HIT Seminar 19-6-12
Cannabis

What is it?

Cannabis is the fourth most widely-used psychoactive substance on the planet, behind caffeine, alcohol and nicotine. It is the drug which arouses the strongest controversy between advocates of prohibition, legalization and all shades in between.

Cannabis is derived from a plant – Cannabis Sativa – which is grown throughout the world. Its medicinal properties were first recorded in 2737 BC in Shen Nung dynasty China, and it was widely used in Victorian Britain as a patent medicine and tonic. Its psychoactive properties were known to the Scythians in Ancient Greece, but were first reported in Europe following Napoleon’s invasion of Egypt, but use was confined to bohemian groups such as writers and Jazz musician until the social revolution of the 1960s. Usage in Britain grew steadily since the 1960s and peaked in the late 1990s and early 2000s.

The active ingredient of cannabis is tetrahydrocannabinol, better known as THC, although the plant contains many different cannabinoids, most notably Cannabidiol (CBD).

Most users seek a sense of relaxation with enhanced appreciation of music, food, conversation or other pleasures. Rolling a joint involves a ritual of preparation and smoking cannabis is frequently a communal experience, sharing the joint between several people.

There have been claims and counter-claims as to the effects of cannabis on mental health. Much has been made recently of links between cannabis use, schizophrenia and depression. However a high proportion of users would take the drug semi-medicinally to relieve stress at the end of the day or cope with adversity. A popular saying of the 1960s was that dope will get you through times of no money better than money will get you through times of no dope.

Types of Cannabis

Cannabis now most commonly appears in herbal form commonly known as skunk. The majority of this is grown in the UK or imported from Western Europe, grown indoors under lights. Although skunk started life as a trade name for a specific pedigree variety of cannabis, the term has come to be used to refer to any type of cannabis in the form of unfertilized female flowering tops with little or no leaf present. Skunk typically contains between 8% and 20% THC, occasionally higher.

There are many ‘brands’ of skunk-type cannabis which vary in parentage, potency, appearance and flavour. Two of the more common would be Cheese, a highly pungent variety with high THC levels (typically over 15%), and Purple Haze which has purple-coloured flowers (virtually black when dried) but only mid-level THC content (typically 6-13%)
Herbal cannabis can appear in two other forms, the first is bush, which is grown outdoors in the tropics (Caribbean, Africa, SE Asia) and compressed into blocks before being imported into the UK. This is readily distinguished from skunk cannabis via the presence of seeds which can comprise up to 30% of the total weight. Bush typically contains 2%-10% THC. It is usually referred to via country of origin if known, or otherwise as ‘bush’ or ‘weed’.

The final type of herbal cannabis is ‘homegrown’ this can either represent material grown outdoors or the remains left over when skunk has been harvested from plants, typically a mix of leaf material and small or immature flowering tops. Most leaf material is simply thrown away by growers. Potency can vary from under 1% for poor quality leaf (or hemp) to around 10% for the smaller leaves surrounding the buds or smaller flower buds.
Cannabis Resin

Cannabis resin used to dominate the UK market until around 10 years ago, before being supplanted by skunk.

Changes in UK Market Shares of Resin & Herbal Cannabis

As with herbal cannabis there are many different types. Pharmacologically the main difference between resin and herbal cannabis is that resin typically contains higher levels of CBD. Resin is prepared either by sieving the herbal material through progressively finer meshes and compressing the resulting material, or by hand-rubbing and scraping the resin from the flowers of plants and pressing the resulting material into blocks or fashioning into 'fingers' or 'medallions' or 'Temple Balls'. The first method is characteristic of resin from the Arabic-speaking areas, the second method of resin from the Indian sub-continent.

