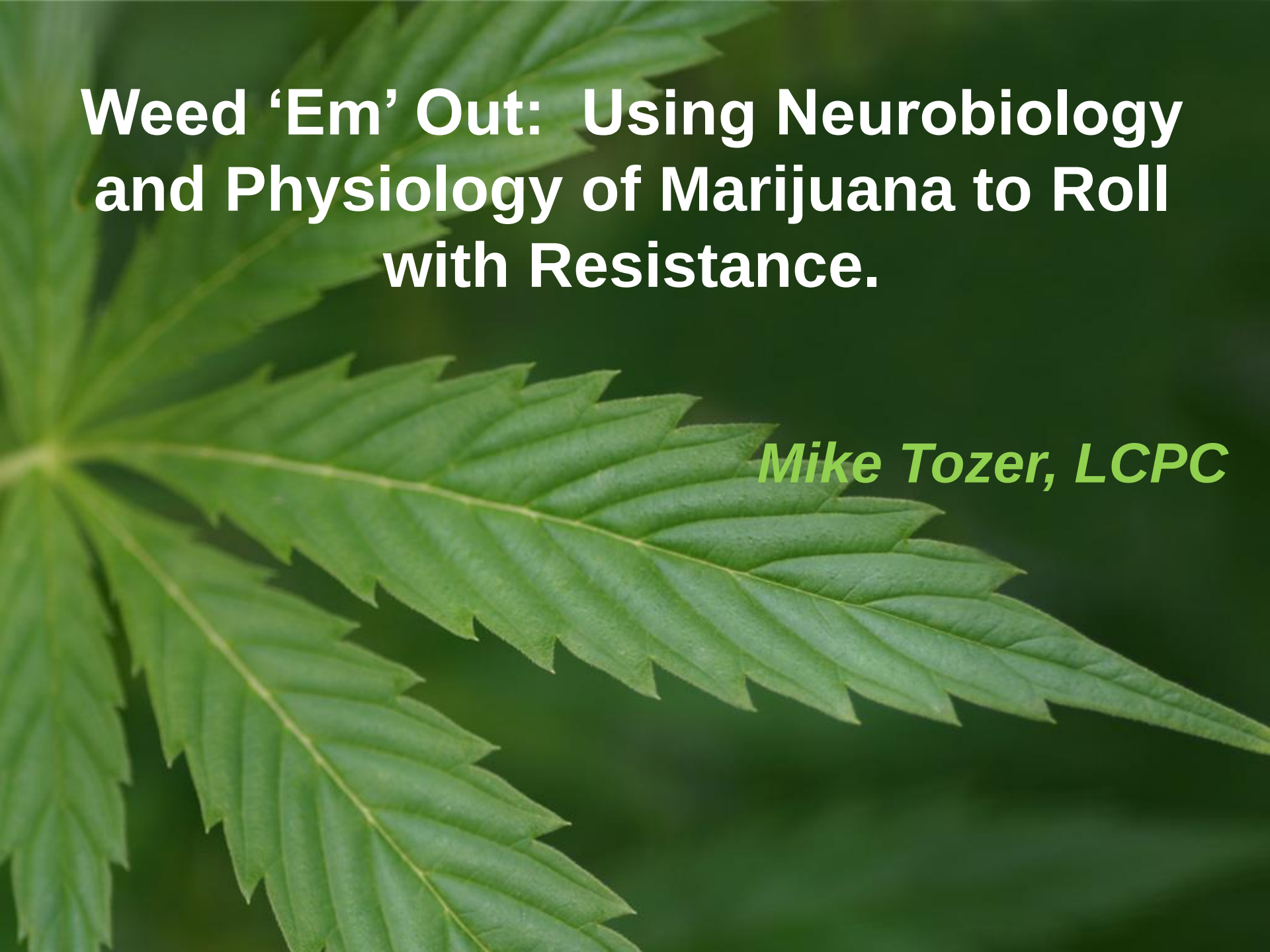


Weed ‘Em’ Out: Using Neurobiology and Physiology of Marijuana to Roll with Resistance.

