



# The “Pot” Thickens: Debunking Cultural Misconceptions and Exploring Clinical Implications of Unregulated Products Including Cannabis and Kratom.

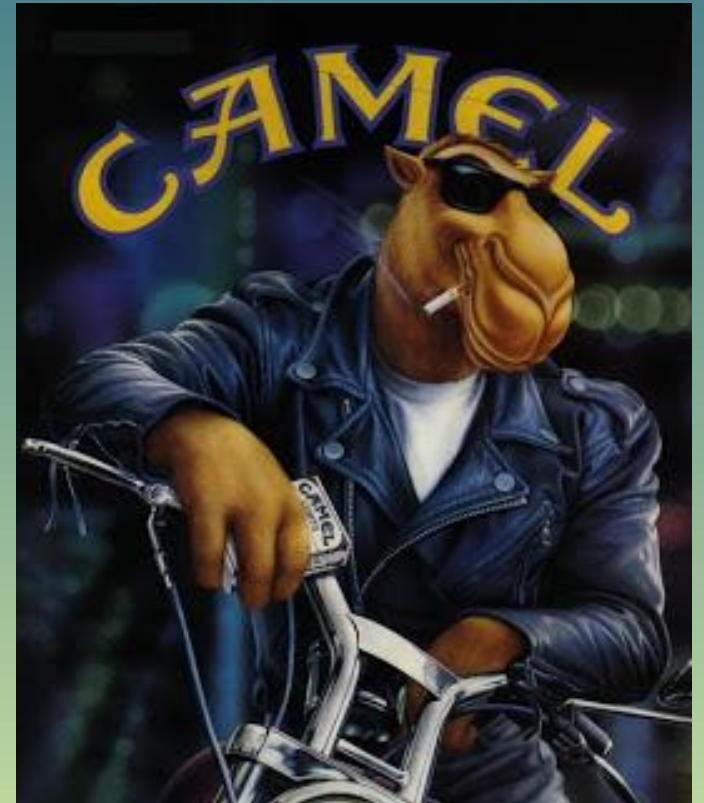
Kelly Little MSW, LCAS, CCS  
Clinical Supervisor –  
Dilworth Center

# Objectives

- ▶ Identifying current trends in adolescent and young adult substance use and abuse
- ▶ Evaluate the influence that legalization has on perception and use of Cannabis products
- ▶ Explore related trends with other legal and/or unregulated substances including Kratom
- ▶ Summarize the relationship between unregulated substance use and mental health
- ▶ Outline systemic and clinical implications

# Drug Use And Abuse Trends

- ▶ Alcohol
- ▶ Marijuana and related Cannabinoids
- ▶ Nicotine
  
- ▶ Hallucinogens
  - ▶ LSD
  - ▶ Mushrooms
  
- ▶ Over the Counter Medications
- ▶ Nitrous/Galaxy Gas



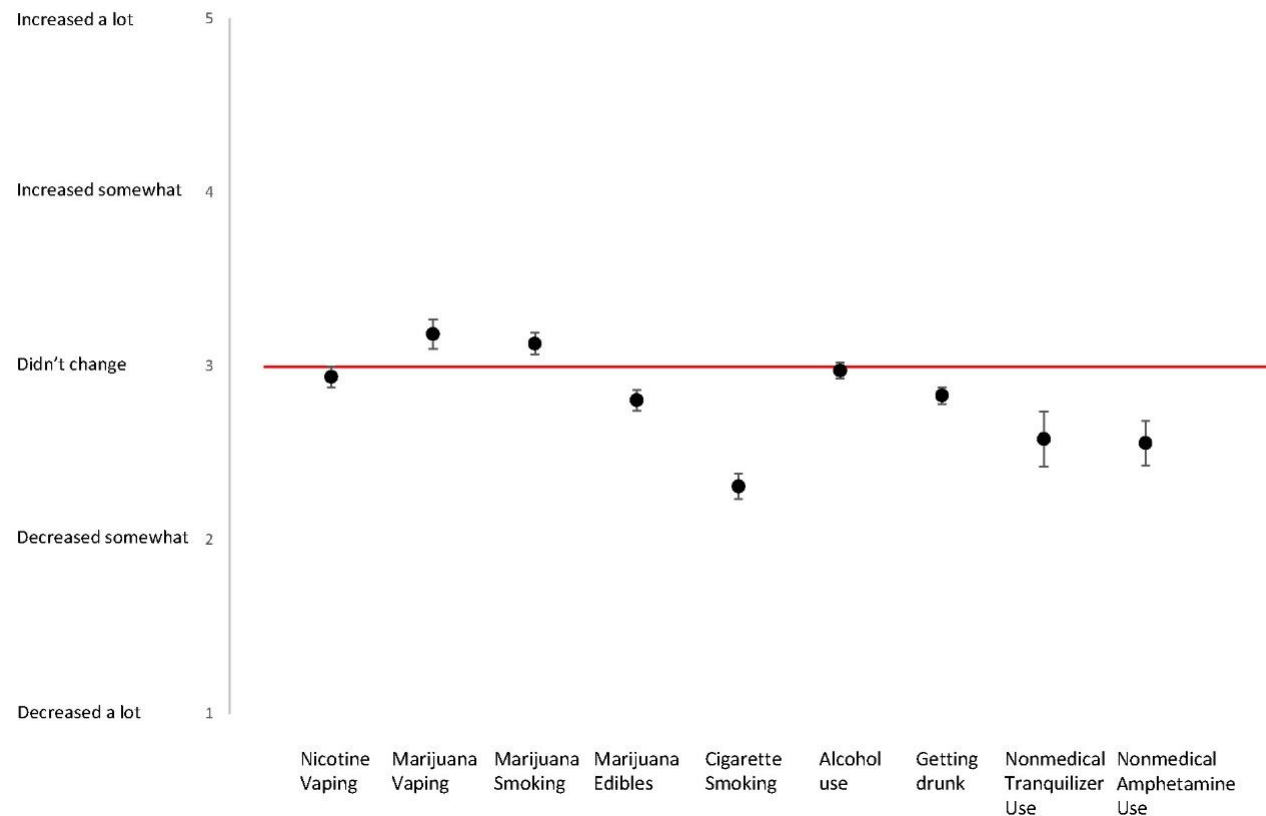
# Drug Use And Abuse Trends, cont.

- ▶ Prescription medications
  - ▶ Amphetamines
  - ▶ Opioids
  - ▶ Benzodiazepines
- ▶ Cocaine
- ▶ Meth
- ▶ Fentanyl (Heroin)
- ▶ Kratom/Kava

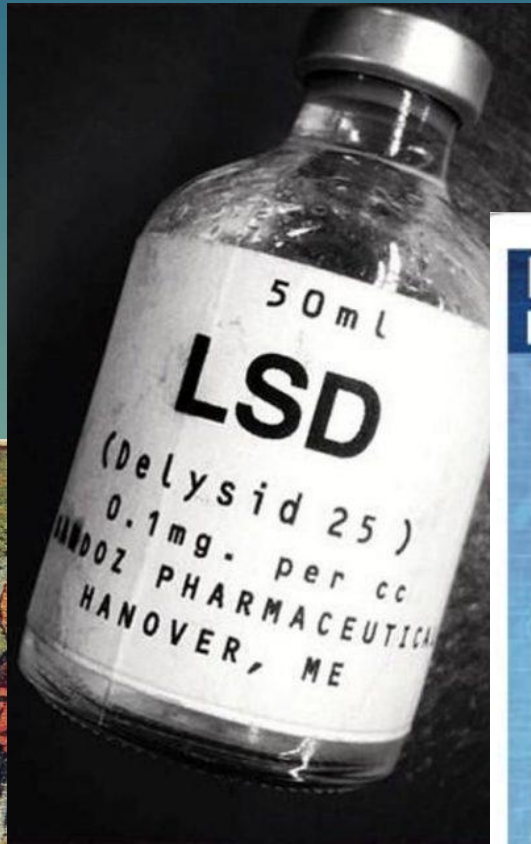


# Monitoring the Future Data

Figure 4: Mean of Self-Reported Change in Drug Use Since Pandemic Among Past Year Users in **All Three Grades Combined**, 95% Confidence Intervals



# History Lesson!!



DISSOLVE ON

## MEDICAL MARIJUANA USE REGISTRY Identification Card



Patient

Patient ID #: P1234567

SAMPLE  
CARON ANN, JR  
123 MAIN STREET  
APT. 1  
ANYTOWN, FL 12345

DOB: 05/03/1970 EXP: 06/05/2019

Caregiver(s):  
SAMPLE, JOHN

Card ID #: 1234-5678-1234



Safety Information Prescribing Info **ONE DOSE DAILY ADDERALL XR**

### ADDERALL XR: my tool of choice for managing ADHD

*"I know what it's like to grow up with ADHD and how important it is for parents to have good information."*  
-- Ty Pennington

can ADDERALL XR  
morning dose  
RALL XR

**LLOYD MANUFACTURING CO.**  
219 HUDSON AVE., ALBANY, N. Y.  
For sale by all Druggists.  
(Registered March 1885.) See other side

46

O. C. PICKHARDT, M. D.  
117 EAST 80TH STREET  
NEW YORK

January 26, 1932.

certify that the post-accident convalescence of the Hon. Winston S. Churchill necessitates alcoholic spirits especially at meal times. His recovery is naturally indefinite but the minimum amount would be 250 cubic centimeters.

