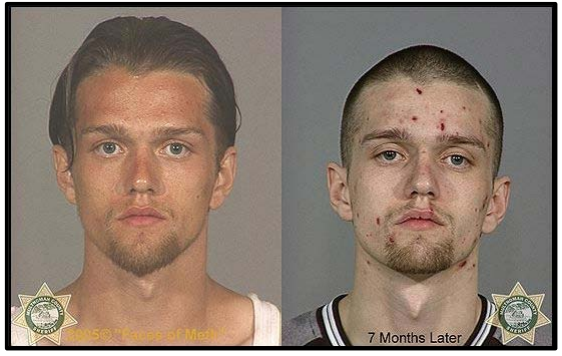
Altered States

Drugs and States of Consciousness

Drugs are Bad, Mmmkay



Psychoactive Drugs

Drugs:

A chemical substance that can alter perception & mood.

They impact consciousness

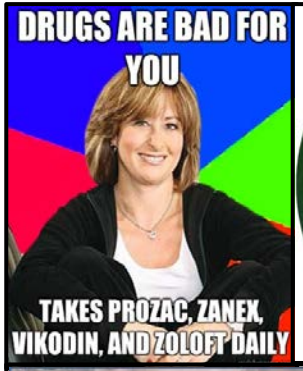
They break the blood-brain barrier.

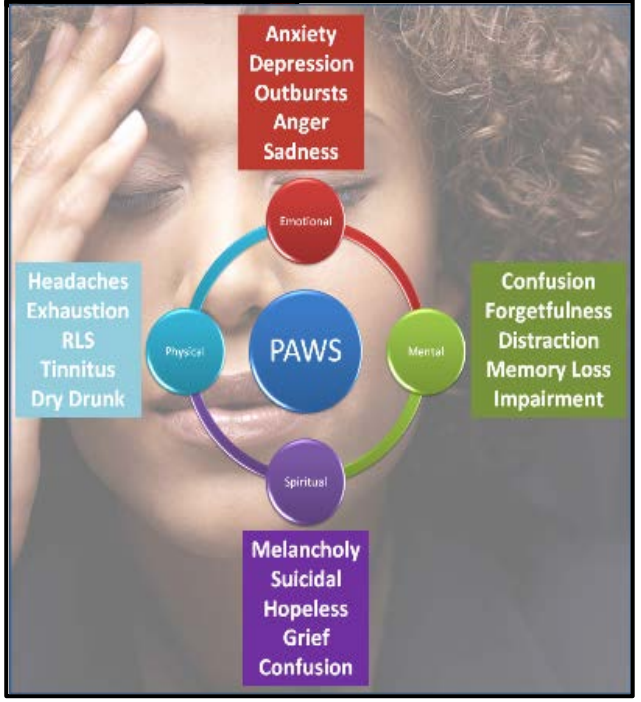
Dependence & Addiction:

Continued use of a psychoactive drug produces tolerance.

With repeated exposure to a drug, the drug's effect lessens.

Thus it takes bigger doses to get the desired effect.





Psychoactive Drugs

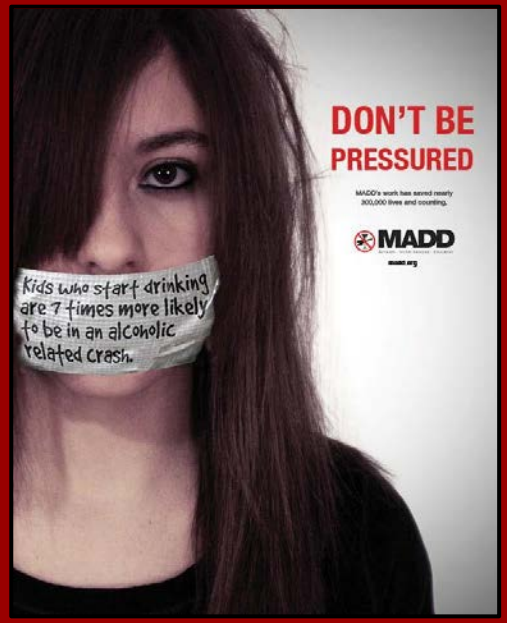
Withdrawal: Upon stop taking a drug (*after addiction*) users may experience undesirable effects of withdrawal.

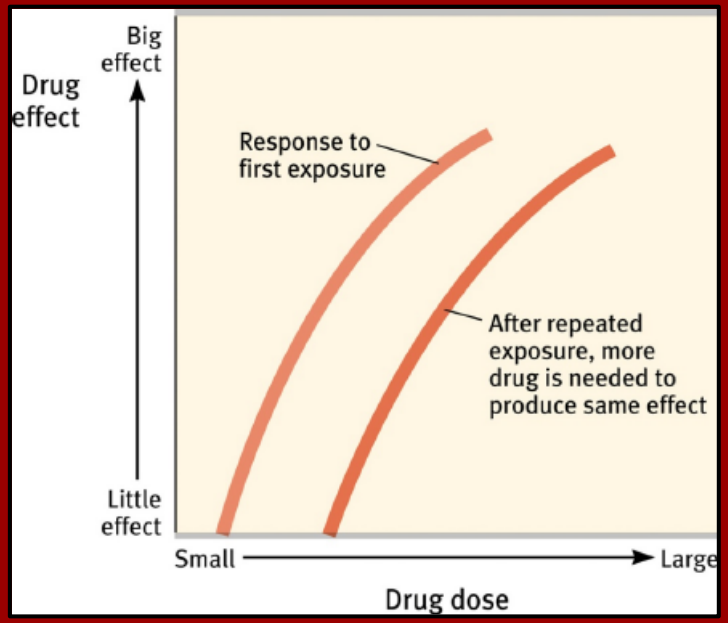
Dependence: Absence of drug may lead to feelings of physical pain, intense cravings (*physical dependence*) & negative emotions (*psychological dependence*).

Addiction: Craving for a chemical substance despite its adverse consequences

- ★ Corrupting: Drugs quickly corrupt
- ★ Support: Cannot be overcome voluntarily
- ★ Misconceptions: Not different than repetitive pleasure seeking behavior, gambling, food, &internet

™ Just
say no


DON'T BE
PRESSURED
MADD's work has saved nearly 300,000 lives and counting.
MADD
Kids who start drinking are 7 times more likely to be in an alcoholic related crash.


Drug effect
Big effect
Little effect
Response to first exposure
After repeated exposure, more drug is needed to produce same effect
Small
Large
Drug dose

PROJECT RED RIBBON
SAVING LIVES FOR 25 YEARS
Support Project Red Ribbon
madd
Saving Lives, Supporting Victims

Depressants: Drugs that reduce neural activity & slow body functions

1. Alcohol
2. Barbiturates
3. Opiates

1. Alcohol

In low doses - relaxes drinker by slowing down the sympathetic nervous system (lowering inhibitions & judgements)

In high doses - reactions slow, speech slurs, & skilled performance deteriorates

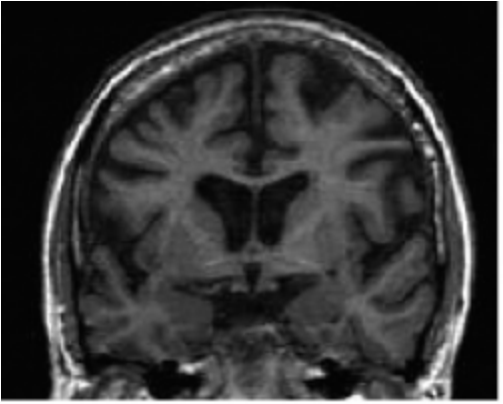
Also affects memory by disrupting the processing of recent events into long-term memory, reduces self-awareness, & focuses one's attention on immediate situation rather than future consequences.

