Cannabinoids

THC vs. CBD

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Cannabinoids

• This is a complex and controversial subject.

• Topics:
  • How cannabis works
  • Prohibition and legalization
  • Consumption
  • Safety and health
  • Workplace policy and program
Cannabinoids

- One of a class of diverse chemical compounds that acts on cannabinoid receptors in cells that alter neurotransmitter release in the brain.

The Endocannabinoid System

- Discovered in 1988 by Allyn Howlett, PhD
- Professor, Dept. of Physiology & Pharmacology
- Wake Forest School of Medicine
G protein–coupled receptors (GPCRs)

• A large protein family of receptors that detect molecules outside the cell.
• These activate internal signal transduction pathways and, ultimately, cellular responses.
• Involved in many diseases and are also the target of approximately 40% of all modern medicinal drugs

Cannabinoid Receptors

• The human body possesses specific binding sites on the surface of many cell types for cannabinoids.
• Two cannabinoid receptors have been identified: CB1 and CB2.
• They differ in signaling mechanisms and tissue distribution.
CB1 Receptors

- Distributed throughout the body, primarily in the brain.
- CB1 receptors regulate:
  - pain perception,
  - cardiovascular functions,
  - gastrointestinal functions,
  - steroid and hypothalamic hormone regulation, and
  - reproduction

CB2 Receptors

- Found on immune cell surfaces throughout the body.
- CB2 receptors seem to be involved in immuno-regulatory functions.
Sources of Cannabinoids

- **Endo Cannabinoids**
  - Produced by the human body
  - Anandamide
    - From the Sanskrit that means “beatitude” or “happiness”.

- **Phyto Cannabinoids**
  - Produced by plants

- **Synthetic Cannabinoids**
  - Produced in a lab

Phyto cannabinoids

- The ability to produce Cannabigerolic Acid (CBGA) is what makes the cannabis plant unique.
- This parent molecule (“mother cannabinoid”) is the source of many cannabinoids.
Cannabigerolic Acid (CBGA)

- It is the precursor to the three major branches of cannabinoids:
  - Tetra-hydro-cannabinolic acid (THCA),
  - Cannabi-diolic acid (CBD), and
  - Cannabi-chromenic acid (CBCA)

Tetra hydro cannabinol (THC)

- THC in Cannabis is assumed to be involved in the plant’s self-defense, perhaps against herbivores.
- THC also possesses high UV-B absorption properties, which could protect the plant from harmful UV radiation exposure
Tetra hydro cannabinol (THC)

- First identified by Dr. Raphael Mechoulam in Jerusalem in 1964
- Conducted trials on epilepsy patients in Brazil.
- Went on to discover anandamide in 1992

Tetra hydro cannabinol (THC)

- THC is the principal psychoactive constituent of cannabis
Definition - Psychoactive drug

- A chemical substance that changes brain function and results in alterations in perception, mood, consciousness or behavior
- Also known as a:
  - psycho-pharmaceutical, or
  - psychotropic

Psychoactive drugs

- Four groups:
  - Depressants
    - Alcohol and sleeping pills
    - Cannabis
  - Stimulants
    - Nicotine and ecstasy
  - Opioids
    - Heroin and pain medications
  - Hallucinogens
    - LSD
Definition - Psychedelic

- Any psychoactive substance which, when consumed, causes perceptual changes (sometimes erratic and uncontrollable), visual hallucination, and altered awareness of the body and mind.
  - Examples: LSD or psilocybin

Cannabidiol CBD

- A major phyto-cannabinoid.
- Accounting for up to 40% of the plant's extract.
- CBD does not appear to have any intoxicating effects
- It may have effects on anxiety and an anti-psychotic effect
Cannabinol (CBN)

- A non-psychoactive cannabinoid found only in trace amounts in Cannabis
- CBN is a product of THC degradation, so as THC oxidizes, it converts to CBN.
- The most pronounced, characterizing attribute is its sedative effect
- 5mg of CBN is as effective as 10mg dose of diazepam, a mild pharmaceutical sedative

Cannabigerol (CBG)