Signed: *O. C. Pickhardt, M.D.*  
OTTO C. PICKHARDT, M.D.


# More History!

**"Give your throat a vacation...  
Smoke a  
FRESH  
cigarette"**

**I**f the cigarette you have been smoking stings or burns your throat, switch to Camels and see the difference.  
It's the peppery dust left in tobacco by inefficient cleaning methods that makes you cough.  
It's the unkindly hot smoke of harsh, dried-out tobacco that burns and irritates your throat.  
There is no peppery dust in Camels—that's whisked away by a special vacuum-cleaning process.  
There are no stale, crumbly, parched tobaccos—the fine Turkish and mild Domestic tobaccos of which Camels are blended come to you in prime, factory-fresh condition, thanks to the Humidor Pack.  
This scientific germ-safe wrapping—not plain ordinary Cellophane, but moisture-

*proof Cellophane which costs nearly twice as much—seals in all the natural aroma and freshness, seals it so tightly that wet weather cannot make Camels damp, nor drought weather make them dry.  
Camels are milder and more throat-friendly because they are dust-free and fresh.  
Give your throat a vacation, switch to Camels for just one day. Then leave them—if you can.*

Trade in CAMEL QUARTER SIZE including Florida, Hawaii and Key West — Camel Cigarettes, American Tobacco Company — Cigarettes System — every night except Sunday



**CAMELS**  
Mild... NO CIGARETTE AFTER-TASTE

B  
Th  
by  
"M  
Add  
53



## A TIMELINE OF EVENTS

- 1961** • UN Convention on Narcotic Drugs frames addiction as morally evil
- 1971** • US President Nixon declares the War on Drugs
- 1971** • US Controlled Substances Act creates "schedules" to legally outline the abuse potential of drugs
- 1994** • US Vice President Al Gore calls for "a new approach" to drug policy
- 1998** • US Surgeon General David Satcher calls for a "new approach" to drug policy
- TODAY** • US Surgeon General Vivek Murthy calls for a "new approach" to drug policy



@usc.t.a.c.o



icians have  
mended it  
1780

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**JAMES E.  
PEPPER  
WHISKY**

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**\$ 5.00**  
and Dealers

# Controlled Substances Act (CSA)

Schedule I	Schedule II	Schedule III	Schedule IV	Schedule V
Heroin LSD Ecstasy Marijuana	Methadone Oxycontin Morphine Fentanyl Adderall Ritalin Meth Cocaine	Suboxone Ketamine	Xanax Ativan Ambien Soma Tramadol	Robitussin

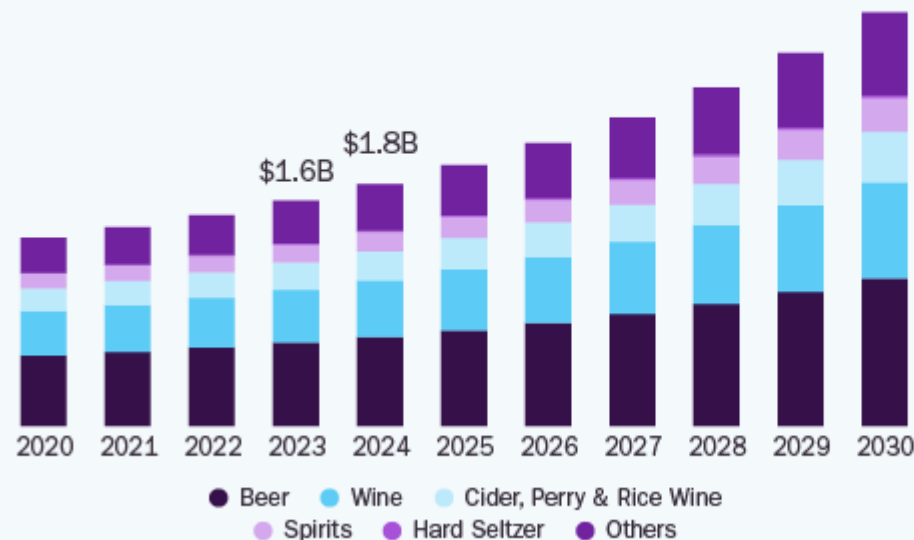


# Controlled Substances Act (CSA) – What's missing?

- ▶ Alcohol
- ▶ Nicotine
- ▶ Delta-8 and other derived intoxicating cannabis products
- ▶ Kratom
- ▶ Kava



**Alcoholic Drinks Market**  
Size, by Type, 2020 - 2030 (USD Billion)



GRAND VIEW RESEARCH

**9.7%**  
Global Market CAGR,  
2025 - 2030

Source:  
www.grandviewresearch.com



Cannabis

Marijuana

THC

Pot

Weed

Cannabis

# What are we even talking about?

- ▶ Cannabis is a plant with hundreds of chemical compounds including about 100 cannabinoids
- ▶ THC and CBD are two of the most present compounds
- ▶ Marijuana Plant (high in THC and low in CBD)
- ▶ Hemp Plant (high in CBD and low in THC)
- ▶ THC = Delta-9
- ▶ Some cannabis products are naturally occurring, and others are synthetic or man-made

# What are we even talking about?



- ▶ Demand for higher potency led to refining the product
- ▶ Vaping or dabbing has become one of the most popular methods of use

# What are we even talking about – Synthetics?

- ▶ Delta-8 is derived from hemp/CBD
- ▶ Up to 75% as psychoactive as Delta-9
- ▶ THC-O is derived from Delta-8
- ▶ Thought to be up to 3 times as strong as THC
  
- ▶ Growers have been able to genetically modify plants so that the bud itself is high in Delta-8, THCA, etc.



# Popular Products

- ▶ THCA\*
- ▶ HHC

\* TN has a new law that will go into effect on Jan 1 that will effectively ban THCA due to restrictions on “total theoretical THC content”



The screenshot shows the Seed to Soul Dispensary website. At the top, there is a navigation bar with a menu icon, a search icon, the brand name "Seed to Soul" in a stylized font, and icons for a heart and a shopping bag. Below the navigation bar is a product image of a green and purple bag of "POWER HOUSE K.O. SOUR BELTS". The bag features a red eye logo and text: "5000 MG HHC / HHC-O / THC-P / DS", "HIGH POTENCY ADVANCED USERS ONLY!", and "10 PC | 500mg EACH". Below the product image, the text reads: "\*High Potency\* K.O. Sour Belts (5000mg) | Power House \$99.99". At the bottom left of the product listing, it says "By [Power House](#)".



