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## Mary Brett

# Ten key facts that teachers need to know about cannabis

The purpose of this article is to set out ten key facts that teachers need to know about cannabis if they are to be able to inform the pupils in their care authoritatively and which ideally they need to actively communicate when the context or situation arises:

### 1. Persistence in cells

Cannabis stays in the body: Some children will know that cannabis persists in the system and is detectable for some weeks, but few will know why. It is because THC (tetrahydrocannabinol), the psychoactive ingredient in cannabis is, uniquely among commonly abused illegal drugs, fat-soluble. This means it stays in brain cell membranes for a long time. Fifty per cent is still there a week later and ten per cent after a month. A monthly joint will ensure the drug a permanent presence in the brain.

### 2. Strength

Cannabis has become 'stronger' and has changed: Again some children will know that cannabis has become 'stronger' in recent years but fewer will know by how much, or that the second difference with the past is the balance of the content of the cannabis between the THC content and the CBD (cannabidiol) content.

THC content in the herbal form of cannabis in the 1960s was around 1-2%. In cannabis resin it was 4-6%. The new form of cannabis, Skunk, which now constitutes about 80% of the British cannabis market and is mostly home grown, has a THC content that now averages 14 to 16%. The "old" herbal cannabis had approximately equal amounts of THC and CBD, or cannabidiol,

which is thought to have anti-psychotic properties which ameliorated the effects of the THC. With today's Skunk, which has virtually no CBD content but more THC, the THC effects are no longer moderated and ameliorated. This has implications for psychosis risk.

### 3. Brain function and mood

Cannabis does affect brain function and mood: Nerve cells (neurons) communicate by releasing chemicals (neurotransmitters). Their molecules fit into receptor sites by shape on the next neuron, as a key fits a lock. One neurotransmitter affected by THC is dopamine. Most drugs that can be abused, including cannabis, increase its production. This is the "pleasure" chemical that gives the "high" and gives drugs their appeal.

### 4. Physical dependence

Cannabis use leads to physical dependence or addiction: THC mimics the shape of one of the neurotransmitters, anandamide, replacing it in the brain. Production of anandamide decreases as it is being substituted. If a person stops taking cannabis, the receptor sites will stay empty and withdrawal will set in: anxiety, sleeplessness, irritability, even violence can follow. This is physical dependence. Withdrawal from cannabis is not as dramatic as that from heroin as the THC takes much longer to dissipate in the body.

### 5. Tolerance, psychological dependence

Cannabis use leads to psychological dependence: It is the increase in dopamine which creates the overpowering craving for drugs that addicts feel - this is psychological

dependence. Dopamine's increased production triggers the formation of two other substances. One damps down the effects and so more is needed creating tolerance; the other causes new connections to be made so the brain becomes more sensitive to the drug and is reminded of how pleasurable the experience was. This last substance persists for a long period of time.

Scientists, through studying the responsiveness of rats to cocaine, have identified a mechanism in the brain that helps to explain why craving for cocaine, and the risk of relapse, seems to increase in the weeks and months after drug use is stopped. Exposure to environmental cues (e.g., people, places, things) previously associated with drug use can trigger drug craving, often leading to relapse<sup>1</sup>.

## 6. Mental illness link

A link between cannabis use and mental illness has been established and papers have now been published on this link. A faulty gene which leads to the enhanced production of dopamine has been found in 25% of humans<sup>2</sup>.

If an adolescent with one copy of this gene uses cannabis his/her risk of developing a psychotic illness increases by 5 or 6 times. With two copies of the gene the chances of such illness increase tenfold.

Schizophrenia patients have an excess of dopamine. In brain scans, similar damage has been observed in adolescent daily cannabis users to that found in non-using adolescent schizophrenics.

Violence, possibly connected with psychotic episodes or during withdrawal, and cases of suicide have been linked with cannabis. Depression, anxiety, panic attacks and paranoia can occur<sup>3</sup>. People who smoke skunk, the extra strong cannabis grown in hothouse conditions, are 18 times more likely to develop psychosis than those who take the milder forms such as hash (cannabis resin)<sup>4</sup>.

## 7. Personality, academic failure

Cannabis use affects academic performance detrimentally and this is why:

THC interferes with the normal release of all the neurotransmitters. Concentration, learning and memory all suffer as new neuron connections are compromised. Academic performance and grades fall, exams are failed and often the student will drop out of education. Young people become irritable, even violent, fixed in their ideas and opinions, cannot plan or solve problems, struggle to find words, and at the same time feel lonely, misunderstood and miserable. Few children using cannabis, even occasionally, will achieve their full potential<sup>5</sup>.

## 8. Medical consequences

Cannabis use has physical as well as mental health consequences: THC affects new cells made in the adult body. Men who smoke marijuana frequently have significantly less seminal fluid, a lower total sperm count and their sperm behave abnormally, all of which may affect fertility adversely<sup>6</sup>. Similarly it can lead to underweight babies and to children who show hyperactivity, learning and behaviour problems. Another outcome is a lower production of white blood cells needed to protect against disease. Heart attacks have been attributed to cannabis use. Cannabis deposits 3 to 4 times as much tar as tobacco does in the airways. Lung cancer has been seen to result and also rare head and neck cancers normally only found in tobacco smokers over 60. Bronchitis and emphysema can also occur<sup>7</sup>.

## 9. Driving

The Transport Research Laboratory (TRL) reported in 2000 that, "In terms of road safety, it cannot be concluded that driving under the influence of cannabis is not a hazard, as the effects on various aspects of driver performance are unpredictable"<sup>8</sup>. On the incidence of drugs and alcohol in road accident fatalities, the TRL found that cannabis was the most common illegal drug found in the bloodstream of road accident victims<sup>9</sup>.

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 alone.

### 10. A 'gateway' effect

Cannabis use as a gateway to other drug use has been much disputed but beyond argument is the fact that earlier use leads to heavier and regular use later on: In Australia, among young adults who had not been using amphetamines at age 20 years, the strongest predictor of use at age 24 years was the use of other drugs, particularly cannabis, at 20 years<sup>10</sup>. Research in Sweden shows that cannabis actually "primes" the brains of animals for other drugs<sup>11</sup>. A New Zealand study concluded that, "the use of cannabis in late adolescence and early adulthood emerged as the strongest risk factor for later involvement in other illicit drugs"<sup>12</sup>.

Teachers have a duty to be able to authoritatively communicate the risks and dangers involved with cannabis use. Currently our school children are being badly let down.

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