- A non-intoxicating cannabinoid
- CBG is the non-acidic form of cannabigerolic acid (CBGA)
- By the time most strains of cannabis reach maturity, most of the CBG has been converted into other cannabinoids, primarily
  - tetrahydrocannabinol (THC) or
  - cannabidiol (CBD),
  - usually leaving somewhere below 1% CBG in the plant.
1:0 CBD to THC

- No “high” effect at all.
- Relaxing, mellow mood.
- High therapeutic potential use:
  - anti-psychotic,
  - relaxing,
  - used in epilepsy treatments
- No side effects
20:1 CBD to THC

- Targets Neurological issues:
  - Anxiety
  - Cerebral Palsy
  - Depression
  - Epilepsy
  - Mild Arthritis
  - Parkinson’s
  - Restless Leg Syndrome
  - Phantom Pain

3:1 CBD to THC

- Little sedation and heaviness.
- Few to no “high” effects.
- No euphoria, sedation, light-headedness, dizziness.
- Practically no side effects.
3:1 CBD to THC

- Targets Auto-Immune Conditions:
  - Auto Immune Diseases
  - Breast Cancer
  - Chron's Disease / Colitis
  - Extreme Arthritis
  - Irritable Bowel Syndrome
  - Multiple Sclerosis
  - Pain and inflammation
  - Psoriasis

1:1 CBD to THC

- Relaxation with very light “high” effects
- Little euphoria
- Calmness and tranquility
- Few side effects
1:1 CBD to THC

• Targets certain cancers and helps other issues:
  • Appetite Stimulation
  • Autism
  • Fibromyalgia
  • Severe Pain
  • Skin Conditions Applied Topically:
    • Skin Cancer,
    • Psoriasis

Cannabaceae

• A family of 170 flowering plants.
### Cannabaceae

- About 11 genera, including:
  - Cannabis Sativa
    - hemp.
    - marijuana
  - Humulus (hops)
  - Celtis (hackberries)

### Cannabis Sativa

- A genus of flowering plant in the family Cannabaceae.
- Sub-Species
  - Sativa
  - Indica
  - Ruderalis
Cannabis Sativa

• Sativa’s cannabinoid profile is dominated by high THC levels and low or no CBD levels.

Cannabis Indica

• Indica’s chemical profile shows a more balanced mix, with moderate THC levels and higher levels of CBD.
Cannabis Ruderalis

- Native to Central and Eastern Europe and Russia
- Low THC content

The Hemp Plant

- A variety of the Cannabis Sativa plant species
- Grown specifically for industrial use.
The Hemp Plant

- Products include:
  - paper
  - textiles
  - clothing
  - biodegradable plastics
  - paint
  - insulation
  - biofuel
  - food, and
  - animal feed

George Washington

- Grew hemp as his primary crop at his estate in Mount Vernon.

“Make the most you can of the Indian Hemp seed. The hemp may be sown any where.”

-George Washington
Hemp Cultivation

• Arrived in California in 1777
• First grown in San Jose
• Year 1807 - 13,000 pounds
• Year 1810 - 220,000 pounds

The Hemp Plant

• Hemp has lower concentrations of THC and higher concentrations of cannabidiol (CBD), which decreases or eliminates its psychoactive effects.
• Must contain less than 0.3% THC
Hemp Oil

- Hempseed oil is obtained by pressing hemp seeds.
- Cold pressed, unrefined hemp oil is dark to clear light green in color, with a nutty flavor.

Processed Forms

- Marijuana
- Hashish
- Sensimilla
- Cannabis Oil
- Hash Oil
Marijuana

• Referred to as herbal cannabis
• Consists of:
  • dried leaves
  • stems
  • flowering tops
• Potency varies with each strain and growing conditions

Sensimilla

• A technique of growing cannabis where only the female is allowed to blossom.
• Without pollen from the male plant, the female blossoms produce no seeds, forming large panicled flowers.
Hashish

- Consists of:
  - Relatively pure resin or
  - leaf extracts
- Potency depends on preparation

Cannabis Oil
“Dabs”

- Dabs are concentrated doses of cannabis
- Referred to as wax, shatter, budder, and butane hash oil (BHO).
- Made by extracting THC and other cannabinoids using a solvent like butane or carbon dioxide, resulting in sticky oils.