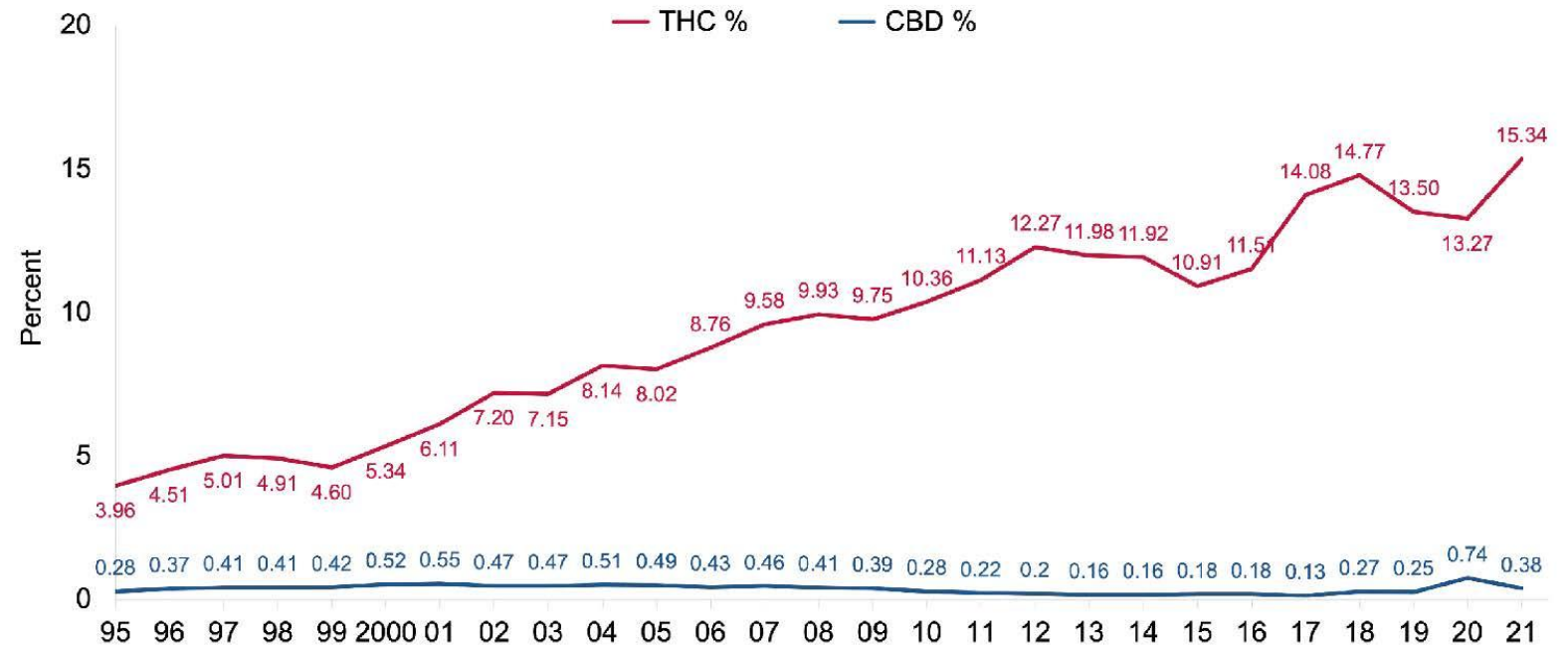


Wack-a-  
mole

# Myth Buster

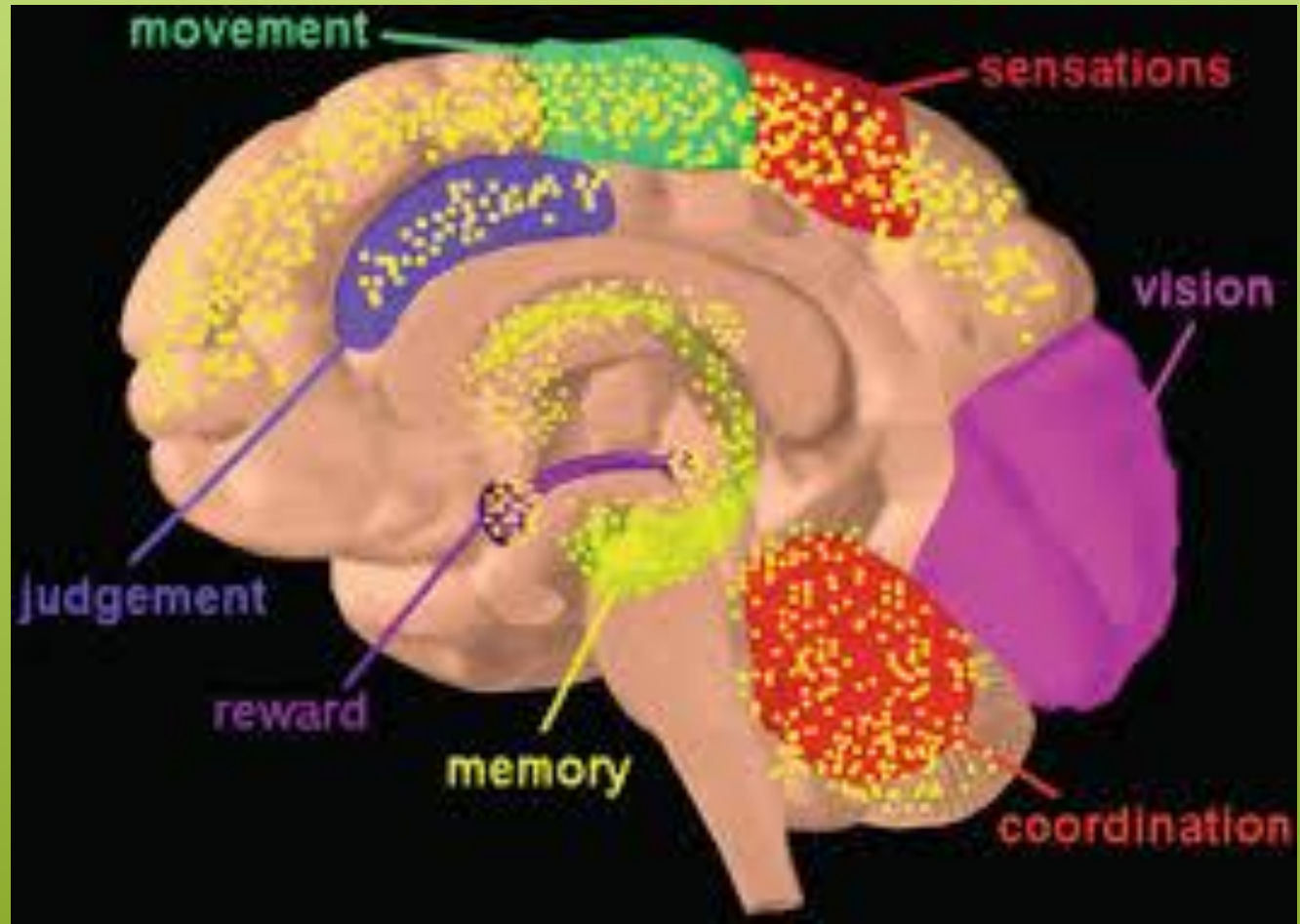
- ▶ THC, Delta-8, and any other cannabinoid that binds to CB1 receptors and produces a high is, in fact addictive
- ▶ Addition rates of marijuana are 10-30% depending on the study - to put that in perspective, alcohol addiction rates are closer to 8-10%

## Percentage of THC and CBD in Cannabis Samples Seized by the DEA, 1995-2021



SOURCE: U Miss, Potency Monitoring Project

# Risk Perception vs. Reality



# Legalization Movement



- ▶ Medical Marijuana is currently approved in 38 states, 3 territories, and DC
- ▶ Recreational Marijuana is legal in 24 states
- ▶ Delta 8 is legal and/or unregulated in 22 states

- ▶ FDA has not approved medical marijuana for any medical conditions
- ▶ Marijuana prescriptions are filled unlike any other prescription
- ▶ Marijuana and related cannabinoids are administered in many different ways
- ▶ One primary form of consumption is smoking and/or vaping, which is the antithesis of medicinal



# What does the research show?

- ▶ Appetite stimulation and nausea suppression are the only two medical concerns that quality research have shown benefits from THC
- ▶ Cannabinoids, primarily CBD-only or CBD with low dose THC, have shows to benefit Epilepsy and Insomnia
- ▶ Research shows mixed results related to cannabinoids and pain
- ▶ **This is incongruent with states who have approved (by legislature) the treatment of over 50 conditions with THC**

# Medications

- ▶ Dronabinol (Marinol) for nausea and medical anorexia
- ▶ Epidolex (CBD) for seizures



Wikipedia

[https://en.wikipedia.org/wiki/Medical\\_cannabis](https://en.wikipedia.org/wiki/Medical_cannabis)

## Medical cannabis - Wikipedia

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What is the best medical weed?



The best THC for anxiety and stress is found in Indica-dominant varieties, such as **Northern Lights, White Widow, Hindu Kush, Girl Scout Cookies, and Gorilla Glue #4.**