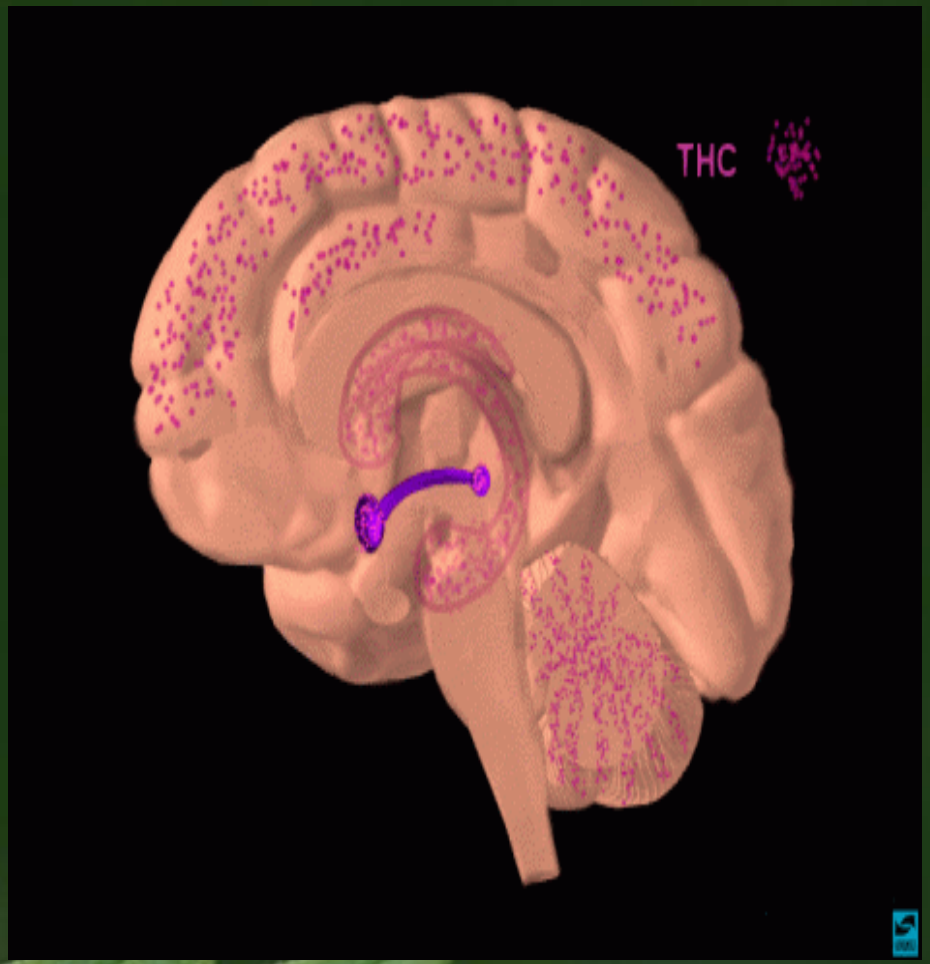
Mike Tozer, LCPC

THC

- First isolated in 1964
- Raphael Mechoulam-Israeli scientist credited with it's discovery.
- THC – delta-9 tetrahydrocannabinol has the strongest psychoactive effect.
- Psychoactive Drug-a chemical substance that crosses the blood–brain barrier and acts primarily upon the central nervous system where it affects brain function, resulting in alterations in perception, mood, consciousness, cognition, and behavior.
- THC content commonly used as measure of potency

Reward System

- THC Binding sites
- Mid Brain
- Dopamine Transmission
- Pleasure center
- THC Binding
  - Cerebral Cortex
  - Pleasure Center
  - Coordination/Movement



Potency

- In the 70’s marijuana was lower grade -1-3%. Today the marijuana is mainly from Mexico, Columbia and domestic. It is now believed to be twice as strong, primarily between 4-6%, due to the following factors:
- Genetic (selected seed varieties and cultivation of female plants)
- Variation in cannabinoids and concentration of THC.
- Environmental (cultivation techniques, prevention of fertilization and seed production)
- Freshness (the risk of storage degradation of THC is less likely today)

Taxonomy of cannabis

Cannabis Sativa

-More cerebral, concentrate, “energized”

Higher THC level than CBD.