Hash Oil

- Produced by solvent extraction (maceration, infusion or percolation) of marijuana or hashish.
- After filtering and evaporating the solvent, a sticky resinous dank liquid with a strong herbal odor remains.
Potency

- The most important distinction to make between cannabis flowers and concentrates is potency.
- Bud potency tends to range between 10-25% THC
- Concentrates typically fall between 50-80%
- Some exceptional extracts can even push past 90%.

HISTORY
4000 B.C.

- Marijuana has long been recognized for its psychoactive and healing properties
- Both hemp and marijuana were widely used in ancient China

Chinese Emperor Shen Nung, 2727 BC

2000 B.C.

- Marijuana arrives in Korea and South Asia
- When it arrived in India, it was used as one of “five kingdoms of herbs … which release us from anxiety.”

3rd Supreme Leader of North Korea
1600’s

- Puritans seeking religious freedom brought cannabis sativa to America.
- Most likely in the form of hemp for making fabric and rope materials.

1840 - 1900

- Marijuana was America's number one analgesic for 60 years until the re-discovery of aspirin around 1900.
- From 1842 to 1900 cannabis compounds made up half of all medicines sold.
1910 - 1920

• Mexicans immigrated to the U.S. after the Mexican Revolution and introduced Americans to the recreational use of cannabis.

Pre-regulation

• Prior to 1906 many drugs had been sold as patent medicines with secret ingredients or misleading labels.
• Some, however, were the real thing…
1906

• The Pure Food and Drug Act is passed by the United States Congress in 1906
• Requires that certain special drugs, including cannabis, be accurately labeled with contents.

1906

• The FDA is established
• This marks the government’s first involvement in drug regulation.
1913

• California amends the 1907 law called “The Poison Act”

• It makes the possession of "extracts, tinctures, or other narcotic preparations of hemp, or loco-weed, their preparations and compounds" a misdemeanor.

1914

• The Harrison Narcotics Act is passed prohibiting possession of marijuana unless prescribed by a doctor.
1919

- Eighteenth Amendment to the United States Constitution
- Mandates nationwide prohibition on alcohol on January 16th.

1930

- Federal Bureau of Narcotics (FBN) is established.
- The main focus of the FBN is fighting opium and heroin smuggling.
1930

- Harry J. Anslinger
- First Commissioner of the Federal Bureau of Narcotics
- Appointed on August 12, 1930 and served until 1962.

Harry Anslinger

- Anslinger claimed that cannabis was not a problem, did not harm people, and "there is no more absurd fallacy" than the idea it makes people violent.
1933

- The Twenty-first Amendment repealed the Eighteenth Amendment to the United States Constitution.
- The only amendment to repeal a prior amendment and to have been ratified by state conventions.

Harry Anslinger

“Marijuana is social menace capable of destroying the youth of America.”
1936

• Propaganda films, such as “Reefer Madness” are produced as a way to scare young Americans away from using marijuana.

Mid 1930’s

• Marijuana is now regulated in every state through laws enforced by the Uniform State Narcotic Act
1937

- The “Marihuana Tax Stamp Act” passes making possession or transfer of cannabis illegal without a tax stamp issued by the U.S. Treasury.

1937

- Violation of handling procedures could result in:
  - a fine up to $2000 and
  - 5 years in prison
- Overturned in 1969
Samuel R. Caldwell

- America’s first victim of marijuana prohibition.
- Arrested for selling two joints on the day the Marijuana Tax Stamp Act was enacted.
- On Oct. 8, 1937 he began four years of hard labor.

1961

- Henry Anslinger tries to convince over 100 countries of the UN to agree on a single convention that would make marijuana illegal worldwide.
- This does not pass
Controlled Substance Act of 1970

- Classified marijuana as a Schedule 1 substance, the same classification as heroin
- Is considered to have "no accepted medical use"
- Under federal law, it is illegal to possess, use, buy, sell, or cultivate marijuana

National Commission on Marihuana and Drug Abuse

- Appointed by U.S. President Richard Nixon in the early 1970s.
- The commission issued a report on its findings in 1972 that called for the decriminalization of marijuana possession in the United States.
National Commission on Marihuana and Drug Abuse

• However, Nixon refused to implement the Commission's recommendation that marijuana be legalized.