How does the body react to alcohol?

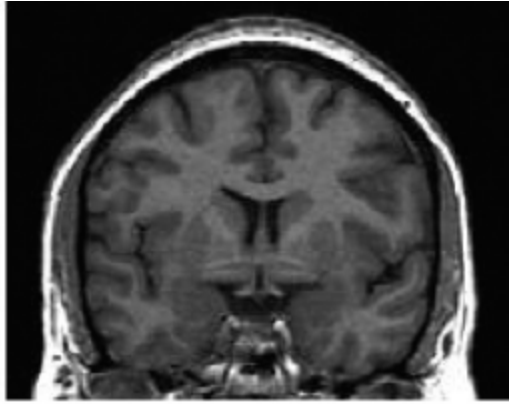
Generally it takes about 1hr to metabolize the alcohol in 1 drink

Women metabolize alcohol more slowly than men

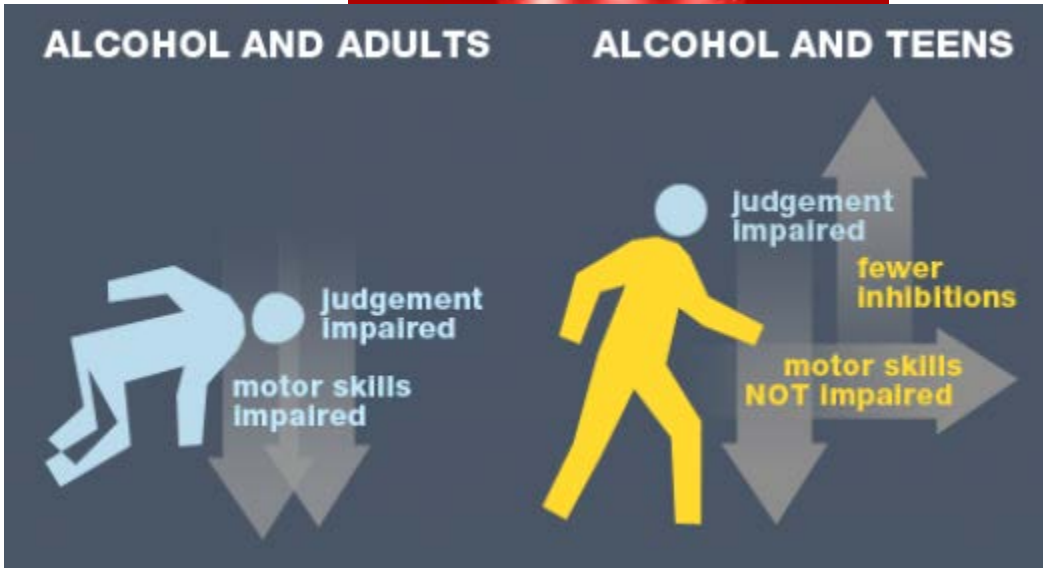
If a woman & man of the same weight consume the same amount of alcohol, the woman would be more intoxicated than man due to the way their bodies are composed. Men have more muscle which speeds up the metabolizing of the alcohol.



Scan of woman
with alcoholism



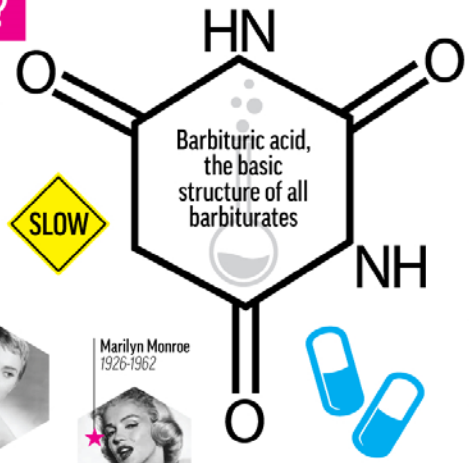
Scan of woman
without alcoholism



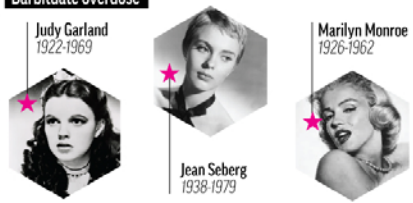
THE DANGERS OF ABUSING BARBITURATES

What are they?

Barbiturates are depressants which slow the body down and induce feelings of relaxation



Celebrities who've died from Barbituate overdose



What are they used to treat?

- Anxiety disorders
- *Insomnia*
- Epilepsy
- *For general anaesthesia.*
- In combination with a muscle relaxant for euthanasia
- *For capital punishment by lethal injection*
- To alleviate the withdrawal effects of illicit drug misuse
- *To anesthetise animals before surgery*

Why are they abused?

Barbituates produce feelings of intoxication, contentment, relaxation, euphoria, and loss of inhibitions

9% of Americans will abuse barbiturates at some point in their lives

20% of US children grow up with a barbiturate (and/or other drugs) abuser in their household

What are the risks?

How long do they take to have an effect?

Short-acting and intermediate-acting barbiturates begin acting fifteen to forty minutes after they are swallowed, and their effects last from five to six hours

What are the side effects?

Loss of balance, breathing difficulties, addiction, respiratory depression, lowered blood pressure, fatigue, fever, unusual excitement, irritability, dizziness, poor concentration, sedation, confusion, impaired coordination, impaired judgment, addiction, bleeding sores on the lips, chest pain or tightness in the chest, fever, muscle or joint pain, skin problems, such as rash, hives, or red, thickened, or scaly skin, sore throat, sores or painful white spots in the mouth, swollen eyelids, face, or lips and wheezing, and respiratory arrest, which may lead to death.

