Demystifying Cannabis
**What is Cannabis?**

*Cannabis* (genus *Cannabis*), plant belonging to the family Cannabaceae of the nettle order (Urticales).

By some classifications, the genus *Cannabis* comprises a single species, hemp (*C. sativa*), a stout, aromatic, erect annual herb that originated in Central Asia and is now cultivated worldwide, including in Europe, southern Asia, the Middle East, India, Africa, and the Americas. A tall, canelike variety is raised for the production of hemp fibre, while the female plant of a short, branchier variety is prized as the more abundant source of the psychoactive substance tetrahydrocannabinol (THC), the active ingredient of marijuana. *Encyclopedia Britannica*
There are actually 3 subspecies of cannabis: **Sativa**, **Indica** and **Ruderalis**.

**Ruderalis** is used to genetically alter cannabis to create autoflowering plants.
Sativa vs. Indica Strains
When not under magnification, these glands appear on the leaves and buds as a “sugary” coating.
“Sugar Leaves”
Why Is It Called “Pot”?

♠ The word “pot” is more shrouded in mystery. It doesn’t seem to have anything to do with a pot for cooking. The *Oxford English Dictionary* seems to concur that “pot” comes from the Latin term “potación de guayaya,” which means, “drink of grief”. This traditional Mexican beverage is prepared by steeping cannabis buds in wine. Sounds like a good time to me.
The Endocannabinoid System

- The endocannabinoid system (ECS) is a group of endogenous cannabinoid receptors located in the mammalian brain and throughout the central and peripheral nervous systems, consisting of neuromodulatory lipids and their receptors. Known as "the body’s own cannabinoid system", the ECS is involved in a variety of physiological processes including appetite, pain-sensation, mood, and memory, and in mediating the psychoactive effects of cannabis.

- This receptor network sends and receives signals that facilitate larger, more complicated chemical reactions. Certain cannabinoid receptors are most highly concentrated in the central nervous system. However, these cell sites can actually be found all through the body. There are plenty in our digestive tract, our skin, and even in our reproductive organs.
Cannabinoids (THC & CBD)

♣ Cannabinoids are chemical compounds found in the cannabis plant that interact with receptors in the brain and body to create various effects. There exist dozens, and potentially more than 100, cannabinoids in the cannabis plant, but THC is most widely known among these due to its abundance and psychoactive attributes.
THC (Tetrahydrocannabinol)

♣ THC is the primary psychoactive compound in cannabis.
♣ THC is the cannabianoid responsible for the physical effects, the “high”.
♣ Receptors for THC are found primarily in the brain but can be found in lesser degree throughout the body.
CBD (Cannabidiol)

- CBD is the second most discussed cannabinoid in marijuana, but unlike THC, it is non-psychoactive. Surprisingly, it can also reduce the psychoactive effects of THC.

- THC engages directly with cannabinoid receptors in the body. CBD doesn't bind to the same receptors all that well. Rather, CBD works its magic by inhibiting the enzyme fatty acid amide hydroxyls (FAAH), which is the enzyme that destroys anandamide in the body. This increases the amount of natural endocannabinoids present in your system.
The Human Endocannabinoid System

CBN is known to “fit” like a lock into a network of existing receptors. The Endocannabinoid System exists to receive cannabinoids produced inside the body called “Anadamine” and “2-Arachidonyl-glycerol.” Stimulating the ECS with plant-based cannabinoids restores balance and helps maintain symptoms.

CB1 receptors are concentrated in the brain and central nervous system but also sparsely populate other parts of the human body.

CBD does not directly “fit” CB1 or CB2 receptors but has powerful indirect effects still being studied.

CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.

Receptors are found on cell surfaces.
Terpenes

“Terpenes are fragrant oils that give cannabis its aromatic diversity. They’re what give Blueberry its signature berry smell, Sour Diesel its funky fuel flavor, and Lavender its sweet floral aroma. These oils are secreted in the flower’s sticky resin glands, the same ones that produce THC, CBD, and other cannabinoids. Terpenes are by no means unique to cannabis; they can be found in many other herbs, fruits, and plants as well.” — Leafly
Terpenes cont’d.