1986

• The Anti-Drug Abuse Act reinstates mandatory prison sentences, which includes large scale cannabis distribution.
1988 Public Service Announcement

Drug Enforcement Administration

- Known as the DEA
- Established in 1973
- Combining the Bureau of Narcotics and Dangerous Drugs (BNDD) and Customs' drug agents
Summer of Love - 1967

• An estimated 100,000 young people from around the world, flocked to San Francisco's Haight-Ashbury district to join in a popularized version of the “hippie-ism”.
• Cannabis was widely used, especially during various "smoke-ins" during July and August.

Cheech & Chong

• "Cheech" Marin and Tommy Chong garnered a wide audience in the 1970s and 1980s.
• Routines based on the hippie and free love era, and especially drug and counterculture movements.
• Featured most notably was their love for cannabis.
1970

- National Organization for the Reform of Marijuana Laws
- Founded in by Keith Stroup
- Funded by $5,000 from the Playboy Foundation.
- This organization has played a central role in the cannabis decriminalization movement.

4:20, 4/20, or 420

- Began as a time code for 5 students at San Rafael High School in 1971 to meet.
- Adopted by Grateful Dead followers
- Celebrated worldwide on April 20th
- Currently, a sign theft problem for many State Highway departments...
High Times Magazine

- A New York-based monthly magazine founded by Tom Forçade.
- The magazine has been involved in the marijuana-using counterculture since its inception in 1974.

Buyer’s Clubs

- Began in 1992 as means for obtaining drugs for the treatment of AIDS
- San Francisco became the first city to allow medicinal distribution under Proposition P.
LEGALIZATION IN CALIFORNIA

1973

- California places an initiative called Prop 19 - California Marijuana Initiative (CMI) on the November 7, 1972 statewide ballot.
- Defeated by a 66.5% majority votes
1996

- Prop 215
- Known as the Compassionate Use Act (CUA)
- Legalizing the use, possession, and cultivation of cannabis by patients with a physician's recommendation.

2003

- SB 420
- Medical Marijuana Program Act
- The state legislature passed SB 420 in an attempt to implement the Compassionate Use Act (CUA).
2016

• Proposition 64
• The Adult Use of Marijuana Act or AUMA.
• In November of 2016, California joins several other states in legalizing adult recreational use of marijuana.

1. You can grow it at home

• Effective immediately, if you’re 21 or older, you can legally possess an ounce of pot and up to six plants in your home.
  • Read: Per home, not per person.
1. You can grow it at home

- All plant material must be secured.
- Plants can be grown indoors or outdoors in a fully enclosed structure that is locked and not visible to the public.

2. Tax Revenues

- Analysts at the Legislature estimate additional state and local tax revenues ranging from "the high hundreds of millions of dollars to over $1 billion annually."
3. You can’t smoke in public

- Smoking pot in public is still against the law and so is driving while impaired by marijuana.
- Any potential recreational marijuana shop cannot be within 600 feet of:
  - daycare centers,
  - schools and other youth centers.
- Businesses that sell alcohol or tobacco cannot sell pot.

4. Local Communities Rule

- Local governments can ban commercial marijuana transactions by ordinance or restrict them through zoning laws.
5. You might be able to clean up your legal record

• The law allows those with prior marijuana convictions to petition the courts to revisit cases that the new law legalizes.

6. Sales Legal as of January, 2018

• Cultivators cannot legally sell it until they are licensed by the state.
6. Sales Legal as of January, 2018

- It’s against the law to take marijuana across state lines.
- Consumers cannot drive to a state such as Oregon to avoid sales taxes (20% vs. 32.5%)

7. Hemp Is Now Legal

- Prop 64 has a provision that allows for the production of industrial hemp by California farmers
- This will be regulated by the state’s Department of Food and Agriculture.
California – Emerald Triangle

- Mendocino County, Humboldt County, and Trinity County
- The largest cannabis-producing region in the United States.

Will Wineries Convert?