R.I.P

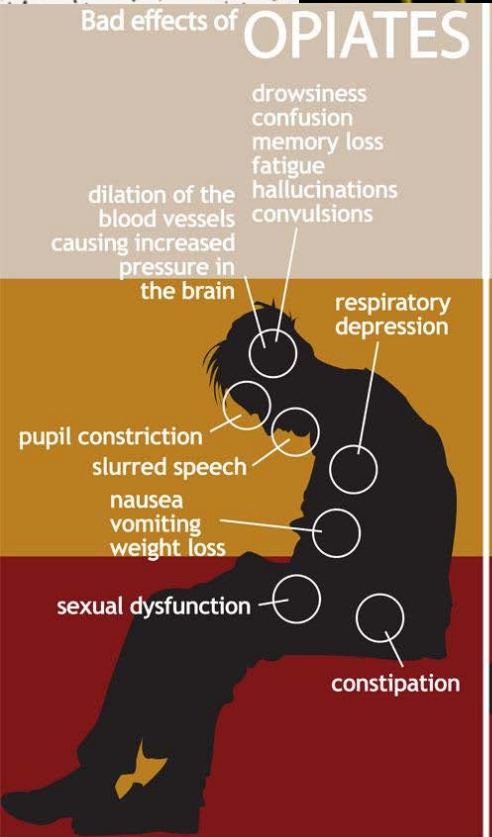
WARNING: WITHDRAWAL MAY CAUSE SEIZURES

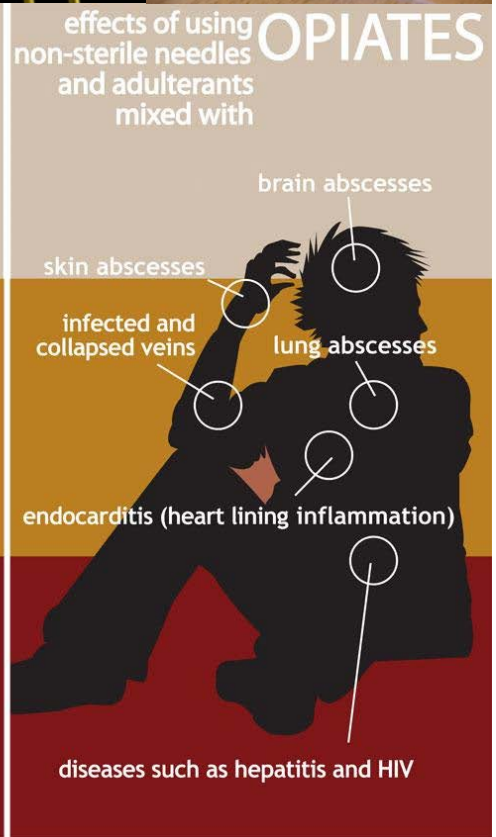
Depressants: Drugs that reduce neural activity & slow body functions

1. Alcohol
2. Barbiturates
3. Opiates

2. **Barbiturates**: drugs that mimic the effects of alcohol - depress CNS activity & in larger doses, can lead to impaired memory & judgement

Examples: Nembutal, Seconal, & Amytal





Depressants: Drugs that reduce neural activity & slow body functions

1. Alcohol
2. Barbiturates
3. Opiates

3. **Opiates**: Opium & its derivatives (morphine & heroin) depress neural activity, temporarily lessening pain & anxiety. They are **highly addictive**.

HEROIN

User gets a short lived feeling of blissful pleasure (3-5 hrs), followed by craving for another fix, the need for progressively larger doses, & physical withdrawal symptoms.

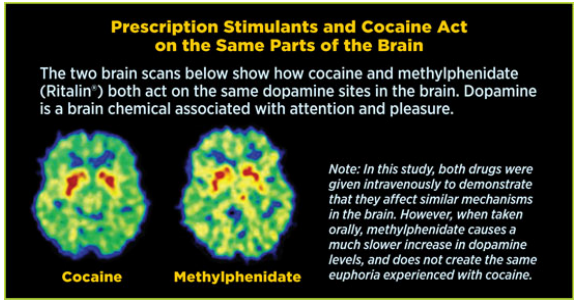
Methadone – treatment used when trying to combat a heroin addiction.

At the higher dosages given, the individual does not get 'high' yet it is enough to reduce the intense physical cravings.

However, people can become addicted to Methadone.

Stimulants: Drugs that excite neural activity & speed-up body functions

1. Caffeine
2. Nicotine
3. Cocaine
4. Ecstasy
5. Amphetamines
6. Methamphetamines



1. Caffeine & Nicotine: Caffeine & nicotine increase heart and breathing rates, & other autonomic functions to provide energy.

Caffeine: Found in coffee, tea, soda, chocolate & many over-the-counter meds

- ★ Most people use caffeine daily. Considered to be the most widely-used psychoactive drug in the world.
- ★ Increases attentiveness & improves mood by mimicking adenosine (a neurotransmitter)
- ★ Is physically addictive: individuals can experience withdrawal symptoms (usually from a few days up to a week will have headaches, irritability, drowsy-tiredness)
- ★ At high doses - can produce anxiety, restlessness, insomnia & increased heart rate.

Recommended amount per day is 250 milligrams

Coffee (8 oz)	85 - 250 mgs
Tea (8 oz)	16 - 60 mgs
Soft Drink (12 oz)	35-70 mgs

The ups and downs of caffeine

Getting that extra boost of energy has advantages, but there is a downside, too.

BY WILLIAM HARVEY | *King High*

Coffee is not your grandma's Maxwell House anymore; caffeine is definitely on the teenage menu. Need a boost in the morning? Reach for the strong black coffee. Can't stay awake in class? Drink a double mocha Frappuccino. Gotta cram for that exam? Load up on energy drinks and hit the books.

"Caffeine can help improve memory and wake you up," says Tampa pediatrician Robyn Jacobson.

But the solution is not as miraculous as some think. "It's not even great for adults to use, and definitely not for teenage kids. It's not a really good idea to mess with Mother Nature," says Jacksonville cardiologist Doug Tew.

Most see the short-term effect: a quick energy boost just when they need it. But caffeine is a long-term menace. Side effects can include irritability, insomnia, nervousness, and increased heart rate and blood pressure. "Caffeine can make the heart a little more irritable ... it can bring out irregular heartbeats," Tew says. "When people have a lot of palpitations, the first thing we tell them is to stop drinking coffee."

A jolt to start the morning could kick-start a caffeine addiction. Even a small amount each day will lead to cravings. "It's a slippery slope to get started on it," says Tew. Missing even a day can result in miserable withdrawal headaches, and trying to quit altogether could lead to weeklong migraines and sluggish behavior. "You become a slave to it," Jacobson says.

The general rule is to avoid caffeinated items, and not drink coffee every day, Jacobson says. "But if you're going to, stop caffeine consumption after 2:30 p.m. so it doesn't affect your circadian rhythm, or sleep cycle."

Energy drinks are more worrisome, says Tew. "5-Hour Energy, Monster, Red Bull, they have a combination of things other than caffeine, almost making a 'toxic cocktail,' " he warns.