♦ Aside from flavor and aroma, more attention has lately been paid to the possible physical benefits of different terpenes. See next slide:
## Terpene Benefits

<table>
<thead>
<tr>
<th>Name</th>
<th>Found In</th>
<th>Effects</th>
<th>Aroma</th>
<th>Strains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myrcene</td>
<td></td>
<td>anti-inflammatory, sedative, muscle relaxant, pain relief</td>
<td>musky, herbal, somewhat citrusy</td>
<td>Chemdawg, Grape Stomper, Fire Alien Kush, Agent Orange</td>
</tr>
<tr>
<td>A-Pinene</td>
<td></td>
<td>boosts energy, improves focus, bronchodilator, improves memory</td>
<td>pine, fresh mountain air, slightly woody</td>
<td>Vanilla Kush, Cookie Cross, 9lb Hammer, Lavender</td>
</tr>
<tr>
<td>Caryophyllene</td>
<td></td>
<td>pain relief, anti-depressant, anti-inflammatory, anti-anxiety</td>
<td>spicy, woody, peppery</td>
<td>Gorilla Glue #4, Tangerine Dream, Sage N, Sour, Pineapple Express</td>
</tr>
<tr>
<td>Limonene</td>
<td></td>
<td>improves mood, anti-anxiety, anti-depressant, relieves nausea</td>
<td>citrus, lemon, orange</td>
<td>GSC (Cookies), Pre-98 Bubba Kush, Tangerine Dream, Cush / Green Crack</td>
</tr>
<tr>
<td>Humulene</td>
<td></td>
<td>anti-inflammatory, appetite suppressant, pain relief, anti-tumor</td>
<td>woody, earthy, herbal, spicy</td>
<td>Liberty Haze, Gorilla Glue #4, Cush / Green Crack, Sage N, Sour</td>
</tr>
<tr>
<td>Linalool</td>
<td></td>
<td>anti-anxiety, sedative, pain relief, anti-bacterial</td>
<td>floral, sugar, citrus</td>
<td>Bubble Gum, 9lb Hammer, Sour Diesel, Locomotion</td>
</tr>
</tbody>
</table>
311°F a-Pinene
Anti-inflammatory, asthma

315°F THC (Delta-9-Tetrahydrocannabinol)
Psychoactive; pain, tumors, nausea, ADHD

320°F B-Caryophyllene
Anti-septic, -bacterial, -fungal, -inflammatory

334°F B-Myrcene
Anti-tumor, -inflammatory; faster THC uptake

349°F D-Limonene
Immunostimulant, depression, anxiety

356°F CBD (Cannabidiol) Non-psychoactive
Multiple Sclerosis, Epilepsy seizures

365°F CBN (Cannabinol) Non-psychoactive
Inflammation, tumors, insomnia, spasms

388°F Linalool
Sleep aid, psychosis, anxiety, pain

388°F Humulene
Anti-tumor, -bacterial, -inflammatory

428°F CBC (Cannabichromene) Non-psychoactive
Anxiety, stress, inflammation, viruses

451°F Combustion (Smoke)
Fire releases toxic chemical by-products
History: How Cannabis Became Illegal

Harry Anslinger
History: General

- The oldest known written record on cannabis use comes from the Chinese Emperor Shen Nung in 2727 B.C.
- Used to make rope and other hemp products.
- Cannabis as medicine is referred to in countless pharmacopeias in many different cultures.
- Referred to cannabis as treatment for depression in 1621 in a popular English medical book.
- Used medicinally and recreationally for centuries.
- Modern history: endorsed by British and American medical associations.
- In-depth timeline and discussion at: http://medicalmarijuana.procon.org/view.timeline.php?timelineID=000026
History: How Cannabis Became Illegal Continued

- Harry J. Anslinger worked for Treasury Department Bureau of Narcotics
- Married to niece of Secretary of Treasury Andrew Mellon
- Given large staff and large budget and told to make the Department “look good”
- Prohibition was over, cocaine and heroin busts were on decline; Anslinger receives mounting pressure to find a new target or face loss of staff, budget, prestige, and the ire of his uncle-in-law.
- Meanwhile, a strong wave of anti-immigrant sentiment was present throughout the country, particularly toward Mexicans. Among the Mexican community, particularly along the border, cannabis was widely used.
- Anslinger had a perfect solution to his problem...
- Anslinger, an avowed racist, set out to demonize Mexicans and especially cannabis use. Relying on mostly manufactured anecdotal “evidence” he accused the Mexicans of importing murder, insanity and general mayhem:
1. Marijuana is the most violence-causing drug in the history of mankind.