- Cannabis cultivation uses 1/4 of the water used in the wine business and its profit is multiplied 17 times
CONSUMPTION

Smoking

• Pipe
• Bong
• Bubbler
• Dab
• Joint
• Blunt
Hashish

• It is typically mixed with herbal cannabis, tobacco or another type of herb
• Inhaled by burning a few grains through a pipe, bong, vaporizer or joint.
• Can also be ingested

“Dabbing”

• The practice of melting a cannabis concentrate over a heat source and inhaling the subsequent vapor
Vaporizing

- Desktop
- Portable

Edibles

- Candy
- Ice Cream
- Baked Goods
Edibles

- The Alice B. Toklas Cook Book
  - First published in 1954
  - One of the bestselling cookbooks of all time.
- “Hashish Fudge”
  - Made from spices, nuts, fruit, and Cannabis

Overdose of Edibles

- A temporary overdose of marijuana can occur and is called “greening out.”
Beverages

- Alcohol
- Tea
- Soda
- Milk

Miscellaneous

- Capsules
- Spray
- Tincture
CBD : THC HIGH RATIOS

1:2 CBD to THC

- Remarkable ‘high” effects
- Euphoria and laughing
- Thoughts are more calm
- Mild side effects
- Reduced risk of having tachycardia, anxiety, etc.
0:1 CBD to THC

- Strong “high” psychotropic effect
  - (especially over 30mg if ingested)
- Euphoria
- Uplifted mood
- Confused thought
- Uncontrolled laughs
- Strong side effects:
  - tachycardia,
  - anxiety,
  - tension,
  - …

Munchies

- When THC reaches the area of the brain that influences appetite, it will "stimulate you to eat".
Couch Lock

- When you get so incredibly stoned that you actually become a part of the couch.
- It becomes impossible to move.

Strains

- Cannabis strains are either pure or hybrid varieties
- There is currently over 1400 strains
- The higher the THC content, the higher the high
- In marijuana, the content can range from 1 to 33 percent.
Strains

• One of the highest known hybrids is called:

Strain Attributes

• Users rate their experiences within the following categories:
  • Effects
  • Medical impact
  • Negatives
Effects on Adolescents

• Evidence points to both structural brain abnormalities and altered neural activity in marijuana users.
• Studies suggested changes emerge soon after adolescents start using the drug.

Effects on Adolescents

• It's not clear whether there's a safe level of use.
• Nor is it known whether the brain changes associated with marijuana use are permanent, or if the brain can recover with time.
Pets

• With marijuana being legalized in many different states, there has been an increase in the number of reported poisonings.
• Prevent toxicity by placing marijuana edibles well out of reach in closed high cabinets or in a locked drawer when not in use.

Building up a tolerance

• Studies of marijuana tolerance suggest that with continuous, frequent daily use, a person can expect to build up a tolerance to marijuana over a 2-4 week period.
"Smoke Two Joints" by The Toyes

Dependence

- Occurs when the brain adapts to large amounts of the drug by reducing production of and sensitivity to its own endocannabinoid neurotransmitters.
Dependence

• Research has shown that 9 to 10% of cannabis consumers can become dependent on the drug.

Symptoms

• Noticeable side effects of marijuana may last from:
  • 1 to 3 hours if smoked
  • Several hours if consumed in food or drink.
Symptoms

• A fast heart rate, chest pain, or heart attack.
• Uncontrollable shaking or seizures.
• Pale skin color.
• Unresponsiveness.
• Sudden high blood pressure with headache.

Severe Symptoms

• Extreme anxiety or panic attacks.
Severe Symptoms

• Psychotic reactions in which someone loses touch with reality or becomes paranoid, sometimes in the form of hallucinations, delusions, or a loss of personal identity.

Severe Symptoms

• Decreased judgment, perception, and coordination that can lead to injuries or even death.
What to Do for Marijuana Overdose

• Call 911

• Stay with someone who is experiencing an overdose to monitor for worsening symptoms.

• Go to the nearest emergency room if someone is overdosing;
  • Never drive yourself if you are overdosing.

• If the person overdosing has stopped breathing, immediately begin administering CPR if you are trained to do so.

• People who are taken to the emergency room may be given a sedative, breathing support, chest x-ray, IV fluids, and medicine to relieve symptoms.

Is Marijuana Fatal?

• A fatal marijuana overdose in humans would take 40,000 times the amount of THC that it took to get them high in the first place.

• If you inhale 3 puffs of marijuana smoke and get high, then you would have to take 120,000 puffs of marijuana smoke to be fatal.
Polysubstance Use or Abuse

- This involves taking multiple drugs to attain a desired high.
- The most common risk factor that increases the chance of overdosing.