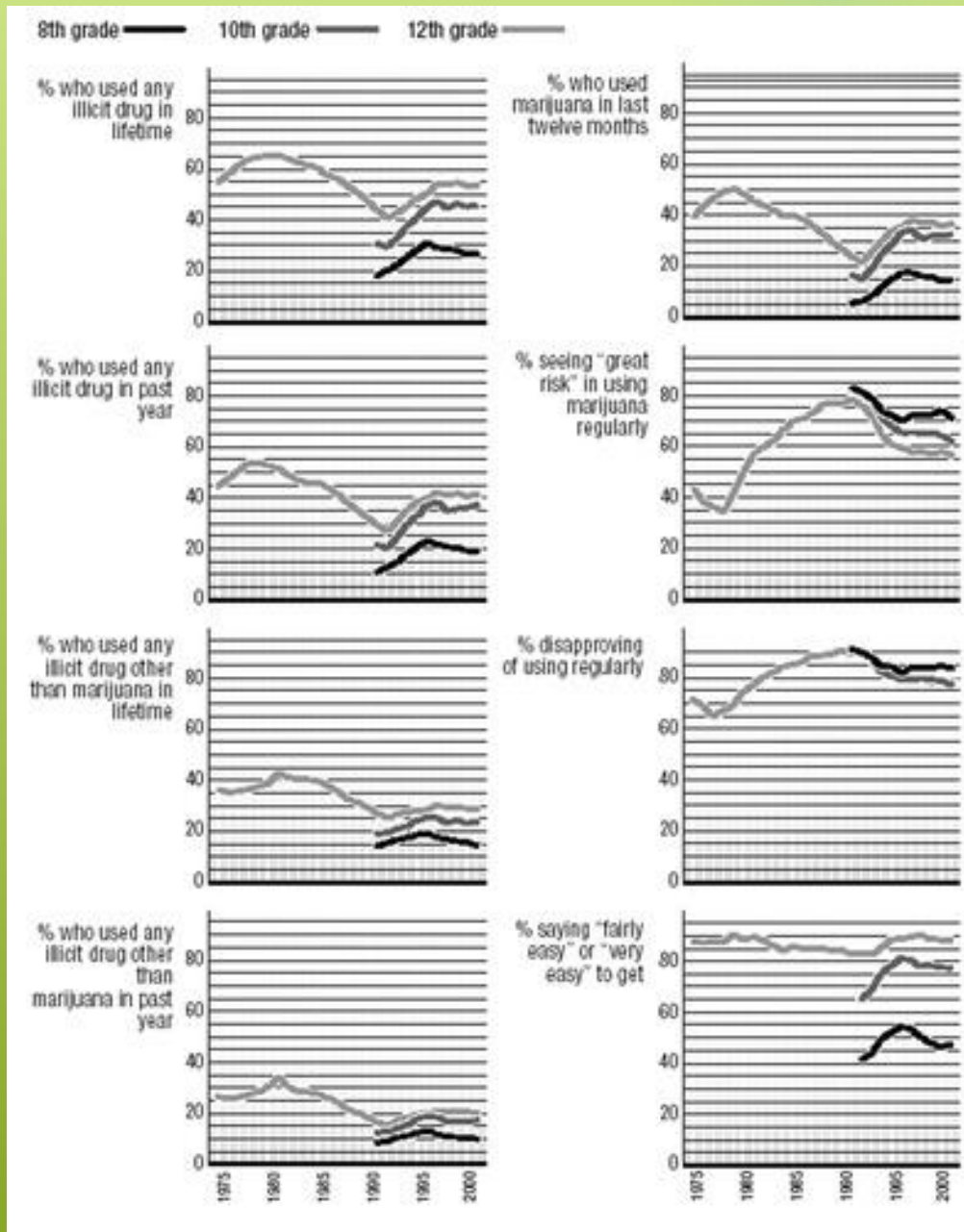
Feb 26, 2024

# Using THC in therapeutic/healing process... actually inhibits growth

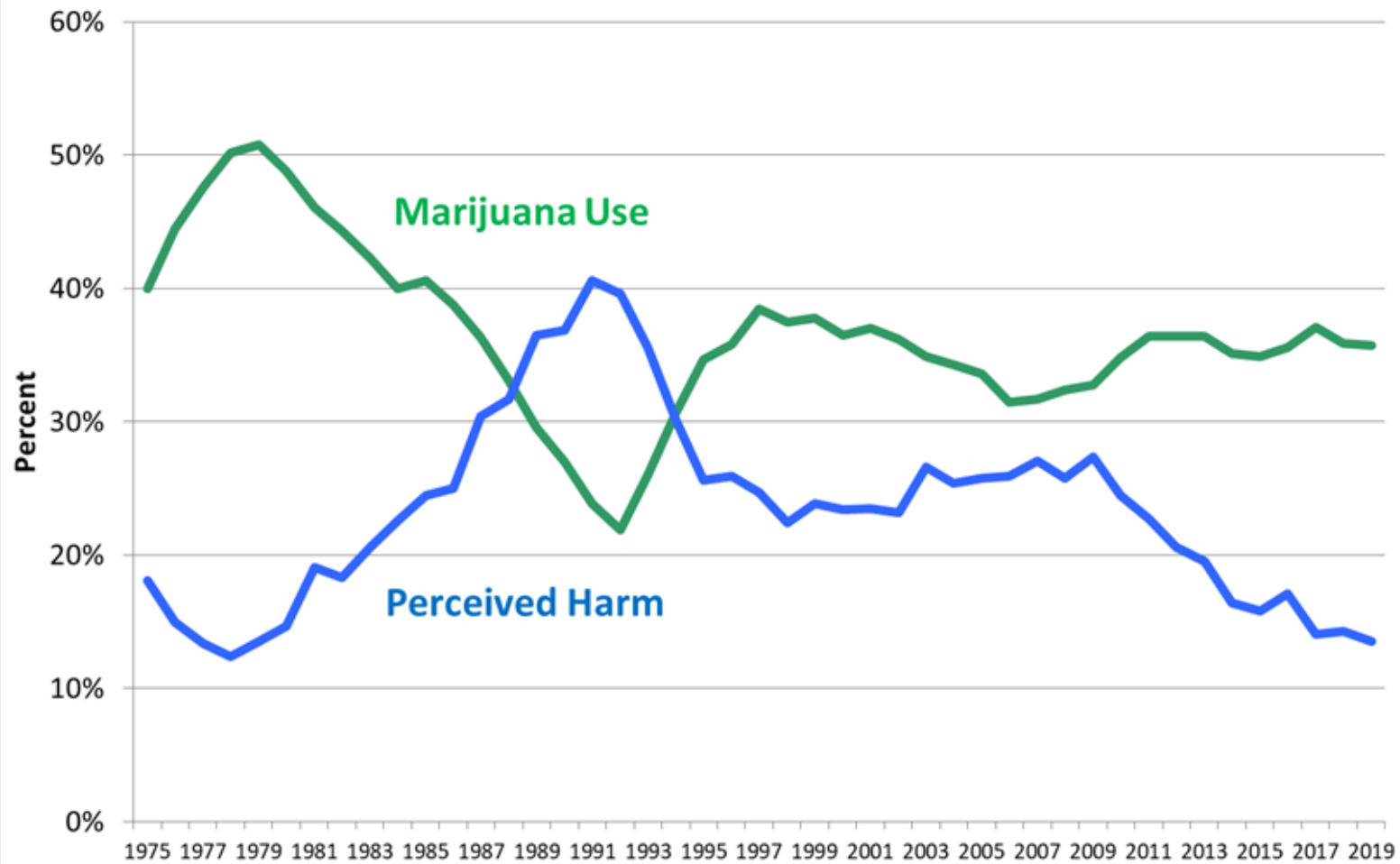
- ▶ Studies exploring the use of cannabis in the treatment of opioid use disorder in adolescent and young adult populations demonstrated an increase in cravings and higher rates of relapse among participants who used cannabis
- ▶ Research with veterans diagnosed with PTSD concluded that cannabis use increased intrusive symptoms over time
- ▶ Research indicating mental health benefits from cannabis are largely resulting from low quality, small population studies



# Monitoring the Future



## Past Year Marijuana Use and Perceived Risk of Harm of Occasional Marijuana Use Among 12th Graders, 1975-2019



Source: Monitoring the Future

# Risk Perception vs. Reality

- ▶ Increase in marijuana-related traffic fatalities
- ▶ Edible-related hospitalizations and deaths (overdose)
- ▶ Lung/Respiratory Disease
- ▶ Heart Attacks
- ▶ Cannabinoid Hyperemesis Syndrome
  
- ▶ CASE STUDY!!