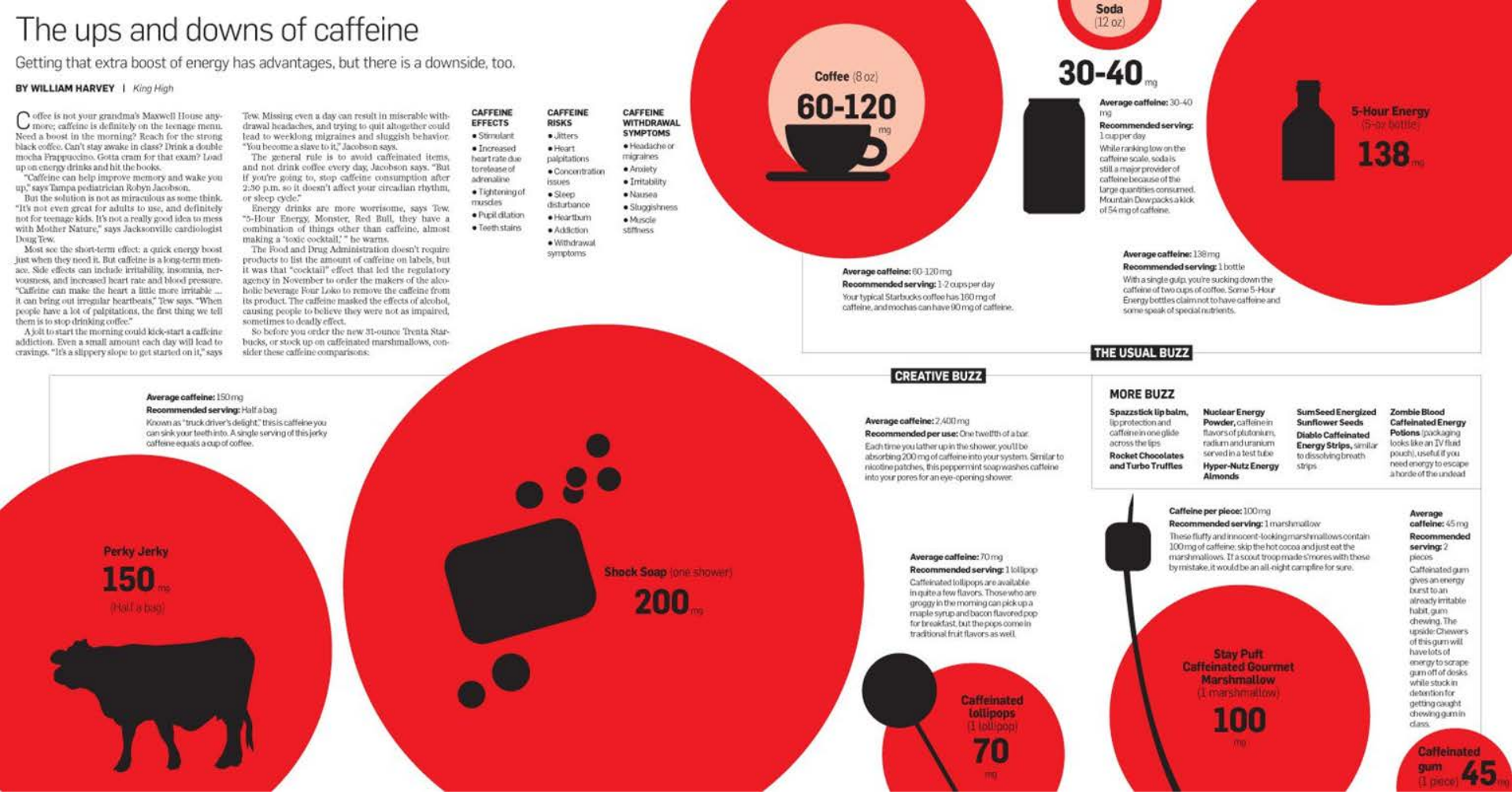
The Food and Drug Administration doesn't require products to list the amount of caffeine on labels, but it was that "cocktail" effect that led the regulatory agency in November to order the makers of the alcoholic beverage Four Loko to remove the caffeine from its product. The caffeine masked the effects of alcohol, causing people to believe they were not as impaired, sometimes to deadly effect.

So before you order the new 31-ounce Trenta Starbucks, or stock up on caffeinated marshmallows, consider these caffeine comparisons.

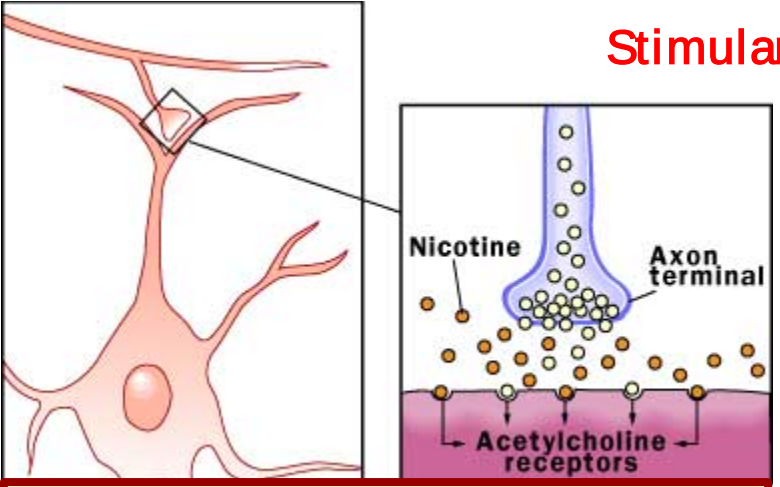
CAFFEINE EFFECTS
- Stimulant
- Increased heart rate due to release of adrenaline
- Tightening of muscles
- Pupil dilation
- Teeth stains

CAFFEINE RISKS
- Jitters
- Heart palpitations
- Concentration issues
- Sleep disturbance
- Heartburn
- Addiction
- Withdrawal symptoms

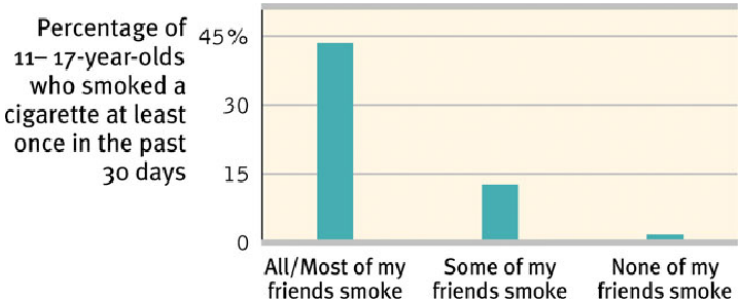
CAFFEINE WITHDRAWAL SYMPTOMS
- Headache or migraines
- Anxiety
- Irritability
- Nausea
- Sluggishness
- Muscle stiffness



Stimulants: Drugs that excite neural activity & speed-up body functions



A **synapse** is the site where two neurons communicate. The presynaptic neuron releases a **neurotransmitter**, which binds to receptors on the postsynaptic cell. This allows signals to be transmitted from neuron to neuron in the brain.



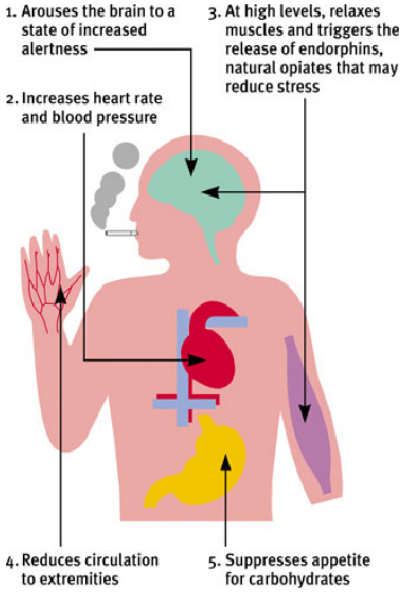
2. Caffeine & Nicotine: Caffeine & nicotine increase heart and breathing rates, & other autonomic functions to provide energy.

