette smoking all increase the risk of developing problems from cannabis use.

There is a huge variation in the amount of cannabis that people smoke. Whereas some occasional smokers do not develop evident problems, some cannabis users have great problems with the drug, including dependence. It has been estimated that around 200,000 Australian adults are dependent on cannabis.

Around one in ten people who ever try cannabis will become dependent on it at some point in their lives. Using cannabis at least several times increases the chance of dependence to around one in five. Daily users face about a one in two chance of becoming dependent, with young people at even greater risk if they use at this rate.

People who are dependent on cannabis can experience a variety of psychological, social and physical symptoms including withdrawal. These symptoms can cause people to seek professional help. Research shows that dependent cannabis users may experience withdrawal symptoms, similar to nicotine users, when they quit or cut down their use. These symptoms include feeling irritable, anxious and depressed, sleeping problems and decreased appetite. These may start one to three days after stopping cannabis use and last for around two weeks. Even though the withdrawal is not as severe as

for other drugs like heroin, some heavy cannabis users continue to use cannabis to prevent withdrawal.

## How many people persist with cannabis use?

Cannabis use is most common in adolescence and early adulthood, but often continues into later adult life. In 2001, 40% of males and 30% of females in Australia who reported ever having used cannabis were still using it. People who become dependent during their adolescence are more likely than others to continue to use cannabis in later adult life.

## Risk factors for developing problems with cannabis use

Factors that heighten the risk of developing problems from cannabis use, include: frequent use of cannabis at an early age, poor parenting, school drop-out, mixing with drug-using peers, moving away from home at an early age, attention deficit hyperactivity disorder, daily cigarette smoking in adolescence, and being able to get cannabis easily. Patterns of cannabis use such as use more than once per week, particularly daily use, and use of more potent forms also increase the likelihood of developing dependence.

# 12 What is the current evidence for cannabis as a gateway drug?

Cannabis use, particularly regular use at a young age, increases the risk of other drug use. The link between cannabis use and the use of other illicit drugs is usually due to personal traits that make it more likely for the person to take part in risky behaviour.

Most people who use illegal drugs, like heroin or amphetamines, first used drugs like alcohol, tobacco or cannabis. These substances, but most usually cannabis, are seen as a "gateway" to the use of other drugs. The vast majority of people who do use cigarettes, alcohol or cannabis never use other illicit drugs. For example, while the majority of heroin users have used cannabis, only around 4% of cannabis users have used heroin.

The risk of using other drugs is greater for cannabis users who start regularly using at a young age and those who become dependent. The link between cannabis use and the use of other illicit drugs is usually due to personal traits (possibly even genetic) that make it more likely for the person to take part in risky behaviour. Mixing with people who use illicit drugs also means there are more opportunities to experiment.

# How does cannabis affect driving?

Cannabis affects a person's ability to react and pay attention on the road. Whilst there has been some debate about whether the cannabis-affected driver will try and compensate for the effects of the drug (e.g. by driving more slowly), their impaired ability to respond to unexpected occurrences on the road is an important safety issue.

The effect of cannabis on driving skills is less clear than that of alcohol on driving performance. Some studies show that cannabis can affect certain driving skills. It can affect a range of skills necessary for driving, such as attention, reaction time, short-term memory, hand-eye coordination, alertness, time and distance perception, decision making and concentration.

Whilst there is less evidence to show that the drug affects actual driving performance, it is a concern that some Australian cannabis users report that they have driven after they have used cannabis, with some heavier users driving regularly when intoxicated.

Studies of the role of cannabis in road accidents carried out in driving simulators, driving circuits and in traffic have had mixed results. Some studies find THC-positive drivers are more likely to be

involved in accidents than THC-free drivers, while others have found no difference.

On balance, the evidence indicates that cannabis intoxication can affect driving skills.

It has been suggested that cannabis-affected drivers may try to compensate for the effects of the drug by driving more slowly or avoiding risky driving manoeuvres. While this may decrease some of the accident risk, there is still a safety issue due to unexpected occurrences on the road, with cannabis-affected drivers having slower reaction times and problems with decision making.

When cannabis is mixed with alcohol, driving impairments are more severe than for either drug alone. This is particularly concerning because alcohol is the most popular drug used in conjunction with cannabis in Australia.