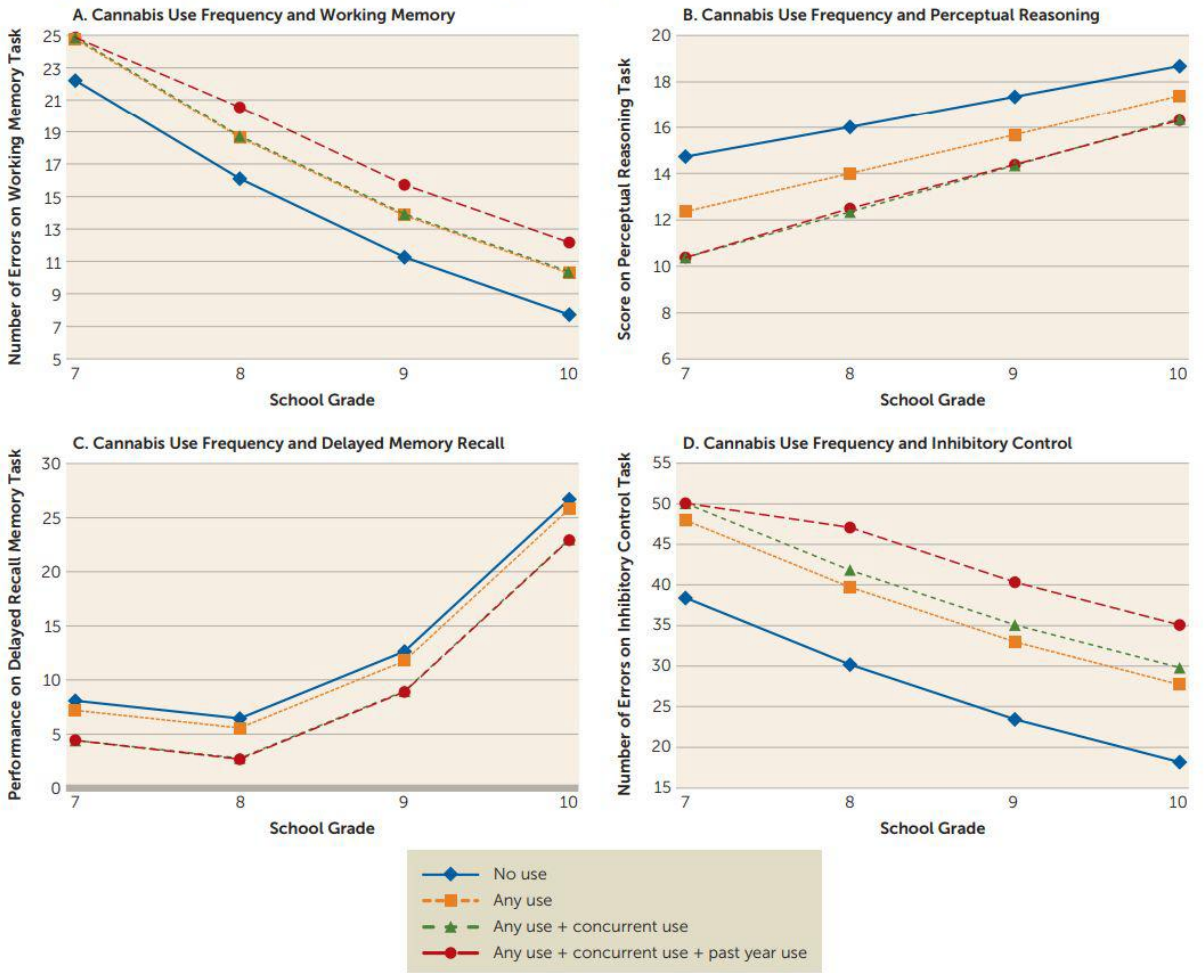




# A Population-Based Analysis of the Relationship Between Substance Use and Adolescent Cognitive Development

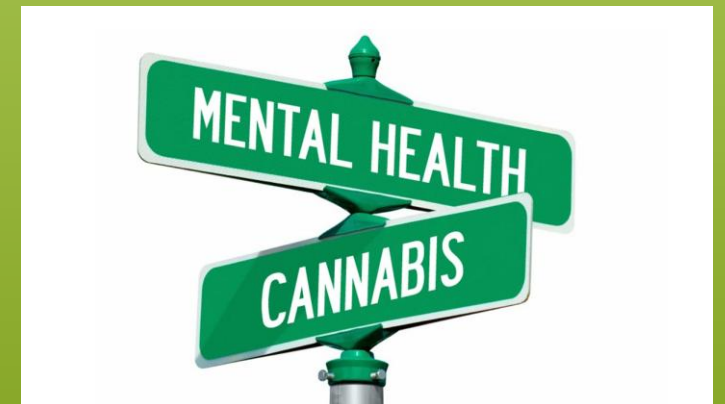
Jean-François G. Morin, B.A., Mohammad H. Afzali, Ph.D., Josiane Bourque, M.Sc., Sherry H. Stewart, Ph.D., Jean R. Séguin, Ph.D., Maeve O'Leary-Barrett, Ph.D., Patricia J. Conrod, Ph.D.

FIGURE 2. Between-Subject and Within-Subject (Concurrent and Lagged) Relationships Between Cannabis Use Frequency and Working Memory Errors, Perceptual Reasoning Performance, Delayed Memory Recall Performance, and Inhibitory Control Errors<sup>a</sup>



# Risk Perception vs. Reality

- ▶ Decreases emotional regulation and/or dysregulation of feel-good chemicals naturally occurring in the body
- ▶ Negatively impacts anxiety and depression
- ▶ Increases (some studies say can double) the risk of schizophrenia
- ▶ Contributes to earlier onset of psychiatric disorders
- ▶ Hallucinogen Persisting Perception Disorder
- ▶ Cyclical relationship



# Mental Health and Substance Use

- ▶ Research is mixed, and the reality is likely that the question is too complex to answer!
- ▶ Some research indicates that participants had biological predispositions (genetic risk) to both CUD and schizophrenia. Other research suggests that people with developing schizophrenia are more likely to cope with weed. And then other research indicates that chronic cannabis use can induce psychosis and convert to a schizophrenia diagnosis.
- ▶ Interestingly, research suggests that, while many substances are known to induce psychosis, the risk for conversion to schizophrenia is greatest with cannabis-induced psychosis
- ▶ Neurobiological markers of chronic cannabis use correlate or overlap with those seen in psychotic disorders
- ▶ Unequivocally, the prevalence of psychosis has increased as cannabis laws have relaxed/changed.



# Implications

Personal impacts of the progression of Cannabis Use Disorder contribute to tensions in the home, lack of motivation at school, decreased desire for further education and/or involvement in a career

Already stressed systems including emergency rooms, psychiatric hospitals, and treatment centers have been impacted by the changing trends in cannabis use

Early intervention by families, school systems, and even the legal system have decreased due to mis-information about cannabis



Kratom

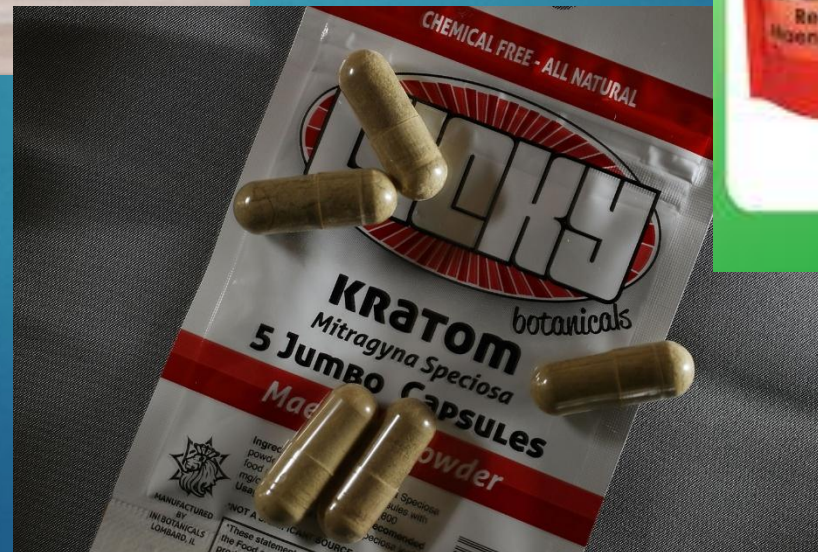
# What is Kratom?

- ▶ Kratom leaves are derived from a tropical tree found in SE Asia
- ▶ 2 main chemical compounds are mitragynine (MG) and 7-hydroxymitragynine (7-OH-mitragynine; 7OH MG)
- ▶ These chemical compounds bind to the mu opioid receptors
- ▶ They may also bind to serotonin and dopamine receptors



# How do you use Kratom?

- ▶ Tea
- ▶ Pills



► Drinks



► Energy Shots



**Party smarter.  
Study better.**

- ✓ Plant based
- ✓ High Quality ingredients
- ✓ Ultimate balance

MUST BE 18+. PLEASE USE RESPONSIBLY.  
THESE PRODUCTS ARE NOT INTENDED TO DIAGNOSE, TREAT, CURE  
OR PREVENT ANY DISEASE. FOR FULL WARNING PLEASE VISIT DRINKJUBI.COM.

# 7 OH

- ▶ Specific alkaloid that occurs naturally in the plant in smaller doses
- ▶ Concentrate
- ▶ Synthetic



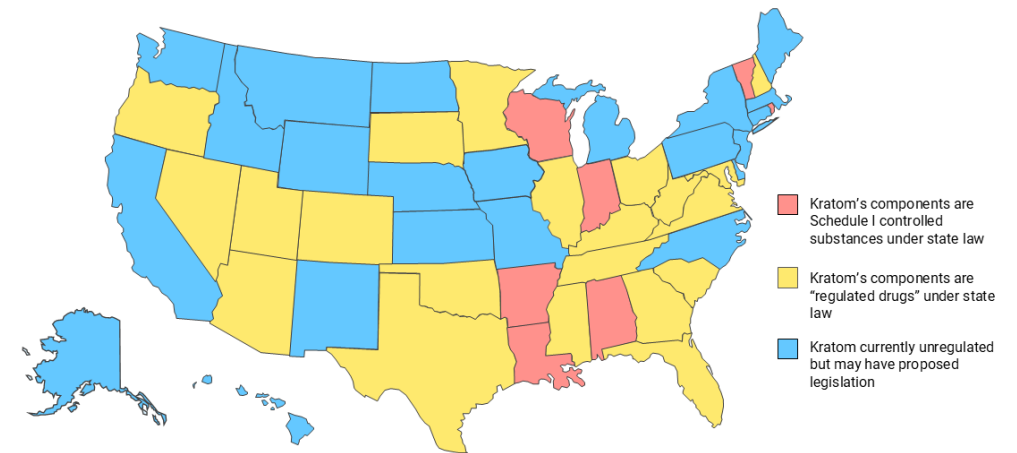
## Kratom vs Synthetic 7-OH: What To Know

Kratom	VS	Synthetic 7-OH
<b>Source:</b> Natural leaf, sun-dried & ground		<b>Source:</b> Lab-derived or chemically enhanced
<b>Active Compounds:</b> Multiple alkaloids (mainly mitragynine, trace 7-OH)		<b>Active Compounds:</b> Pure or high 7-OH only
<b>7-OH Levels:</b> Naturally low (<0.05%)		<b>7-OH Levels:</b> Up to 10x+ higher than in kratom leaf
<b>Potency:</b> Mild to moderate; balanced effects via entourage effect		<b>Potency:</b> Very strong; fast-acting, intense, more sedating
<b>Action:</b> Broad receptor activity (adrenergic, serotonergic, dopamine)		<b>Action:</b> Highly selective mu-opioid receptor agonist
<b>Safety:</b> Traditionally used; well-tolerated at moderate doses		<b>Safety:</b> Higher risk (sedation, respiratory issues); less studied

# Kratom Consumer Protection Act

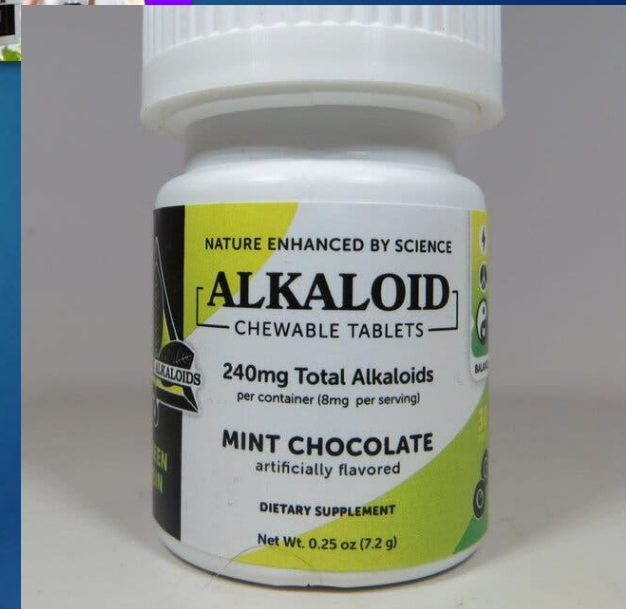
- ▶ Adulterated or synthetic kratom products are technically illegal in TN
- ▶ TN is one of the only states that clearly states which products are legal and which are not legal
- ▶ TN law requires that products are clearly labeled
- ▶ Individuals under 21 are prohibited from purchasing or possessing Kratom products