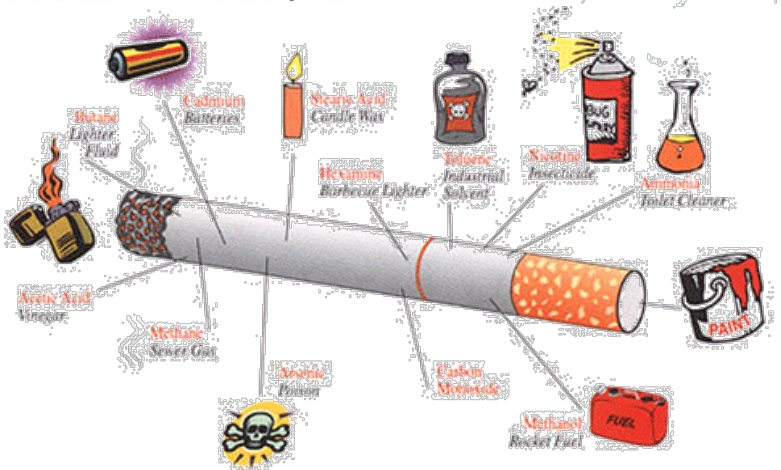
- ★ Nicotine leads to a burst of receptor activity.
- ★ leads to increased release of acetylcholine from the neurons, calling your body and brain to action,
- ★ This is the wake-up call that many smokers use to re-energize themselves throughout the day.
- ★ Nicotine improves your reaction time and your ability to pay attention, making you feel like you can work better.

Nicotine also increases the level of other neurotransmitters & chemicals that modulate how your brain works. For example, endorphins are produced.

Endorphins can lead to feelings of euphoria also. If you're familiar with the runner's high that kicks in during a rigorous race, you've experienced the ***"endorphin rush."***

This outpouring of chemicals gives you a mental edge to finish the race while temporarily masking the nagging pains you might otherwise feel.



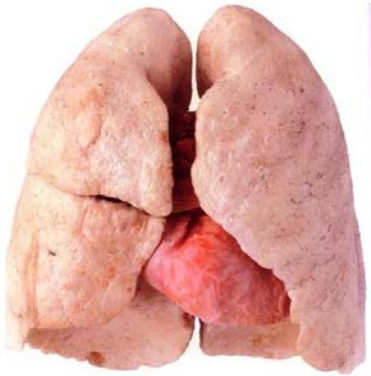


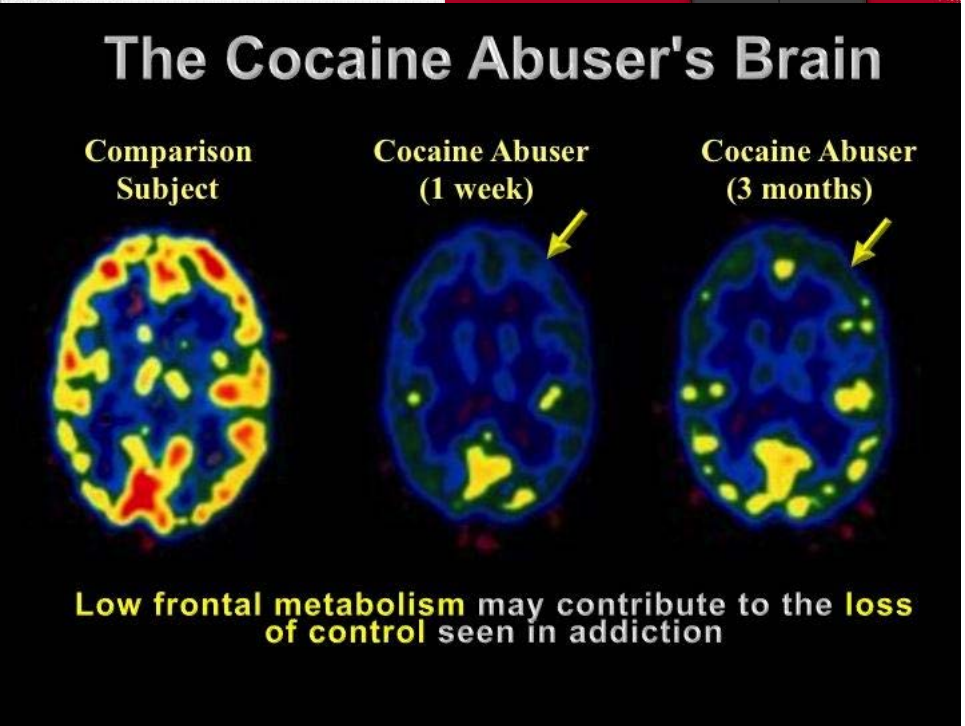
Stimulants: Drugs that excite neural activity & speed-up body functions

2. Nicotine: Why do people smoke?
   1. Socially rewarding
   2. A result of genetic factors
   3. Nicotine takes away unpleasant cravings (negative reinforcement) by triggering epinephrine, norepinephrine, dopamine, & endorphins.
   4. Nicotine itself is rewarding (positive reinforcement).

Nicotine kills nearly 5 million people worldwide each year (out of 1.3 billion smokers)

Smoking delivers its hit of nicotine within 7 seconds.





Stimulants: Drugs that excite neural activity & speed-up body functions

3. Cocaine: Illegal stimulant derived from coca tree. Derivatives (novocaine) are used today as anesthetics.

Originally part of Coca-Cola's formula in 1888, was replaced in 1903 by caffeine. Yet coca leaves, with cocaine extracted for medical purposes, are still used today as flavoring in some cola drinks.

When inhaled/ 'snorted' - reaches the brain in minutes.

- ★ Produces intense euphoria
- ★ Mental alertness
- ★ Self-confidence
- ★ Typically lasts for several minutes (but 10-30 min. if someone is a binge user)

Cocaine blocks the reuptake of dopamine. The brain is flooded with dopamine-produced pleasure sensations.

Agony of ecstasy at killer NYC rave

By Kirstan Conley, Larry Celona and Bob Fredericks

September 2, 2013 | 12:31am

Revelers dance during Electric Zoo 2013 at Randall's Island

Photo: Daniel Zuchnik/Getty Images

MORE ON:

ELECTRIC ZOO

Electric Zoo goers still waiting for refunds

Electric Zoo founder once GM'd infamous Chelsea hotspot known for ODs

A Syracuse grad and a Rhode Island co-ed died after popping ecstasy pills at the wild Electric Zoo music fest — prompting officials to shut down the megaparty, which drew 100,000 ravers to Randall's Island over the weekend.

"I just took six hits of Molly," tragic 20-year-old Olivia Rotondo told an EMS worker on Saturday, referring to the drug's street name — before suddenly collapsing in a seizure and dying.

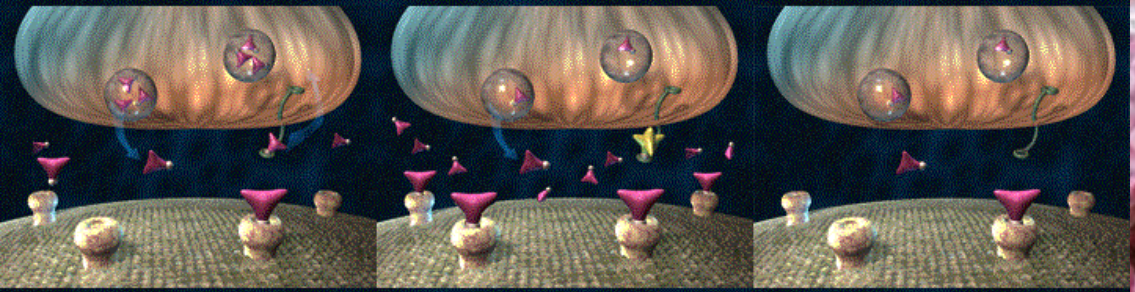
Stimulants: Drugs that excite neural activity & speed-up body functions

4. Ecstasy (MDMA) - a stimulant & mild hallucinogen

Increases empathy, peacefulness & the person 'feels' calm or relaxed, yet they also seem to have an unending supply of energy.