Soap Bar resin remains the most common variety available in the UK, this is generally considered to be of low to medium quality, and is imported from North Africa in the form of 9oz or quarter-kilo pillow-shaped blocks known as 9-bars. It is hard in texture with a shiny, usually curved outer surface and an inner surface ranging from yellowish-green to a dark reddish-brown. Potency typically between 3% and 7% THC. Much soap-bar resin is heavily adulterated, a research study by Edinburgh University found instances of adulteration with substances including: Beeswax, turpentine, milk powder, ketamine, boot polish, henna, pine resin, aspirin, animal faeces, ground coffee, barbiturates, glues and dyes plus carcinogenic solvents such as Toluene & Benzene.

Higher quality forms of Moroccan resin have become increasingly available over the past decade, the most common being flat-press. This is found in flat slabs of 100 or 200g in weight typically 10-15mm thick, mid-brown in colour.
Typical THC content 5-12%. Lebanese resin, common in the 1960s-1980s has effectively disappeared from the UK market.

Resin from Asia (Pakistan, Afghanistan, India) is normally dark-brown to black in colour (known as black hash), and is soft and malleable in texture. This used to be common in the UK but is now rarely found. Typical THC contents 3-10%, occasionally higher for premium varieties.

Growers of cannabis are increasingly producing home-made resin using shakers or other forms of extraction, this material, known as ‘skuff’ or ‘bubble hash’ can be extremely potent (have encountered up to 59% THC), but is rarely sold.

The final type of cannabis, also rare, is ‘hash oil’ which is an extract of plant material using organic solvents to dissolve the THC, the solvent is then evaporated off to leave a greenish-brown sticky viscous oil. Potencies can again be extremely high. It would normally be smeared on a cigarette paper or mixed into tobacco for smoking, or used orally mixed in food or drink containing fats and/or alcohol.
Who Uses Cannabis?

Cannabis is the most widely-used illegal drug in the UK, probably 20 million have tried it at least once with 2-4 million regular users.

Most users start in their mid-teens, with around 95% of users starting by age 20. The mean age of initiation has fallen over the past 5 years from 16 years old to just over 15 years old. Usage levels peak in the 18-24 age range and decline steadily thereafter, although some users continue into old age.

Cannabis is used by people in all walks of life, from professionals to the unemployed, and from schoolchildren to pensioners, from Members of Parliament to criminals. The stereotypical long-haired hippie still exists, but most users are otherwise law-abiding ‘normal’ people.

Signs of cannabis use include

**The smell** – skunk cannabis has a distinctive and penetrating odour which persists on clothing and furnishings.

**Paraphernalia** – items associated with cannabis smoking would include cigarette papers (particularly if packets are partially torn up), broken cigarettes, torn card, empty/used small resealable plastic bags, grinders, ‘roach ends’, as well as pipes, bongs, digital scales etc.

**Appearance** – contrary to the opinion of some, cannabis has no effect on pupil size, however reddened conjunctivae is consistent with ‘stoned’ intoxication (among other possibilities).

**Clothing** – pinhole burns from resin

How is cannabis used?

Cannabis is most frequently used by smoking. Most commonly cannabis or resin would be mixed with tobacco in a hand-rolled cigarette, the proportions in the mix can vary considerably. Herbal cannabis can be smoked neat in hand-rolled cigarettes. Resin or herbal cannabis can be smoked in a variety of pipes, including plain pipes, bongs, chilloums, hookah-pipes or buckets. Other smoking methods include pressing resin between two heated knife blades and inhaling the fumes (hot-knives) or using vapourisers to release the THC with minimal combustion of vegetable matter.
Cannabis can be eaten neat or used in a herbal tea, but these do not provide effective methods of drug delivery. To be effective when used orally the cannabis or resin must be heated and mixed with oils, fats or alcohol in order to release the THC in a usable form.

**Methods of Cannabis Use**

- Reefers - with tobacco
- Water Pipe
- Other Pipe
- Reefers - neat cannabis
- Eaten - with other food
- Eaten - on its own
- Hot knives
- Other smoking
- Other methods

**Frequency of Use**

Although many people use the drug occasionally or at weekends only, daily use of cannabis is common with a similar pattern of use to tea or coffee. However daily use can vary from a spliff at bedtime or after work to virtual chain-smoking all day every day.
How much do users take?

