FACT SHEET #4

Cannabis and Youth Project



Understanding the Effects and Risks of Cannabis Use: Frequently Asked Questions and Answers

What are the immediate effects of marijuana use?

Cannabis may be ingested through the lungs by smoking it in its various forms or through the digestive system by eating it in baked or cooked foods. The effects of the psychoactive ingredient known as THC (delta-9 tetrahydrocannabinol) as a result of smoking occur within minutes. Peak plasma concentrations and effects on the brain occur within 15-30 minutes and last for about 3-4 hours. The effects as a result of eating substances containing cannabis are not felt until the absorption of the THC into the blood stream within 30-60 minutes with peak concentrations and effects occurring within 2-4 hours and lasting 4-6 hours. Individuals using marijuana for medical purposes may also ingest by using teas or inhaling through vaporizers.

Cannabis can be much more potent today than in the past due to cultivation techniques and genetic engineering to increase its THC content. Its effects may be more intense as a result. THC is naturally found in cannabis in concentrations ranging from 0.5%-3%. With more sophisticated growing techniques the concentration of THC has been increased to 6%- 30%. Evidence of increased strength is somewhat contradictory and may have been exaggerated in order to discourage use. It is safe to say that there is actually enormous variation in strength. Some studies have shown a gradual increase and in some cases it can be quite strong.

The cannabinoids present in cannabis act on several areas of the brain involved in neurological functions including the regulation of emotional responses, control of motor activity, physical coordination, short-term memory, perception, concentration, appetite, and the experience of pain. As a result the short-term effects of the drug are varied and cover a broad range of physical and mental sensations (both positive and problematic). The acute physical or somatic effects include an increased heart rate, increased cerebral blood flow, dilation of bronchial passages, dilation of blood vessels in the eyes causing redness and enlargement of the pupils, sensations of dry mouth or thirst, and sensations of hunger or cravings for food. These somatic effects vary among individuals and may be more evident in users who are first time users or who have had little experience with the drug. Often these effects decrease in individuals who are regular users or for whom tolerance to the somatic effects has developed.

Emotionally, individuals who are "high" may experience euphoria and pleasant sensations of feeling relaxed, calm, talkative, or happy. Following the euphoria and "high", individuals often experience drowsiness and possibly a more depressed or anxious mood. In some rare situations, individuals may experience more extreme hallucinogenic effects including paranoid thoughts or delusions.

Perceptions can become more intense and may be distorted. Time and space distortions and attention to details that are otherwise insignificant are common effects. Some individuals may experience these hallucinogenic effects more intensely depending on levels of toxicity and predisposing factors.

Cognitively, individuals experience diminished short-term memory, diminished reflexes, attention deficits, problems with coordination and impaired ability to perform complex tasks. These disturbances in cognitive abilities present risks in terms of the individual's capacity to drive or operate complex machinery.

The state of mind of individuals prior to use of cannabis as well as the duration and frequency of use impacts the effects experienced. If one is anxious or tense, the side effects may be more evident due in part to the interaction of other neurotransmitters and chemicals in the body as well as to the interpretation of the effects on the body. Similarly, these somatic effects may be potentiated by the use and presence of other substances or drugs eg. alcohol.

What are the effects of long term or chronic use?

There are no anatomical changes in the brains of heavy cannabis users suggesting that cannabis use does not produce long-term cognitive or emotional impairment. In fact, many of the cognitive deficits attributable to heavy cannabis use are recovered once the individual stops using. There is contradictory data on changes in the electrical activity in the brain. Efforts to map and understand brain chemistry and neurotransmitter systems are still in development.

There has been interest in the discussion of an "amotivational syndrome" in regard to chronic users. However, evidence in this regard is contradictory and may be linked more to personal predisposing traits that lend to use of cannabis rather than to behaviours that are a direct cause of heavy cannabis use. Long-term heavy use is associated with dependence.

THC is fat-soluble and can be stored in fat tissues in the body. THC stored in fatty tissue can be released by physical exercise as an example. The body is slow to eliminate THC and its metabolites; inactive THC metabolites have been detected in urine up to 30 days following use in regular users. This becomes relevant in terms of drug testing issues.

What are the physical health risks of cannabis use?

Effects of smoke on lungs

Chronic heavy use of cannabis impairs the functioning of the large airways and often causes bronchial symptoms including increased sputum, wheezing, and chronic cough. In addition, many chronic users also tend to be heavy tobacco users. There is evidence that cannabis users have an increased risk of developing head and neck cancers.

Immune system effects

Cannabis smoke is potentially carcinogenic in the same way that cigarette smoke is. Cannabis smoke contains over 400 chemicals, many of them carcinogenic. There is evidence that the non-cannabinoid components of cannabis smoke may impair the alveolar macrophages in the lungs that are significant to the body's defense system.

Pregnancy

Cannabis use during pregnancy may impair fetal development. It has been identified as a factor in low birth weight. This may be attributable to fetal hypoxia in a way that is similar to tobacco use. The chemicals in cannabis are readily transferred across the placental barrier.