Polysubstance Use or Abuse

- Certain drug combinations can be deadly.
- The consequences increase especially when marijuana is combined with alcohol.
Marijuana and Alcohol

- The most frequently encountered substance combination implicated in car accidents.
- Alcohol may increase the level of marijuana’s primary psychoactive element, THC, in the blood.

Other Concerns

- Additional risk factors include:
  - Pre-existing health issues, such as heart or breathing problems that can produce fatal side effects.
  - History of use (amount and duration of use).
  - Using in combination with prescription medication.
Not Safe

- Researchers sampled weed samples from Northern California dispensaries
- They tested positive for:
  - The fungi Cryptococcus, Mucor and Aspergillus,
  - The bacteria E. coli, Klebsiella pneumoniae and Acinetobacter baumannii.

Not Safe

- Researchers report these can lead to serious and lethal illness, noting that smoking the mold and bacteria can embed them directly where they can do the most damage — the lungs.
Vaping-related Respiratory Illness

• Patients with vaping associated lung injury are complaining of:
  • dry cough,
  • chest pain,
  • shortness of breath,
  • as well as:
    • abdominal pain,
    • nausea, and
    • vomiting.

Vaping-related Respiratory Illness

• Reported by the University of Utah on Sept. 9, 2019
• Large immune cells containing numerous oily droplets, called:
  lipid-laden macrophages
Drug Recognition Expert

- U.S. law enforcement officials undergo a training program to become a "DRE".
- These DREs detect behavioral patterns and use roadside tests to determine if someone is likely "high" before subjecting them to definitive blood or urine test.

<table>
<thead>
<tr>
<th>Drug Symptom Matrix</th>
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<tbody>
<tr>
<td>CNS Depressant</td>
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<tr>
<td>HGN</td>
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<tr>
<td>VERTICAL NYSTAGMUS</td>
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<tr>
<td>BLOOD PRESSURE</td>
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<tr>
<td>BODY TEMPERATURE</td>
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</tbody>
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Legal Limit

- The legal limits for marijuana consumption - specifically THC, the psychoactive component of marijuana - are a lot less certain given the recent legalization in many jurisdictions.

5 ng/ml

- The five nanogram per milliliter limit appears more of an arbitrary pick rather than a number rooted in science, according to advocacy organizations like NORML.
5 ng/ml

- Furthermore, organizations like the Institute for Behavior and Health (IBH) argue that the 5 ng/ml per se limit provides the appearance of protecting the public, but in reality it only protects marijuana users driving under the influence of marijuana from prosecution.

THC Levels

- Smoking:
  - 1 cigarette contains 0.5 to 1g of cannabis
  - 18% THC = 180 mg
  - 20% absorbed by lungs
  - Rapid rise in blood concentration

- Oral consumption
  - Prolonged but poor absorption
THC Levels

- Converts to metabolites
  - 11-hydroxy-THC
  - 11-nor-carboxy-THC

- Accumulates in fat stores
  - T1/2 = 20 - 30 hours

- Removal from body:
  - 1/3 excreted as urine
  - 2/3 eliminated in feces

Drug Testing Cleanse Solutions
Is Drug Testing Legal?

- Whether a drug-testing procedure is lawful depends on whether the drug test is for:
  - pre-employment testing,
  - random testing,
  - post-accident, or
  - reasonable suspicion testing.

Is Drug Testing Legal?

- California is one of the few states with a ‘Right to Privacy’ written in its state Constitution.
- The right to privacy extends to both government employees and to employees in the private sector.
Balance Test

• While Californians have a right to privacy, the validity of drug-testing procedures depends on a “balance test.”

• Under the test, an employer’s reason for drug testing is weighed against the employee’s right to privacy.

Drug Testing

• Generally, employers are allowed to require employees to pass a drug test as a condition of employment so long as the employer tests all applicants for the position and does not single-out a specific applicant based on race or disability.
Random Drug Testing

• In California, it is generally not legal for employees whose jobs do not impact public safety.