The spectrum of lifetime cannabis users ranges from someone who once had a drag on a spliff at a party to individuals who virtually chain-smoke the drug throughout waking hours. A typical user would smoke 2-5 spliffs over an evening after work maybe smoking 2-3 times as much over the weekend, and get through between half a gram and 2 grams a day. Heavy users would smoke 3-5 grams a day over 10-15 spliffs, with the very heaviest users smoking 20-30x strong or neat spliffs a day and getting through 10-20g cannabis.

The distribution of usage is one-tailed with a large number of moderate users and progressively fewer users of larger amounts.

Purchasing Patterns
Health Problems

Physical Health

*Lungs* – Smoking any substance, including cannabis, damages the lungs and can lead to problems such as bronchitis, asthma and chronic obstructive pulmonary disease.

*Cancer* – Although cannabis smoke contains known carcinogens, both THC and CBD have been shown to have potent anticarcinogenic properties currently being explored by researchers worldwide. This could explain why cancer rates among users of cannabis are lower than might otherwise be expected.

*Cardiovascular* – Cannabis tends to increase heart rate but tends to reduce blood pressure and stress levels.

*Pregnancy* – There is no evidence that cannabis specifically harms the unborn child, however any sort of smoking during pregnancy is to be avoided.

Mental Health

*Schizophrenia* – several studies have found that adolescents using large amounts of skunk cannabis are at significantly increased risk of developing psychotic symptoms. In most cases the effect is short-lived and wears off within hours or days, but in severe cases the symptoms can recur or persist in the absence of the drug. The peak years of cannabis use coincide with the typical age of onset of schizophrenia so a user in their 20s who has not developed psychotic symptoms is unlikely to do so in future. The vast majority of users do not develop psychotic symptoms other than short-lived paranoia when severely intoxicated.

*Depression* – There are conflicting reports on the effects of cannabis and depression, several studies have suggested a link between prolonged cannabis use and depression. Certainly a proportion of cannabis users...
will do little and spend all day stoned, the so-called amotivational syndrome. However many depressed people self-medicate with cannabis so the nature of the relationship is unclear. I knew of one individual who had suffered long-term depression, having been prescribed virtually the whole medicine cabinet in between bouts of hospitalization, but who was able to function (almost) normally after using cannabis and giving up the prescribed antidepressants.

**THC & CBD** - The effects of skunk cannabis are due not only to the high levels of THC but to the virtual absence of CBD. CBD tends to take the edge off the high and producing a more relaxed effect whereas high-dose THC alone can make users edgy and paranoid.

**Health Benefits**
The most commonly cited health benefit of cannabis is relaxation and stress relief. This allows people to cope with stressful situations from work-related stress to poverty and post-traumatic stress disorder in most cases without resorting to prescribed medications.

Since the cannabinoid receptor was first discovered in the late 1980s an explosion of research into the endocannabinoid system has ensued and effectively created a new branch of pharmacology. The system has been found to modulate the body’s control of a number of functions including:

**Pain relief** – Cannabinoids can have potent analgesic activity acting alone or potentiating the effects of opiate medications. The effects are most useful in cases of chronic pain caused by conditions such as arthritis and spinal injuries.

**Multiple Sclerosis** – Cannabinoids can relieve and in some cases reverse the disabling effects of MS, it is now believed that the disease may result from disorders of endocannabinoid metabolism. Reduction of spasticity also can benefit sufferers of other neuromuscular disorders.

**Bowel Disorders** – there are many cannabinoid receptors in the GI tract and cannabinoids have been found to relieve symptoms of IBS, Crohns disease and Ulcerative Colitis.

**Cancer** – THC and CBD have been found to delay or reverse development of a range of cancerous tissues, including reductions in vascularisation, growth and migration and causing apoptosis (programmed cell suicide) of cancer cell cultures. Again research is focussing on the role endocannabinoid systems play in regulation of cancer cell development.