## Kratom: Regulation of Components & Products\*



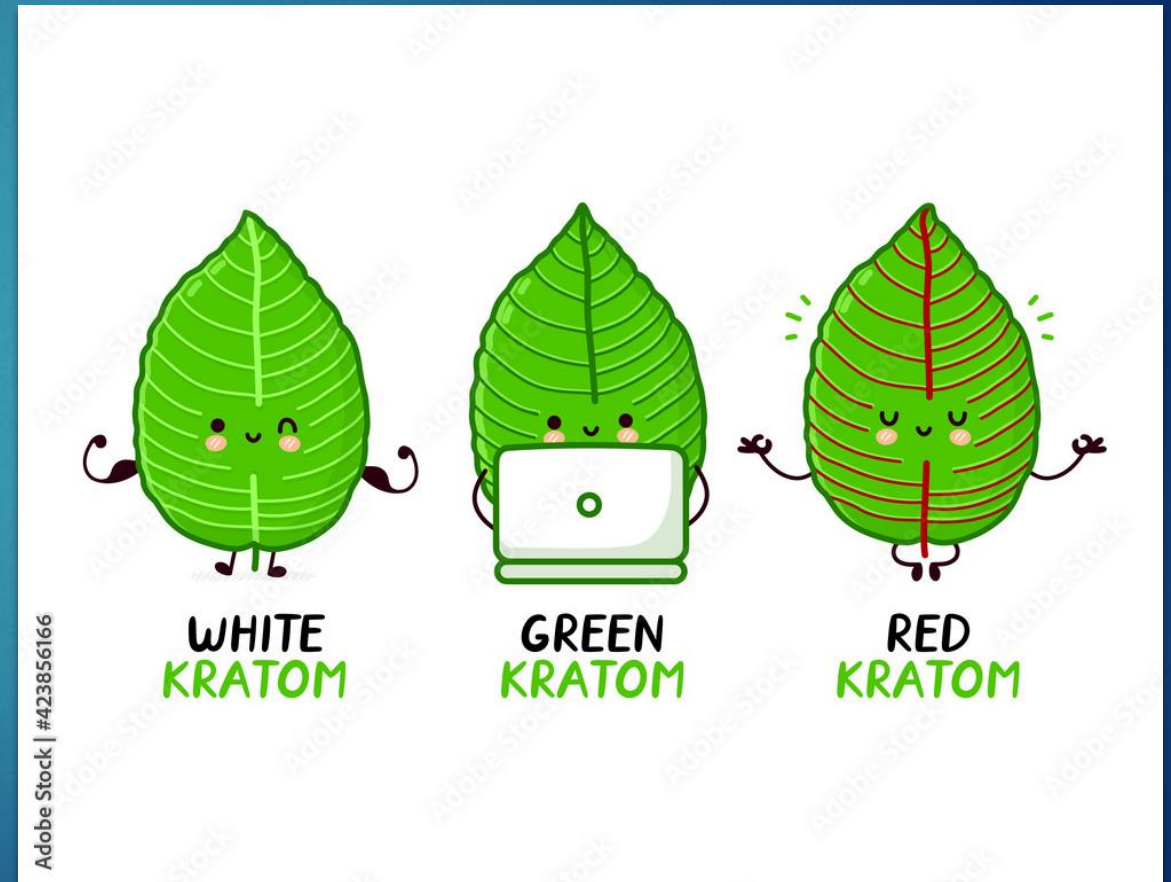
# More on: How do you use Kratom?

- ▶ 1-2g is typically considered a low or mild dose
- ▶ 6-15g is typically considered a high dose
- ▶ Effects of Kratom can typically be felt within 10-20 minutes, and will last anywhere between 2-7 hours
- ▶ CASE STUDY!!



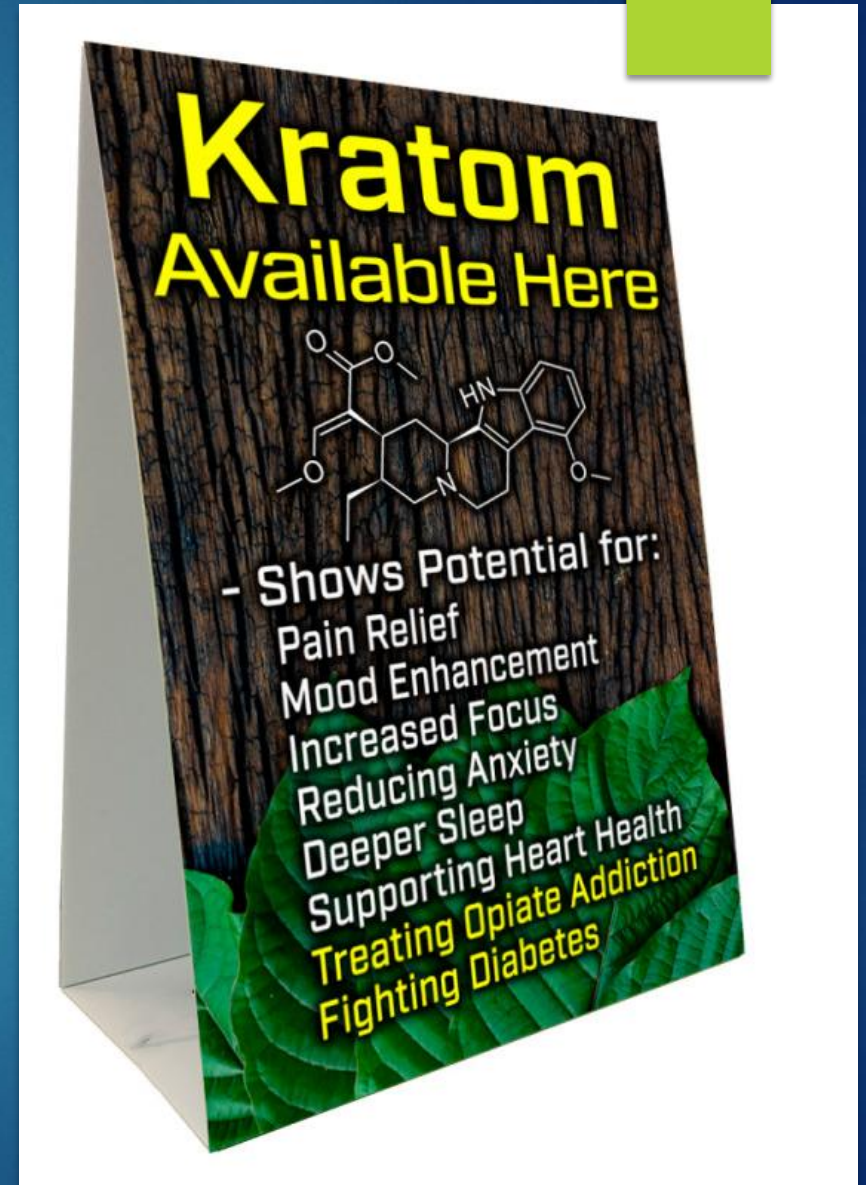
- ▶ In small doses, Kratom can produce a stimulant-like effect (increase in energy and alertness), in larger doses it can produce an opioid-like effect (relaxation, sedation, pain relief)
- ▶ Similar to cannabis, there are different strains, often distinguished by the color of the vein in the leaf
  - ▶ Red – more potent and soothing
  - ▶ Green – more pain relief and calming effects; reportedly helps with focus and improves mood
  - ▶ White – more likely to have stimulant effects

# What is Kratom?



# What the advertisements claim

- ▶ It's a safer alternative to pain management
- ▶ It's natural because it comes from a plant
- ▶ It can help you stay off more dangerous opioids; it's a detox pill or an alternative to methadone
- ▶ It can treat your anxiety or depression
- ▶ It can help you sleep



# Risk Perception vs. Reality

- ▶ Significant addiction potential
- ▶ Withdrawal
- ▶ GI Issues – nausea, constipation, diarrhea
- ▶ Weight loss
- ▶ Skin hyperpigmentation – sensitivity to sun
- ▶ Liver Disease
- ▶ Insomnia – fatigue
- ▶ Seizure