Synthetic Marijuana

• Illicit / illegal products that contain a mixture of:
  • Some sort of dried plant matter and
  • Any one of dozens of artificially produced chemicals

• Brands:
  • K2
  • Spice
  • Fake Weed
  • Black Mamba
Synthetic Marijuana

- Designed to mimic the effects of the main cannabis ingredient, THC, a partial CB1 receptor.
- Synthetic cannabinoids, by contrast, are full receptor agonists.

Synthetic Marijuana

- In 2012, President Obama signed the Synthetic Drug Abuse Prevention Act listing 26 types of drugs.
- As of 2016, there are more than 170 synthetic cannabinoids.
Synthetic Marijuana

- Multiple studies have found that synthetic marijuana products can cause dangerous reactions including rapid heart rate and seizures.
- The Centers for Disease Control and Prevention (CDC) reported kidney damage is possible by smoking synthetic marijuana.

Testing for Synthetic Marijuana

- Chemical structures are constantly changing to evade detection.
- Traditional testing is done by Gas Chromatography-Mass Spec.
- Requires specific expertise and hours to complete.
Employment

• The passage of Proposition 64 has not changed the ability of employers to screen applicants or randomly test current employees for marijuana use.
• In addition, California courts continue to uphold an employer’s right to terminate employees for testing positive for marijuana.
• Employers can terminate an employee for marijuana use even if it is done with a valid prescription for a medical condition or disability.

Americans With Disabilities Act - ADA

• ADA prohibits discrimination against individuals with disabilities for employment.
• These laws require employers to make “reasonable accommodations” for disabled employees to enable them to perform their job.
Americans With Disabilities Act - ADA

• Medical marijuana advocates argue that marijuana should be considered a “reasonable accommodation” for individuals using marijuana to treat medical conditions.
• They further contend that termination for medical marijuana use violates employee rights.

Americans With Disabilities Act - ADA

• California courts disagree.
• In 2008, the California Supreme Court ruled that employers have a right to drug test and fire employees who test positive for marijuana, regardless of their medical use.
WORKPLACE CONCERNS

Impairment

Being in an imperfect or weakened state or condition, such as:

- diminished in function or ability: lacking full functional or structural integrity

- unable to function normally or safely (as when operating a motor vehicle) because of intoxication by alcohol or drugs
Marijuana Use in the Workplace

• Employees who test positive for marijuana experience:
  • 55% more mishaps
  • 85% more injuries
    • National Institute on Drug Abuse

Marijuana Use in the Workplace

• Marijuana use:
  • declines one’s perception of risk
  • Impairs attentiveness, motor coordination and reaction time
    • (CDC, 1982; 2018)
Marijuana Use in the Workplace

• Marijuana users are known to be absent and tardy from work 75% more than non-users.
  • (NIDA, 2018)

Safety & Health Implications

• Organizations must decide how to address marijuana use (medicinal or recreational) while promoting a safe and healthful work environment.
• Two Strategies
  • Outright Ban
  • Accommodate and Restrict
Outright Ban

• Regarded as a safe and responsible policy
• Implies that an employer can discipline an employee under certain conditions.
  • e.g. The employer must prove that the employee is impaired on the job.

Accommodate and Restrict

• Requires a well devised drug policy and written program, including:
  • Rules for workplace drug use and possession
  • Medical marijuana use outside of work hours
  • Personnel responsibilities
  • Definition of impairment
  • Medical reporting
  • Steps to handle reasonable suspicion
  • Drug testing methods
  • Evaluation of test results
  • Employee assistance
Safety Sensitive Positions

- Employees who are responsible for the safety of others.
- May require a different policy, such as an outright ban.
- Medical conditions requiring the use of medicinal marijuana would have to be addressed on a case-by-case basis.

When to Conduct Drug Testing

- Random drug tests ensure that employees follow policies.
- Urine testing is not an accurate measure of whether an employee is impaired at the time of testing.
- Oral fluid testing can also be used.
Test Results

• Enlist the services of a Medical Review Officer (MRO)
  • Can specify sampling and testing methods
  • Can interpret test results
  • Maintains employee privacy
  • Can consult with the employee’s treating physician

Help for Addiction

• Human resources must be prepared to deal with marijuana abuse problems.
  • Employee Assistance Programs should be offered to help with recovery.
For More Information…

• National Institute on Drug Abuse

• Centers for Disease Control and Prevention
  • https://www.cdc.gov/marijuana/index.htm