- ★ Popular 'club drug'
- ★ Immediate dehydrating effects, combined with the prolonged physical activity (like dancing) causes the person to risk severe overheating, increased blood pressure & death
- ★ Decline in memory & performance on IQ tests
- ★ They believe MDMA causes long-term serotonin changes in the brain, leading to reduced serotonin levels & increased risk of depressed mood.

Short Term Effects after Ecstasy is Gone



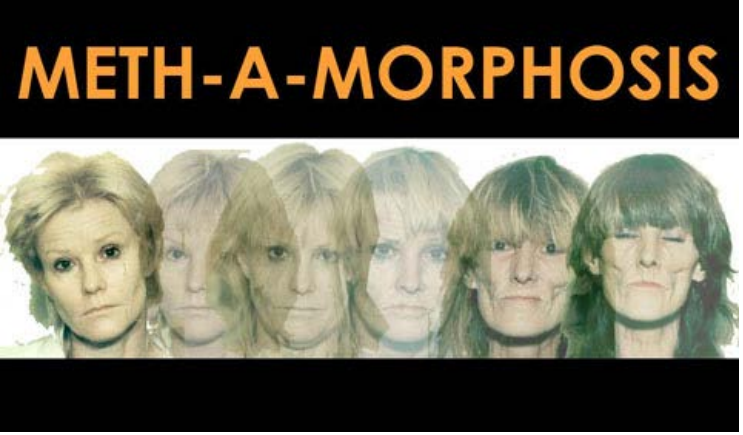
Normal

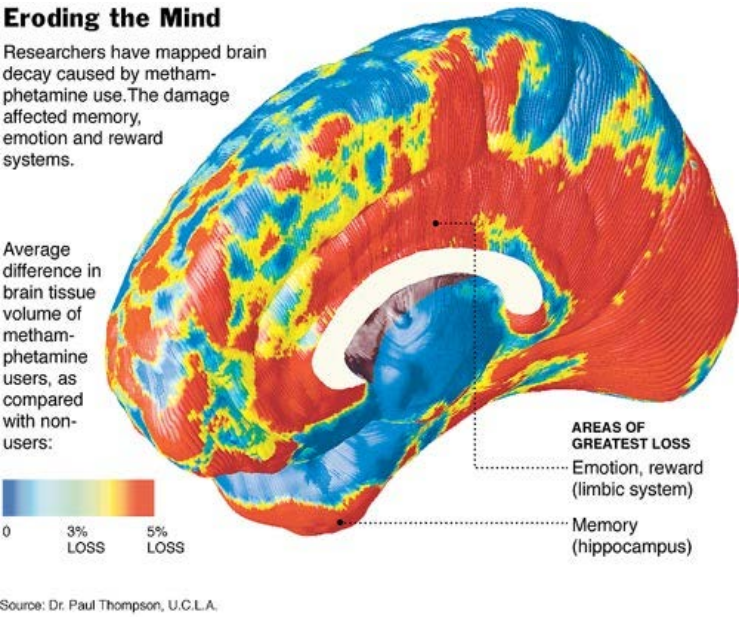
During Ecstasy
elevated mood

After Ecstasy
depression-like
feelings, irritablilty

Ecstasy found to cause permanent memory problems

In the study, new ecstasy users who took 10 or more ecstasy pills during their first year showed permanent damage to their immediate and short-term memory. The memory issues are associated with damage to an area of the brain called the hippocampus, which is responsible for memory.





Stimulants: Drugs that excite neural activity & speed-up body functions

5. Amphetamines: 'speed' or 'uppers' - Suppress appetite & were once prescribed as diet pills. Not prescribed any longer because of tolerance to its appetite suppressant effects occurs quickly, meaning the individual has to have more & more of the drug to main effects.

    Also increase concentration & reduce fatigue. Can increase anxiety & irritability.

6. Methamphetamines ('crystal meth') Illegal drug manufactured in street labs that is either smoked or injected.

As with all amphetamines, after using for awhile one 'crashes' & exhibits withdrawal symptoms of fatigue, deep sleep, intense mental depression & increased appetite.

Incredibly addictive! Over time it appears to reduce the baseline dopamine levels leaving the users with permanently depressed functioning.

Hallucinogens: psychedelic (mind-manifesting) drugs that distort perceptions & evoke sensory images in the absence of sensory input.

LSD (Lysergic Acid Diethylamide) "ACID" - one of the most powerful drugs known - only takes 1-millionth of an ounce to produce mind altering effects.

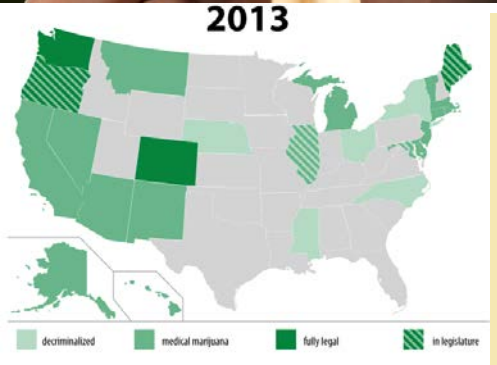
1st synthesized from rye fungus by Swiss chemist in late 1930s
(Hofmann accidentally ingested a small amount of the substance)

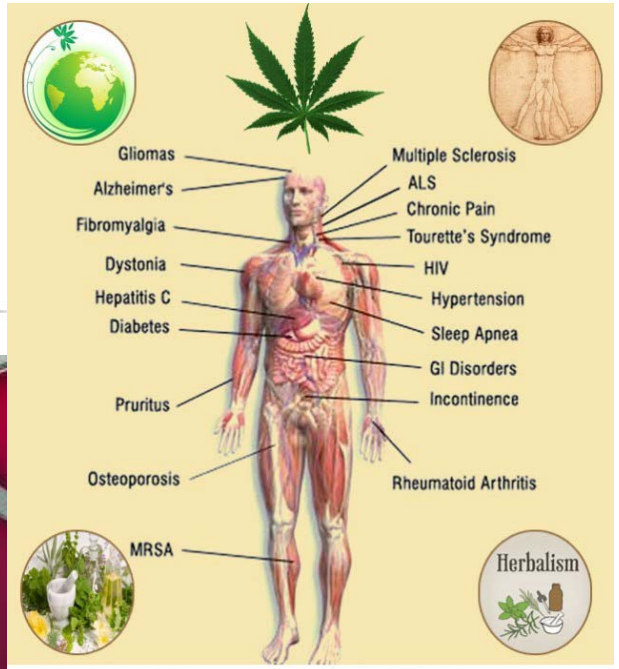
- ★ Trip lasts 6-14 hours - effects vary greatly
- ★ Visual distortions & hallucinations
- ★ Emotions are very intense & unstable & impaired thought

Bad Trips: terrifying & users are in a state of panic. Feel as if they have gone mad & will never return to normal. Some have ended tragically in accidents, death, or suicide.