2. Reefer makes darkies think they're as good as white men.

3. There are 100,000 total marijuana smokers in the US, and most are Negroes, Hispanics, Filipinos and entertainers. Their Satanic music, jazz and swing, result from marijuana usage. This marijuana causes white women to seek sexual relations with Negroes, entertainers and any others.

4. You smoke a joint and you're likely to kill your brother.
5. Marihuana is an addictive drug which produces in its users insanity, criminality, and death.

6. The primary reason to outlaw marijuana is its effect on the degenerate races.

7. No one knows, when he places a marijuana cigarette to his lips, whether he will become a joyous reveller in a musical heaven, a mad insensate, a calm philosopher, or a murderer.

8. If the hideous monster Frankenstein came face to face with marijuana, he would drop dead of fright.

9. Some people will fly into a delirious rage, and they are temporarily irresponsible and may commit violent crimes. Other people will laugh uncontrollably. It is impossible to say what the effect will be on any individual.

10. Marihuana leads to pacifism and communist brainwashing.
1937: having conducted no research, Anslinger created a propaganda machine that included lectures, pamphlets, even movies. Most notable of these was “Reefer Madness” one of many education-exploitation films common in the years following adoption of the stricter version of the Production Code in 1934. Other films included earlier Marihuana (1936) and Elmer Clifton’s Assassin of Youth (1937) and the subject of cannabis was particularly popular in the hysteria surrounding Anslinger’s 1937 Marihuana Tax Act.
Many groups including the American Medical Association felt “blindsided” by the legislation, but failed to mount an effective campaign against it.

Fast forward to 1970.

Richard Nixon perceived a threat from two particular groups: “Hippies” (the anti-war movement) and African Americans. Nixon saw these groups as a threat to law and order, the social fabric and the status quo.

With the rise of the counterculture came the rediscovery of cannabis.

Controlled Substances Act of 1970 placed serious penalties on cannabis production and possession. The act targeted Nixon’s perceived enemies, resulted in draconian prison sentences, saw the rise of for-profit prisons, and ruined the lives of countless citizens.

Cannabis was placed on Schedule 1 of the CSA along with heroin and LSD, maintaining that it had no medical benefits and is addictive. Both of these arguments have been proven to be categorically false.
“You want to know what this was really all about?” he asked with the bluntness of a man who, after public disgrace and a stretch in federal prison, had little left to protect. “The Nixon campaign in 1968, and the Nixon White House after that, had two enemies: the antiwar left and black people. You understand what I’m saying? We knew we couldn’t make it illegal to be either against the war or black, but by getting the public to associate the hippies with marijuana and blacks with heroin, and then criminalizing both heavily, we could disrupt those communities. We could arrest their leaders, raid their homes, break up their meetings, and vilify them night after night on the evening news. Did we know we were lying about the drugs? Of course we did.”
Who Benefits by Keeping Cannabis Illegal?

♦ Big Pharma
♦ Big Tobacco
♦ Big Alcohol
♦ Substance Abuse Counseling
♦ For-Profit Prisons
The Patent...
“Cannabinoids have been found to have antioxidant properties, unrelated to NMDA receptor antagonism. This new found property makes cannabinoids useful in the treatment and prophylaxis of wide variety of oxidation associated diseases, such as ischemic, age-related, inflammatory and autoimmune diseases. The cannabinoids are found to have particular application as neuroprotectants, for example in limiting neurological damage following ischemic insults, such as stroke and trauma, or in the treatment of neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease and HIV dementia. Nonpsychoactive cannabinoids, such as cannabidiol, are particularly advantageous to use because they avoid toxicity that is encountered with psychoactive cannabinoids at high doses useful in the method of the present invention.”
While cannabis has been placed on Schedule 1 of the Controlled Substances Act, described as being addictive and having no medical value, the National Institute of Health holds a patent describing the value of cannabinoids.
Cultivation
Cultivation

► Important Things to Know:

► You only want to deal with FEMALE plants.
► Female plants are the ones that produce all the important cannabinoids
► Make sure, if ordering seeds, to order FEMINIZED seeds.
► The easiest way to get started is to find someone who will clone one of his/her plants that is in its vegetative stage (more on this in next slide).
► The presence of male plants puts your entire grow in peril. If the male plant is allowed to pollinate the female plant, you run the risk of producing more male plants. Unless you are doing your own cross-breeding, etc., you don’t want to deal with male plants.
Cannabis is easy to grow. THEY DON'T CALL IT A WEED FOR NOTHING!