**Alternative Methods of Control**

Cannabis was first made illegal in the UK in 1928, with the current legislation classifying it as a Class B Controlled Drug under the 1971 Misuse of Drugs Act. Maximum penalties are 5 years prison for simple possession or up to 14 years for trafficking offences (possession with intent, supply, import/export and production/cultivation). Most first-time possession offenders would be dealt with via a police caution.
Reclassification/Declassification – Cannabis was downgraded from Class B to Class C in 2004 with the reverse happening in 2009. The period of declassification coincided with the first recorded decline in UK cannabis use (and a significant decline in user ratings). It also coincided with a large increase in the numbers of users dealt with by police (mainly due to reduced costs per ‘bust’), and with increased police enforcement against growers of cannabis. The Brown government decision to reverse declassification was against the advice of the official advisory council on the misuse of drugs. However cannabis remained illegal throughout the declassification period and there was little effect on the penalties imposed by the courts. The move effectively made official the widespread sentencing practice prior to declassification.

Decriminalisation – This policy would remove criminal penalties for simple possession (possibly under a prescribed limit) but maintain criminal penalties for supplying the drug.

Co-Operatives – In the USA and Spain users (particularly medicinal users) have formed cooperatives to supply themselves with cannabis.

Regulation – This would involve controls on supply including licensing and taxation (excise duty and VAT), treating the drug like alcohol and tobacco, including age limits, restrictions on premises and quality control. Increased control options could include user-licensing via a smartcard scheme. It has been estimated that a licensed and taxed cannabis market could generate around £6 billion per year in government revenues.

Legalisation – The most liberal regime would treat cannabis like caffeine with no restrictions on supply nor any specific taxes (other than VAT).

Growing Cannabis – The majority of the UK market is supplied by domestic growers. These can range from one-person operators who grow a few plants for their own use up to criminal gangs controlling multiple properties or large scale industrial or agricultural premises. It is possible to buy a kit sufficient for growing enough plants to sustain a moderate user for around £200 including a self-contained grow-tent, HPS light with timer and extraction system with carbon filter. For about £600 it is possible to kit out a bedroom with lighting and ventilation and produce a crop of around a kilo over a period of 3-4 months. Any system of designating home-growing systems as being for personal or commercial use would need to be based on available space and lighting rather than the number of plants grown at any one time.

Driving – Cannabis users tend to perform worse on some psychomotor tasks such as tracking tests, but there is no effect on reaction time when under the influence, and decision making may be impaired. However cannabis-using drivers tend to drive more conservatively and take fewer risks. Inexperienced users and inexperienced drivers are most at risk of accidents, and driving whilst unfit through drugs is an offence with penalties similar to drink-driving offences. Fitness is determined by a battery of field impairment tests.
Workplace/Prison Drug Testing – Employees, particularly those in safety-sensitive jobs, as well as prisoners, can be subjected to urine tests for drug use. These tests usually determine presence of an inactive metabolite which can persist in the body for days after a single use and for weeks or months after cessation of chronic heavy use. Many of the tests use a cut-off threshold which is too low to differentiate between active use and passive exposure, and most fail to ‘normalise’ the results for creatinine content (a measure of the dilution of the urine sample). Most of the calibration experiments referred to usage levels far lower than the THC exposure of chronic heavy smokers of skunk, who could test positive for well over 2 months.

About IDMU

Matthew Atha is Director of the Independent Drug Monitoring Unit with 30 years experience of research into the use of cannabis and other drugs in the UK.

IDMU conducts large-scale annual surveys of drug consumption and prices with a total of over 30,000 responses since 1994

IDMU provides expert evidence to the courts in criminal cases involving drug possession, trafficking, production, and supply, offences committed under the influence of drugs, drug-driving cases, drug testing cases (criminal and civil), and cases involving therapeutic uses of drugs. Fees from consultation services fund our research programme.

IDMU has provided research services for a number of clients including the BBC, the Advisory Council on the Misuse of Drugs, European Monitoring Centre on Drugs and Drug Addiction (EMCDDA), GWPharma, CLEAR and several Parliamentary Enquiries.