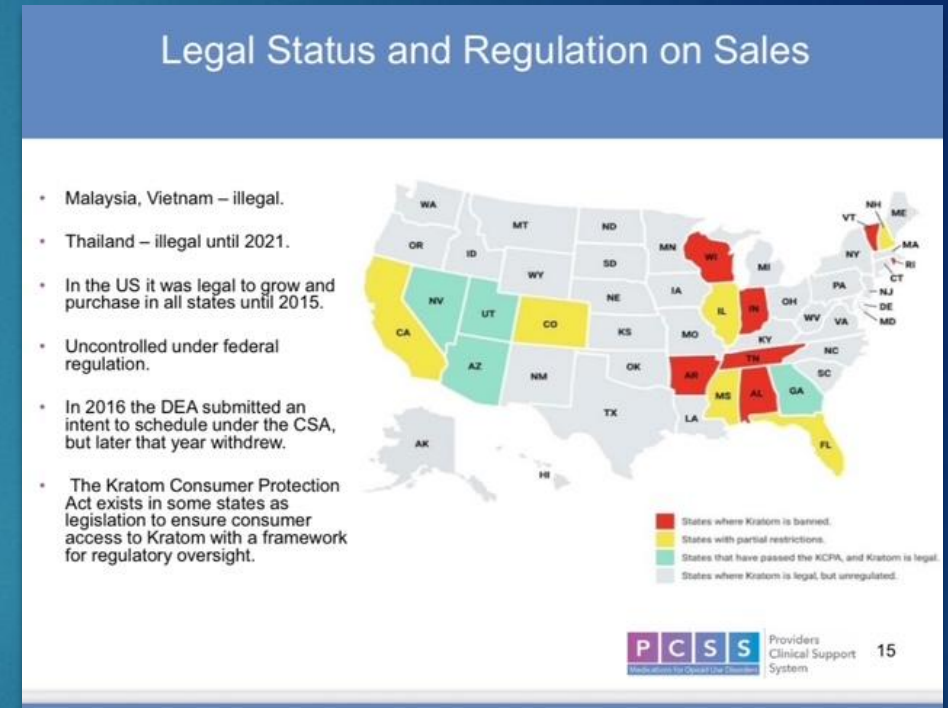
# Risk Perception vs. Reality

- ▶ Overdose is possible and rates appear to be increasing
- ▶ Overdose is different, symptomatically, than an opioid overdose, as a depression in respiration is rare. It is more like a stimulant overdose.
  - ▶ Increased heart rate
  - ▶ Increase in blood pressure
  - ▶ Nausea/ Vomiting
  - ▶ Agitation/ Restlessness
  - ▶ Confusion
  - ▶ Hallucinations/ Delusions
  - ▶ Tremors/ Seizures
- ▶ Overdose death is possible, but research indicates that other drugs were involved in 87% of overdoses

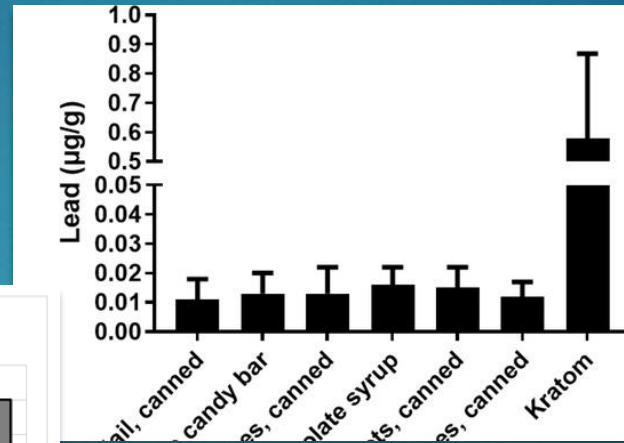
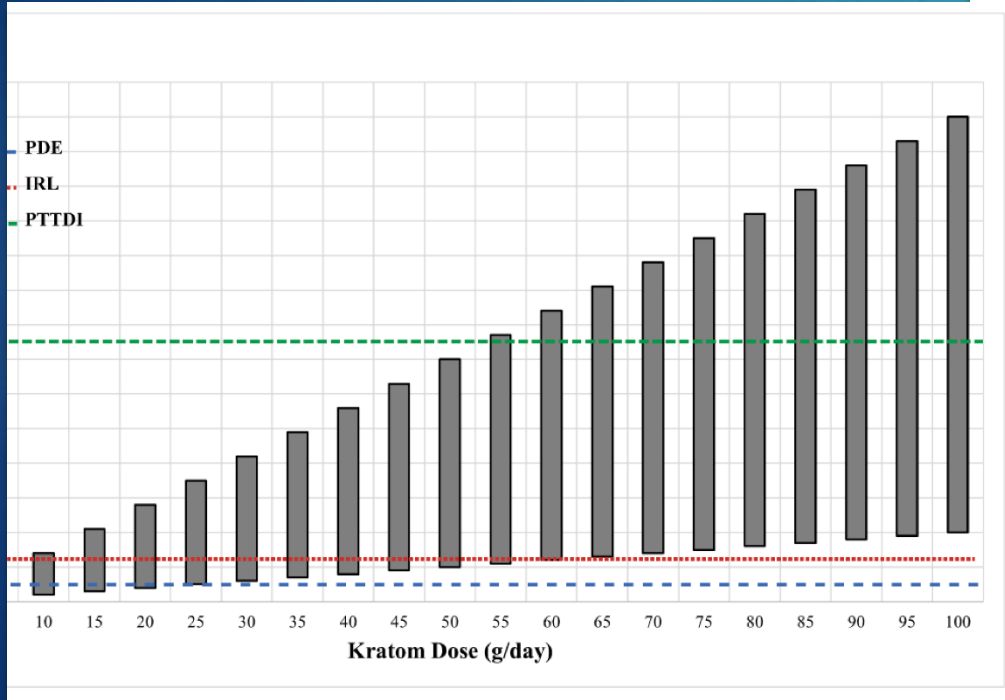


# FDA Approval? Short answer, no.

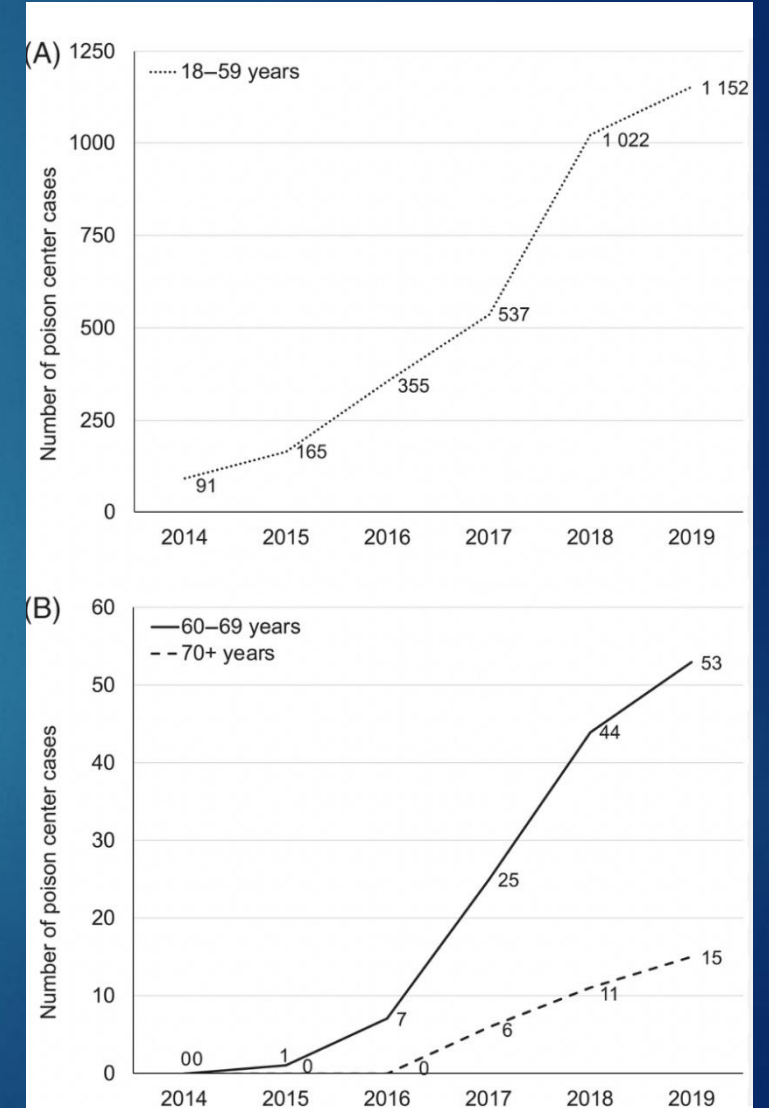
- ▶ 2008 – several states independently banned Kratom, placing it on the list of Schedule I substances in their state
- ▶ 2016 – DEA stated intent to temporarily place Kratom into the Schedule I of the Controlled Substances Act
- ▶ In response to public pushback, the DEA withdrew this intention 2 months later
- ▶ 2018 – FDA again called for Kratom to be scheduled
- ▶ NIDA is currently researching many aspects of Kratom, including it's affect in the brain, potential health implications, and potential therapeutic uses of Kratom
- ▶ However, research is still extremely limited, which is likely why the FDA has not approved any medical conditions



# Implications of lack of regulations



- ▶ Presence of toxic metals
- ▶ Salmonella



# Clinical Implications

- ▶ Clinician blind spot
- ▶ Drug screens
- ▶ Detox!
- ▶ Insurance
- ▶ Denial





Kava

# Kava – what is it?

- ▶ Kava root is an herb derived from the *Piper methysticum*
- ▶ Native to the South Pacific, it has been used ceremoniously by Pacific islanders for centuries
- ▶ Kavalactones appear to mostly interact with GABA receptors, which promote calmness and relaxation
- ▶ There are over 200 varieties of Kava, many of which have different effects in the brain and body



