

What Teenagers Need to Know About Cannabis

One property that sets cannabis apart from all the other common illegal drugs of abuse is the fat solubility of its psychoactive ingredient THC (tetrahydrocannabinol). Unlike water-soluble drugs like heroin, amphetamines and cocaine, it persists in the fatty membranes of the brain cells for weeks, only slowly disappearing from the body. After a week 50% will still be there and 10% a month later. So even if a person smokes only once a month, the drug will have a permanent presence.

Nerve cells (neurons) communicate by releasing chemicals called neurotransmitters. There are dozens of them and probably more to be discovered. Molecules of these substances fit into receptor sites by shape on the next neuron, as a key fits a lock, so the message is passed on down the chain. THC, trapped in the cells, interferes with this communication system and the total functioning of the brain is disrupted.

Added to that, the THC molecule mimics the shape of one of the neurotransmitters, anandamide (Sanskrit = bliss) so replaces it in the brain. The brain then slows production of the chemical as it is receiving a substitute. If the use of cannabis is stopped, the receptor sites will stay empty and this will result in withdrawal symptoms being felt, anxiety, sleeplessness, irritability, even violence. This is physical dependence. Withdrawal from cannabis is not so dramatic as that from heroin as the THC stays in the body for some time. Heroin addicts need a fix about every 4 hours.

Another neurotransmitter affected by THC is dopamine. Most drugs that can be abused increase its production. Cannabis is no exception. This is the “pleasure” chemical that gives the “high” and gives drugs their appeal. There is however a downside. The overpowering craving for drugs that addicts feel - psychological dependence - is due to dopamine. Its increased production triggers the formation of two other substances. One damps down the effects so more is needed – tolerance – the other causes new branches to be made so the brain becomes more sensitive to the drug and is reminded of how pleasurable the experience was. This second substance is very stable so persists for a long period of time. Even months or years after giving up, the sight of drug paraphernalia is enough to bring on these intense feelings.

Of increasing concern is the possible connection between cannabis use and mental illness. Dopamine looks the most likely candidate for this extremely alarming and potentially devastating condition. People suffering from schizophrenia have an excess of dopamine in the brain. Numerous recent scientific papers have suggested this link and a faulty gene for the production of dopamine has been found in 25% of the population. If a child inherits one copy of this gene, and uses cannabis in adolescence, the risk of developing a psychotic illness in later life increases by 5 or 6 times. Two copies and the risk is tenfold. In scans of the head, similar brain damage has been seen in adolescent daily cannabis users to that in non-using adolescent schizophrenics.

Experiments currently being carried out at The Institute of Psychiatry in London by Professor Robin Murray and Dr Paul Morrison, where THC is given to healthy adult volunteers does indeed show that psychotic episodes do occur. It just depends on the amount of THC administered.

Depression, anxiety, panic attacks and paranoia can occur. Violence, possibly connected with psychotic episodes or during withdrawal, and cases of suicide have been linked with cannabis use. In a Swedish study more suicides were reported among cannabis smokers than heroin, alcohol or amphetamine users, and the manner of death was more dramatic, like jumping from high buildings. No other group did that.

A more subtle and mundane effect gradually appears even in occasional users. Since the THC impairs the normal release of all the other neurotransmitters, concentration, learning and memory all suffer. The new pathways of neuron connections needed for the learning and memory processes are compromised. Homework deteriorates or isn't handed in, academic performance and grades fall, exams are failed and often the person will drop out of education at the first opportunity. Personality changes are noted by parents and siblings. Young people become fixed in their ideas and opinions, they cannot plan or solve problems, struggle to find words to express themselves, often display irritation, even violence, and at the same time feel lonely, misunderstood and miserable. Trying to talk to them becomes a futile exercise. This "everyday" aspect of cannabis use is seldom mentioned, and it should be, our youngsters are throwing away their one real chance of education. Few children using cannabis even occasionally will achieve their full potential.

Anandamide has receptor sites on many other cells in the body so it follows that cannabis (THC) will occupy them. In particular, damage is seen in the reproductive and immune systems. Cells have a life-span limited by programmed cell death (apoptosis). THC affects the life span of new cells being made in the adult body, speeding up the process. New cells like sperm, foetal and white blood cells are all affected. There are fewer sperm made and some are abnormal. This can lead to infertility and even impotence in young men. Babies born to cannabis-using mothers are smaller, hyperactive, have behaviour problems and learning difficulties. They are also more likely to develop one of the forms of leukaemia. Fewer white blood cells are produced, some are faulty. People are more vulnerable to disease, their illness is more serious and will last longer.

Receptor sites are found on the heart. Heart rates and blood pressure rise to the level of real stress. Heart attacks and strokes have been reported. Two teenagers died after "bingeing" on cannabis, a third was left paralysed.

Cannabis smoke contains more of some of the same cancer-causing substances that are present in tobacco smoke, and deposits 3 to 4 times as much tar in the airways. Although fewer joints than cigarettes per day are smoked, cannabis smoke is hotter, held in the lungs longer and the joint smoked right down to the butt for full value. One joint is thought to equal 4 to 5 cigarettes in cancer terms. Not only has lung

cancer been seen but also formerly rare head and neck cancers only found in tobacco smokers over 60. Bronchitis and emphysema too are consequences of this habit.

Driving should be out of the question for at least 24 hours after a joint. Airline pilots on flight simulators could not “land” properly even up to this time and thought they were fine. A 20mg (average) joint is thought to be equivalent to a person being just over the legal drink-drive limit. An alcohol-cannabis combination is 16 times more dangerous than using one of them alone.

Cannabis can lead to the use of other drugs. Dealers may offer other substances, friends may encourage others to experiment, and curiosity can be a strong force. They may simply be looking for a more intense experience. But on-going research in Sweden is finding that cannabis actually “primes” the brains of animals for the use of other drugs. A recent New Zealand study discovered that weekly users were 60 times more likely to progress, the more they use the greater the risk. And almost 100% of heroin addicts started on cannabis.

Cannabis today is not the same drug as it was in the sixties and seventies. The THC content in the herbal form was then around 1-2%. Specially bred varieties like skunk and sinsemilla now average 14 to 16% THC, and form about 80% of the market here in the UK. Most of it is home grown. Cannabis resin has consistently contained about 4 to 6% THC.

“Old-fashioned” herbal cannabis had approximately equal amounts of the substances, THC and CBD (cannabidiol, thought to have anti-psychotic properties). Recently it has been found that skunk has virtually no CBD. So any activity of THC in skunk is no longer moderated and ameliorated by the presence of CBD.

Cannabis is at last beginning to shed its erroneous “benign” image and everything in our power must be done to protect our children from it, otherwise their futures will be at risk and they are our future.

Mary Brett of the UK is the former spokesperson for EURAD- Europe Against Drugs.