There are several methods to grow your own legal supply of cannabis:

- **Plain dirt**
  - This is the traditional method of growing anything. Just grow the marijuana as you would any other plant. Use good soil, and make sure that you keep it watered and properly fertilized.
  - **Advantages:**
    - It is usually easier and cheaper than any other method.
  - **Disadvantages:**
    - Yields will probably not be as great as you will get with other methods.
Cultivation

◊ Coco Fiber/Rock Wool

◊ Instead of using soil as a medium to hold the roots, you can use an inert medium -- something that does not have the quality problems found with ordinary soil.

◊ Advantages:
  ◊ Almost as easy as growing marijuana in plain soil.
  ◊ Better yields than soil.
  ◊ Almost as cheap and simple as plain soil.
  ◊ The process is generally cleaner with fewer bugs and mess.

◊ Disadvantages:
  ◊ Requires special fertilizers which are more expensive.
  ◊ Requires the purchase of coco fiber. This is not very expensive, but you may have to find a local store that stocks it.
Hydroponics

Hydroponics consists of growing the plants in something such as gravel, with no soil or vegetable matter in the mix. The gravel will be contained in pots or troughs. Water with a light mix of special fertilizers will be either poured through the gravel, or the troughs will be flooded with the fertilizer several times throughout the day.

If you view roots grown in hydroponics versus those grown in plain soil, you will see an immediate difference. While roots grown in soil have a big tap root, the roots grown in hydroponics will have no major tap root, but will consist of a huge bunch of small, clean white hairs.

Advantages

- Much bigger yields than the previous methods.
- Cleaner because no soil is used.

Disadvantages

- Costs more because it requires troughs, pumps, and reservoirs to hold the water/fertilizer mixture.
- Requires a lot more labor. You will need to monitor pH and nutrient levels to make sure they stay within proper limits.
- It takes more equipment. Therefore it may take more room.
Root Mass in a Hydro Setup
Cultivation

★ Aeroponics
★ Aeroponics consists of growing roots in plain air. The plants are held in a mesh basket, hanging out in the air, and the water and fertilizer is continuously sprayed over the roots. This method produces roots that are even more amazing than hydroponics.
★ Advantages
★ Fastest growth and biggest yields of all. Results can be spectacular.
★ Disadvantages
★ Costs more than growing in soil because it requires equipment similar to that used in hydroponics.
★ Requires more labor. In order to get good results, it must be monitored on a daily basis.
★ Very sensitive to mistakes. You must keep the nutrients and Ph in a specific range for optimum results. If the measures of nutrients and Ph in your water gets out of limits, you can have really bad results in a big hurry.
Cultivation: What You Need (for growing in soil)

♦ Special Lighting (locally available)
  ♦ 1.) Fluorescent Grow Lights
  ♦ Compact Fluorescent Lights (CFLs)
  ♦ T5 grow lights (and other fluorescent tubes)
  ♦ 2.) High Intensity Discharge (HID) Grow Lights
  ♦ Metal Halide (MH)
  ♦ High Pressure Sodium (HPS)
  ♦ Ceramic Metal Halide (CMH, LEC, Light Emitting Ceramic)
  ♦ 3.) LED Grow Lights
  ♦ (LEDs come in a huge variety of sizes and form factors. There aren't really any "standard" types yet, though some lamps get better results than others.)
Cultivation: What You Need
(for growing in soil)

♦ Timer
♦ Good quality potting soil such as “Happy Frog”
♦ Reflective material, or Panda Film
♦ Nutrients
♦ Seeds or (preferably) clones (cuttings)
Cultivation: What Happens in the Growing of Cannabis