# Kava – how do you use it?




### PURE KAVA NIGHT TIME MIX

Items: BLK260, PUR300, INS400


- Tonga Kava Traditional Medium Grind
- Relieve stress
- 4,557% Kavalactones
- Noble Kava (no hangover)
- Made in the Kingdom of Tonga

**REALAX AND DE-STRESS!**



### Yogi Kava Stress Relief

EASES TENSION AND PROMOTES RELAXATION\*



CAFFEINE FREE HERBAL SUPPLEMENT

16 TEA BAGS NET WT 1.27 OZ / 36g

NON GMO Project VERIFIED  
MADE WITH ORGANIC CAROB POD

# KAVA

AVAILABLE HERE

**POTENTIAL BENEFITS:**

- REDUCE ANXIETY
- SUPPORT IMMUNE SYSTEM
- PAIN RELIEF
- CURB CRAVINGS
- IMPROVE SLEEP



## Kava Tea: Your Ultimate Go-To for a Successful Dry January



**THE BEST KAVA TO QUIT ALCOHOL**

VANUATU NATURAL

PURE VANUATU BLEND

TKC

Australian Kava

Up to **84** Servings per 2 oz bottle

### The Benefits of Kava

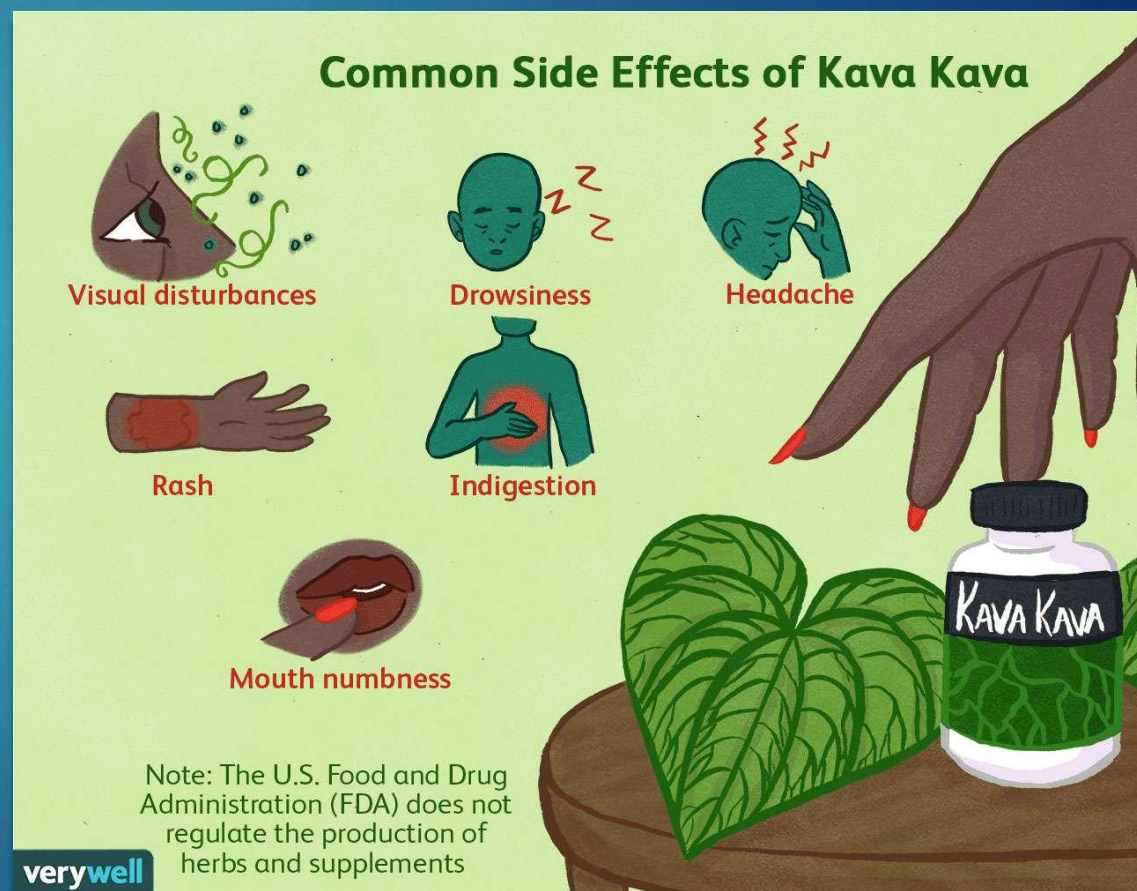
- Promotes peaceful relaxation.\*
- Vegan
- Gluten-Free
- Ethically sourced Kava root and rhizome.

**Kava Liquid Extract**

Supplement Facts	
Serving Size: 0.7 ml	Servings: about 84
Amount Per Serving	% DV
Kava rhizome with root (Piper methysticum) extract 580 mg	1
† Daily Value (DV) not established	
Other Ingredients: certified organic cane alcohol (83-93%), Gluten-Free	
Purity Verified	
Extraction rate: 700 mg herb per 0.7 ml	
Dry herb / menstruum ratio: 1: 1	
Our Kava is prepared from the rhizome with root of 4-6 year old noble varieties of Piper methysticum plants grown and harvested in the islands of the South Pacific.	
HERB PHARM • WILLIAMS, OR 97544 800-348-4372 • www.herb-pharm.com	
*THIS STATEMENT HAS NOT BEEN EVALUATED BY THE FDA. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE OR PREVENT ANY DISEASE.	

# Risk vs. Reality

- ▶ Liver Disease
- ▶ Fatigue
- ▶ Mild cognitive impairment
- ▶ Dry, scaly skin
- ▶ Decreased appetite
- ▶ Addiction



# FDA Approval? Short answer, no.

- ▶ 2002 – FDA issued an advisory regarding the potential for liver disease related to consumption of kava supplements
- ▶ 2002 – CDC published a report on Kava's toxicity
- ▶ 2016 – NIH published a report on the possible health consequences of kava, including the risks of combining alcohol with kava
- ▶ 2020 – FDA issues a memorandum concluding that Kava is not safe for human consumption

# KAVA KRATOM CANNABIS

	ORIGIN/NATIVE	SCIENTIFIC NAME	FAMILY	TYPE
Kava	Pacific Islands	Piper methysticum	Piperaceae/ Pepper Family	Depressant
Kratom	Southeast Asia	Mitragyna speciosa	Rubiaceae / Coffee Family	Stimulant
Cannabis	Central Asia	Cannabis sativa	Cannabaceae / Hemp Family	Depressant, Stimulant, Hallucinogen



**KAVA**



**KRATOM**



**CANNABIS**

## U S A G E

Though other forms of it exist, it should be consumed as a drink.

Pill, capsule, or extract. Can be consumed as a drink and leaves are sometimes smoked or eaten.

Can be smoked, eaten or vaporized.

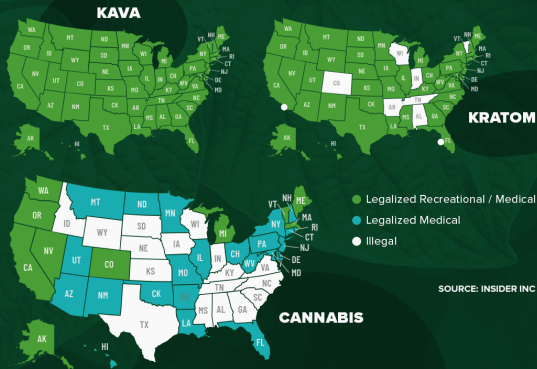
## H E A L T H B E N E F I T S

Ease anxiety and relieve stress  
Relax muscle and nervous tension  
Combat insomnia and improve sleep problems  
Boost the immune system  
Reduces inflammation  
Diuretic  
Ease arthritis pain  
Lessen mouth pain

Boost energy  
Support joint and muscle comfort  
Manage chronic pain  
Reduce stress, anxiety and depression  
Promotes heart health  
Anti-inflammatory  
Combats diarrhea  
Fights fatigue

Treatment for chronic pain  
Treat and prevent glaucoma  
Control epileptic seizures  
Prevent Alzheimer's  
Slow and stop cancer cells from spreading  
Relieve arthritis  
Decrease anxiety  
Cure inflammatory bowel diseases

## LEGALIZATION IN UNITED STATES



Source: Rolling Stone - Kava: Inside the All-Natural High That's Sweeping America | NH - What is Kratom | Alcohol and Drug Foundation - What is Cannabis  
 Renegade Pharmacol - Benefits of Kratom | Root of Happiness - 9 Kava Health Benefits That May Surprise You | The Kansas City Star - What you need to know about kratom as the  
 Herb crack down on the herbal supplement | Business Insider - This drug shows every US state where pot is legal | Business Insider - 23 health benefits of marijuana

# Resource

- ▶ <https://www.cdc.gov/marijuana/health-effects/addiction.html>
- ▶ <https://www.hazeldenbettyford.org/addiction/marijuana-symptoms>
- ▶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6223748/>
- ▶ <https://monitoringthefuture.org/>
- ▶ <https://news.umich.edu/marijuana-and-hallucinogen-use-binge-drinking-reach-historic-highs-among-adults-35-50/>
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- ▶ Kelly Little MSW, LCAS, CCS
  - ▶ [Kelly@dilworthcenter.org](mailto:Kelly@dilworthcenter.org)