There is also evidence that infants exposed to cannabis in utero experience behavioural and developmental effects during the first few months of life and later in childhood.

What are the mental health risks of cannabis use?

For a small proportion of users, cannabis use has been linked to various mental health symptoms and concerns. Indeed, some of the psychological effects of cannabis could include mildly depressed mood, anxious or panic feelings, irritability, distorted perceptions, and hallucinations. However, it is generally understood that these symptoms or behaviours are directly related to the effects of the use of cannabis and are transient in nature. Once the drug has left a person's system, these effects disappear. They are not indications of a mental health problem or diagnosis.

Regular use of cannabis in adolescence may interfere with the development of important protective factors and coping skills including resilience, mastery, and positive self-esteem and in this way may contribute to mental health problems. Individuals, who are at risk of developing mental health problems, have a family history or who are predisposed to mental illness may experience a triggering or exacerbation of their mental health symptoms (eg. schizophrenia).

There is clinical evidence that individuals who are diagnosed with schizophrenia and continue to use cannabis experience a poorer clinical outcome and more psychotic symptoms than those who do not. Cannabis use does not cause the illness but can complicate or exacerbate the course and treatment.

The diagnoses of Cannabis Induced Psychotic Disorder and Cannabis Induced Anxiety Disorder under the DSM IV are described as mental health phenomenon, which are directly related to the ingestion of cannabis and due to the direct physiological effects of cannabis.

Are there any risks specific to youth?

Adolescence and early adulthood represent the period in life when individuals experiment and assert their autonomy. It is also a time when individuals establish patterns and develop skills that will serve them throughout their lifetime.

Concerns have been identified with regard to the psychological effects of chronic cannabis use during adolescence and early adulthood. The earlier the age of the use and the greater the involvement the more likely the individual may progress to the use of other illicit substances.

Concerns have also been raised in regard to the impact of early and persistent cannabis use on educational performance. The risks of leaving school before completion and employment instability appear to be linked to regular cannabis use. This in turn impacts occupational achievement, employment, level of income, and quality of life.

Since memory and other cognitive skills are affected, use may negatively impact the learning process leading to lowered academic achievement. Peer influences may be more antisocial precipitating a change in academic motivation and interest.

What are the effects of marijuana use on driving?

Marijuana intoxication produces impairments in a wide range of cognitive and behavioural skills that are necessary and relevant to driving an automobile or operating machinery. Its use affects time perception, motor coordination, signal detection, tracking behaviour and concentration thereby interfering with the safe operation of a vehicle. These impairments are dose related.

Evidence now indicates that cannabis use increases collision risk. After alcohol, cannabis is the psychoactive substance most frequently found in dead and injured drivers. Epidemiological studies demonstrate that people who drive under the influence of cannabis are more likely to be involved in collisions, including fatal ones. Cannabis is often used together with alcohol, and this combination is particularly hazardous, since the effects of both drugs on collision risk appear to be addictive.

Does Marijuana have addictive qualities?

Most users are moderate consumers who use it socially to relax. The pattern of cannabis use that is generally described involves peak use in the early adult years followed by a period of leveling off and then a gradual reduction in use.

There is evidence that marijuana can create physical and psychological dependence. The risk of developing cannabis dependence is highest among individuals who are daily users.

Other individuals who experience difficulty with use may be individuals who concurrently experience mental health problems and are relying on the use of cannabis for symptom relief or "self medication". There are also suggestions that individuals with such concurrent problems may be experiencing some other form of biological and physical reinforcement for their substance use.

Marijuana is the problem drug most frequently identified by youth seeking treatment through the Centre for Addiction and Mental Health. They signify individuals for whom use of cannabis has become detrimental or problematic.

Physical Dependence: Individuals who are regular long-term users do experience withdrawal effects when suddenly stopping use. These include increased anxiety, irritability, difficulty sleeping, sweating, and loss of appetite. There is also a tolerance to many of the drug side effects.

Psychological Dependence: Psychological dependence is characterized by the compulsive use of cannabis and the drive to obtain the substance. Individuals may also rely on being intoxicated to perform daily living and social activities.

Is Marijuana a gateway drug?

The typical use pattern described above again suggests that marijuana is not a "gateway" drug. Most people who use marijuana do not go on to use others illicit substances. However, research has established links between heavy cannabis use and an increased chance of using other illicit drugs. This does not mean that cannabis use "causes" the use of other drugs.

Cannabis is generally the most common and most available and therefore one of the first substances used along with alcohol and tobacco. Heavy use may provide opportunities to participate in drug using subcultures and provide increased exposure and access to other illicit substances. Most users of illicit substances also used alcohol and tobacco first however, these drugs are not referred to as gateway drugs.

It is thought that it is not the cannabis per se that leads to further drug use but the individual traits and predilection for substance abuse. Most individuals use cannabis on an occasional and experimental basis without making the "progression" to other illegal substances.