Flashbacks - The substance is forever stored inside the synapses of your spine. It is very possible to have sudden and w/ o warning recurring 'trips.'

Marijuana & LSD
Not physically addictive
But, **HIGHLY** psychologically addictive





Potential Therapeutic Uses of Medical Marijuana

Hallucinogens: psychedelic (mind-manifesting) drugs that distort perceptions & evoke sensory images in the absence of sensory input.

Marijuana: Produces feeling of elation, promotes relaxation, relieves inhibitions, relieves anxiety, & increases sensitivity to sights, sounds, & touch.

Can cause a sense of time distortion.

THC (tetrahydrocannabinol) - ingredient that produces the 'high' & remains in body long after use.

10% remains in system after 7 weeks

Effects:

- ★ Impairs attention/ coordination
- ★ Slows reaction time
- ★ Interferes with concentration
- ★ logical thinking slows
- ★ Difficulty forming new memories
- ★ & Ability to hold in mind what was said

Chronic use associated with loss of motivation & general apathy. Causes respiratory damage faster than smoking cigarettes & heavy use/ abuse affects the reproductive system,

Marijuana Felony Map - Minimum Amounts Required to Earn a Mandatory Felony Charge

NORML

Marijuana Decriminalization (possession <1oz = no crime)

20g 100g 200g 300g 400g ½kg 600g 700g 800g 900g 1kg

Felony Possession Minimum (*2nd Offense State)

1oz ¼lb ½lb ¾lb 1lb 1¼lb 1½lb 1¾lb 2lb

States remaining in gray shading are those where there are no automatic felony qualifying amounts. However, one may still be charged with a felony if intent to sell can be proven. See http://norml.org/index.cfm?Group_ID=4516 for details.

NORML
www.norml.org
Working To Legalize Marijuana Since 1970

MARIHUANA
THE ASSASSIN OF YOUTH
THE PLANT
Physiological Reaction
The effects of marihuana are most unpredictable.
THE LEAF
Compound, composed of five, seven, nine or eleven—always an odd number—of lobes or leaflets, the two outer ones very small compared with the others. Each lobe from two to six inches long, pointed about equally at both ends, with saw-like edges; and ridges, very pronounced on the lower side, running from the center diagonally to the edges. Of deep green color on the upper side and of a lighter green on the lower. It is the leaves and flowering tops that contain the dangerous drug. These are dried and used in cigarettes and may also produce their violent effects by being soaked in drinks.
THE SITUATION IN THE UNITED STATES
Attains a height, when mature in August, of from three to sixteen feet, the stalk a thickness of from one-half inch to two inches. Stalk has four ridges running lengthwise, and usually a well marked node by each branch, these appearing at intervals of from four to twenty inches. A leaf appears immediately under each branch. Green plant has a peculiar narcotic odor, is sticky to the touch, and covered with fine hair barely visible to the naked eye. Often hidden in fields of corn or sunflowers.
STAMP IT OUT
REMEDIAL MEASURES
1. Constructive legislation and efficient law enforcement.
2. Education.
THE FLOWERS
When mature, are irregular clusters of seeds light yellow-greenish in color.
IT IS A CRIME for any person to plant, cultivate, possess, sell or give away Marihuana.
It is frequently used by criminals to bolster up their courage. Most dangerous of all is the person under the influence of marihuana at the wheel of an automobile. Their illusions as to time and space destroy their judgment as to speed and distance. When eighty miles an hour seem only twenty, they often leave a trail of fatal accidents in their wake. A user of marihuana is a degenerate.
THE ANTI-NARCOTIC LEAGUE OF AMERICA
Suite 5, 1545 North La Brea Avenue Los Angeles 28, California—HOllywood 3-3719
HENRY S. HALL, Founder
THE NARCOTIC EDUCATIONAL FOUNDATION OF AMERICA

1945 - Narcotic Education Foundation of America

A GUIDE TO SELECTED PSYCHOACTIVE DRUGS

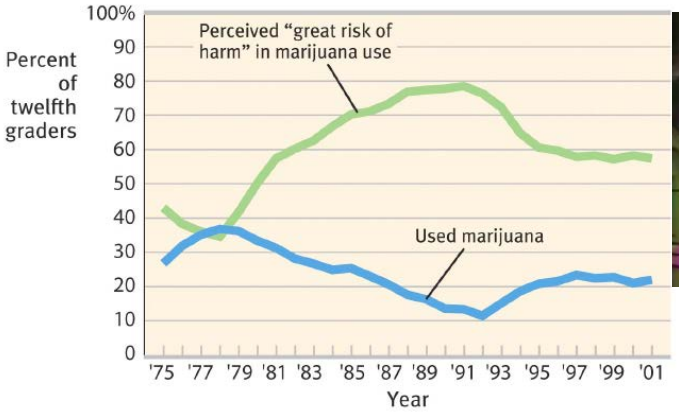
Drug	Type	Pleasurable Effects	Adverse Effects
Alcohol	Depressant	Initial high followed by relaxation and disinhibition	Depression, memory loss, organ damage, impaired reactions
Heroin	Depressant	Rush of euphoria, relief from pain	Depressed physiology, agonizing withdrawal
Caffeine	Stimulant	Increased alertness and wakefulness	Anxiety, restlessness, and insomnia in high doses; uncomfortable withdrawal
Methamphet-amine ("speed," "ice")	Stimulant	Euphoria, alertness, energy	Irritability, insomnia, hypertension, seizures
Cocaine	Stimulant	Rush of euphoria, confidence, energy	Cardiovascular stress, suspiciousness, depressive crash
Nicotine	Stimulant	Arousal and relaxation, sense of well-being	Heart disease, cancer (from tars)
Ecstasy (MDMA)	Stimulant; mild hallucinogen	Emotional elevation, disinhibition	Dehydration, overheating, and depressed mood, cognitive, and immune functioning
Marijuana	Mild hallucinogen	Enhanced sensation, relief of pain, distortion of time, relaxation	Impaired learning and memory, increased risk of psychological disorders, lung damage from smoke

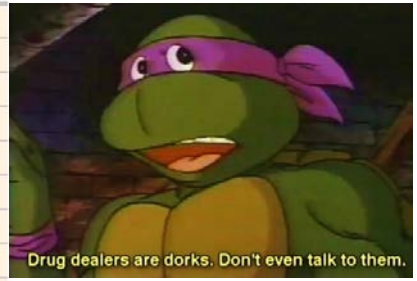
Biological influences
- genetic tendencies
- dopamine reward circuit

Psychological influences
- lacking sense of purpose
- signifigant stress
- psycological disorders, such as depression

Drug use

Social-cultural influences
- urban environment
- belonging to a drug-using cultural group
- peer influences





Influences on Drug Use:

Biological

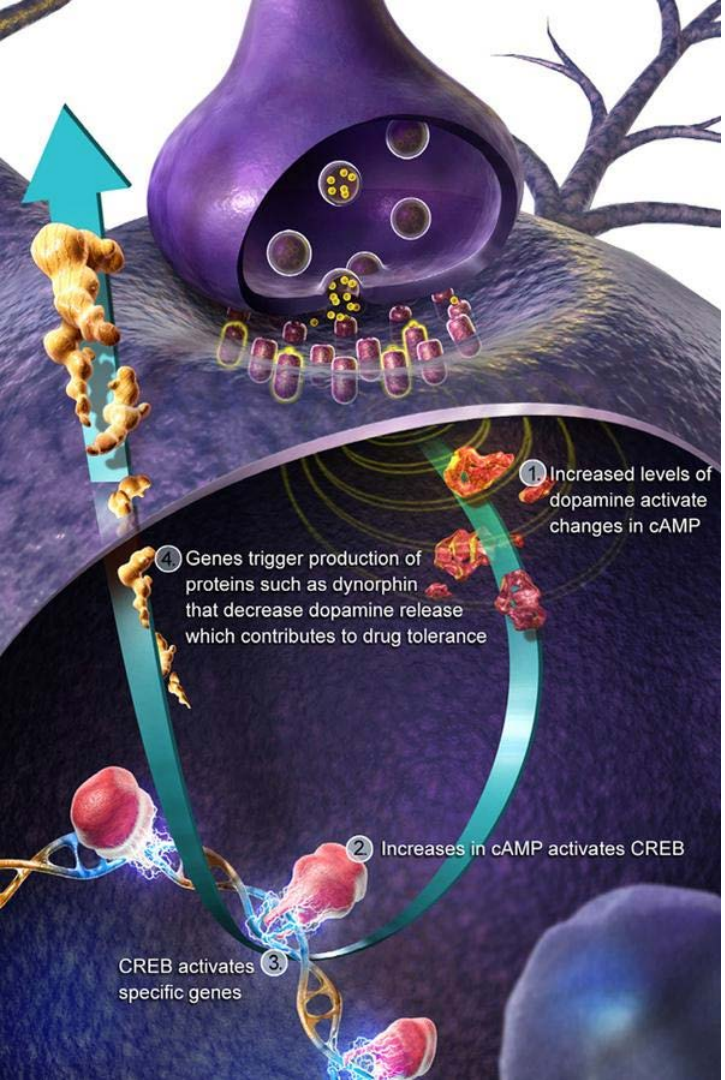
Physiological

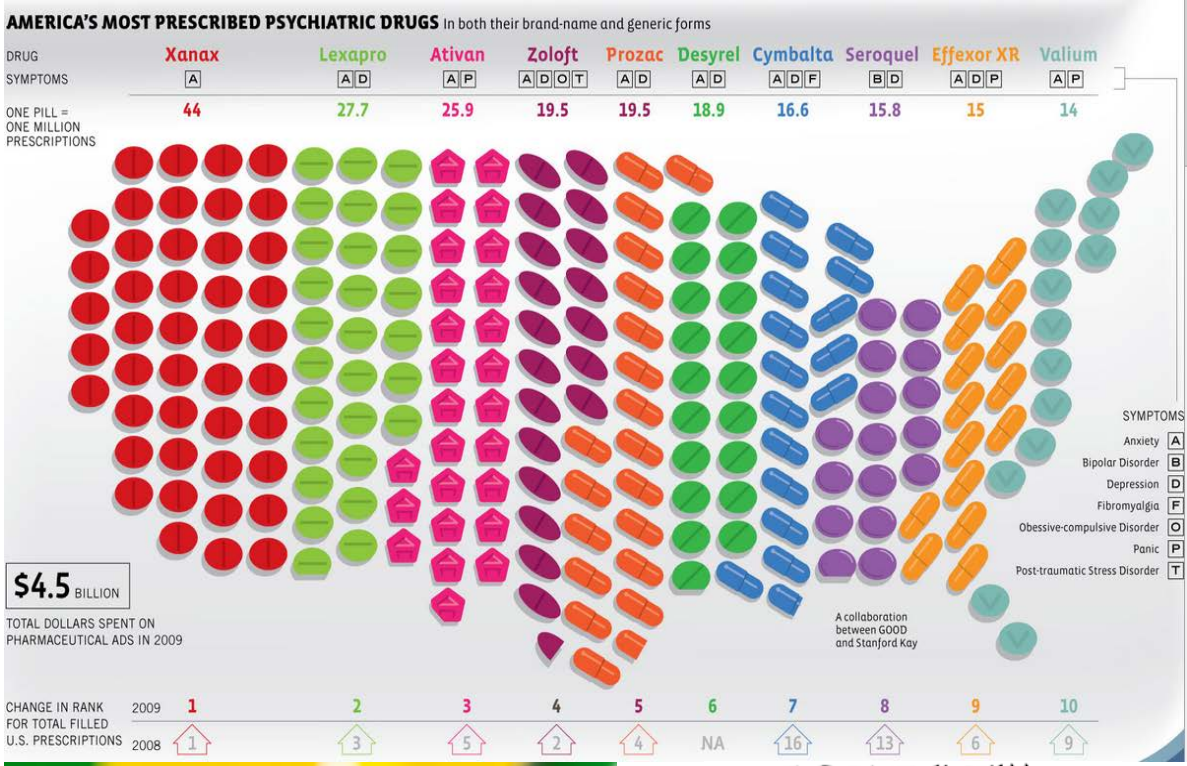
Social-Cultural

Biological - Addictive **gene** can give someone a tendency for addiction, but also for needing a higher amount of the drug for the same impact.

Physiological - Stress, additional psychological disorders can bring on the need to 'medicate' through drugs in an attempt to reduce the impact.

Social-Cultural - The availability of drugs has a massive impact on the chances of use. An urban environment & high population center can influence availability. Peer pressure and impact of 'friends.'


1. Increased levels of dopamine activate changes in cAMP
2. Increases in cAMP activates CREB
3. CREB activates specific genes
4. Genes trigger production of proteins such as dynorphin that decrease dopamine release which contributes to drug tolerance


AMERICA'S MOST PRESCRIBED PSYCHIATRIC DRUGS In both their brand-name and generic forms
DRUG
SYMPTOMS
ONE PILL = ONE MILLION PRESCRIPTIONS
Xanax A 44
Lexapro A D 27.7
Ativan A P 25.9
Zoloft A D O T 19.5
Prozac A D 19.5
Desyrel A D 18.9
Cymbalta A D F 16.6
Seroquel B D 15.8
Effexor XR A D P 15
Valium A P 14
SYMPTOMS
Anxiety A
Bipolar Disorder B
Depression D
Fibromyalgia F
Obsessive-compulsive Disorder O
Panic P
Post-traumatic Stress Disorder T
$4.5 BILLION
TOTAL DOLLARS SPENT ON PHARMACEUTICAL ADS IN 2009
A collaboration between GOOD and Stanford Kay
CHANGE IN RANK FOR TOTAL FILLED U.S. PRESCRIPTIONS
2009 1 2 3 4 5 6 7 8 9 10
2008 1 3 5 2 4 NA 16 13 6 9

The Pursuit of Happiness