- Depending on the strain, it takes about 3 months to grow a cannabis plant to maturity.
- During the first half of the plant’s life it is exposed to 18 hours of light and 6 hours of darkness. This is called the vegetative stage, or “veg”.
- During the second half of the plant’s life it is exposed to 12 hours of light and 12 hours of total darkness.
- By adjusting the time that the plant is exposed to light and dark tricks the plant into thinking that the season is changing from spring to summer to fall. When this change in lighting occurs, the plant starts making flowers, the part of the plant you are most interested in.
There are many ways to use cannabis. Probably the most widely recognized method is smoking, but there are a number of other ways to ingest cannabis.
One alternative is the vaporizer. These devices heat the cannabis to a point where the cannabinoids are released in a vapor without combustion. In other words, you aren't smoking cannabis; you are “vaping”.
Edibles: Infused edible products ranging from cooking oils and butters, to an ever-growing variety of products.
Edibles and Other Delivery Systems
Butane Reduced Oil
Cannabutter for Tea
Cannabutter
Decarboxylated Buds
Glycerin
Green Dragon Tincture
Haystack Cookie Mixture
Haystack Cookies
Kief
Macaroons
Making Caramels
Tea
Mixed Edibles... Yum!
Infusing Cough Drops
Melted Cough Drop Mixture
Yet Another Delivery System
Useful Websites

- Coming Out Green Video
  - https://m.youtube.com/watch?v=UKWmXU8eIq4

- Cannabis Anatomy:

- Trichomes and Terpenes, the Good Stuff, Oh My!
  - https://www.whaxy.com/learn/what-are-trichomes

- Leafly: A very good source of information on various strains of cannabis:
  - https://www.leafly.com/

- Greenflower Media: The best informational website I have found so far.
  - Great information on medical uses, cannabis news, free online classes. MAKE SURE YOU VISIT THIS SITE!
  - https://www.learngreenflower.com/?gfm=true

- Discussion of difference between Sativa and Indica subspecies: http://www.truthorpot.com/2016/03/14/indica-vs-sativa-whats-the-difference/
Websites Continued

- The Cannabist: Marijuana News, Culture, Education
  - http://www.thecannabist.co/
- Cultivation:
  - http://www.growweedeasy.com/
  - www.ilovegrowingmarijuana.com/
- Seed Banks:
  - http://www.herbiesheadshop.com
- Cooking: How to Make Cannabutter
  - http://www.thecannabist.co/2013/12/27/kitchenweed/1244/
- The Senior Demographic: Increase in Cannabis Use
- High Times Magazine - A 40-Year Tradition
  - http://hightimes.com
- Cannabis Delivery Methods
All the Free Reference Material You Will Ever Need

http://catnews.org/FREE%20Pot%20Books/
Reefer Madness and Other Propaganda

♠ https://www.youtube.com/watch?v=sbjumlah0 (Trailer)
♠ https://www.youtube.com/watch?v=NKID2LRzIdY (The Famous Piano Scene)
More Propaganda

♠ Public School PSA
https://vimeo.com/22244396
♠ Sonny Bono Explains Marijuana
Marijuana
What will your mother say when she finds your corpse?
MARIJUANA
WEED FROM THE DEVIL'S GARDEN!

One MOMENT of BLISS - A LIFETIME of REGRET!

HUNTING A THRILL - THEY INHALED A DRAG OF CONCENTRATED SIN!

"Reefer MADNESS"
SEE YOUTHFUL MARIJUANA VICTIMS
WHAT ACTUALLY HAPPENS!

REEFER MADNESS
DRUG CRAZED ABANDON!
The Official TRUTH
If you smoke it...
You Will Kill People
EXPOSING the Marijuana drug evil in swing bands

BY JACK HANLEY

Astounding facts about the habitual use of "reelers" among musicians

YOU’VE read about marijuana, of course. Newspapers recently have been full of stories about reefer-crazed young men and women jumping from windows, killing policemen, robbing, assaulting and running amuck, while under the influence of the
A cheap and evil girl sets a hopped-up killer against a city.
Beware! Young and Old—People in All Walks of Life!

This may be handed you by the friendly stranger. It contains the Killer Drug “Marihuana”—a powerful narcotic in which lurks Murder! Insanity! Death!

WARNING!
Dope peddlers are shrewd! They may put some of this drug in the or in the or in the tobacco cigarette.

WRITE FOR DETAILED INFORMATION, ENCLOSING 12 CENTS IN POSTAGE—MAILING COST

Address: THE INTER-STATE NARCOTIC ASSOCIATION (Incorporated not for profit)

53 W. Jackson Blvd. Chicago, Illinois, U. S. A.
The previous slides showed how prevalent the anti-cannabis movement has been over the years, all based on lies.

Here's the truth...
Cannabis is HEALTHCARE
For Mind, Body and Spirit