Cannabis Indica

-Sedative in it’s effects
-More night time use

Lower THC level than CBD

Names

Sativa

- OG Kush
- Purple Haze
- Maui Waui
- Thai
- Voodoo
- Bazooka
- AK47
- Jack Herer

Indica

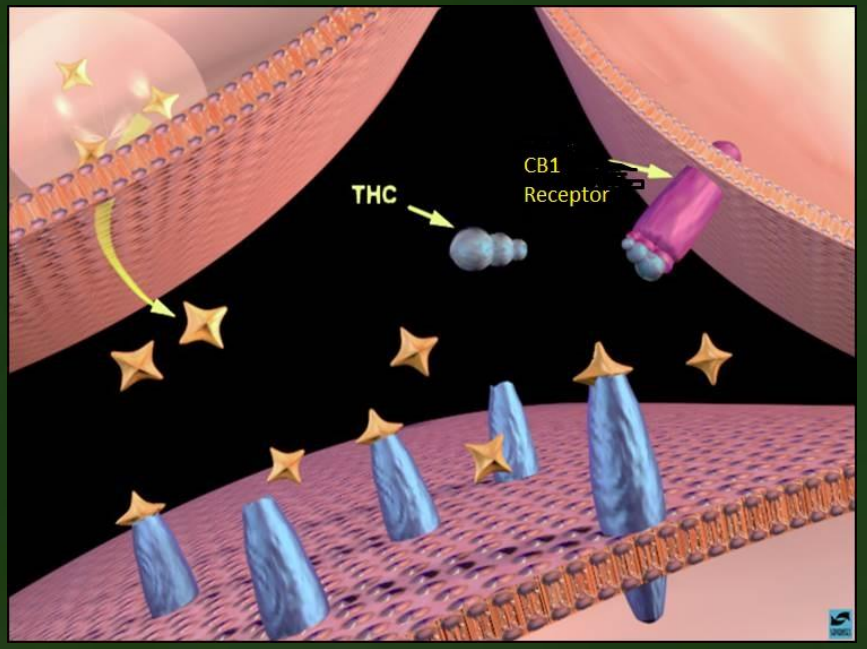
- Master Kush
- Afghani
- Chronic
- Black Jack
- K2
- Night Shade
- Hypno
- Black African

Brains own Marijuana

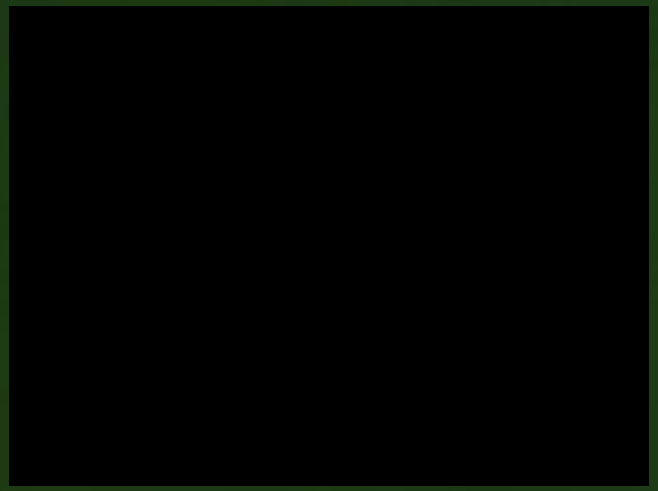
Receptors

- Anandamide
- Cannabinoids
- CB1 Receptors
- Neural adaptation

THC and Anandamide



Cannabinoid Receptor and The Brain



Cannabinoids and Receptors

- Anandamide-Brains Cannabis
- Regulate mood, appetite, pain messages, body weight, fat metabolism, even bone density.
- Effects memory and learning
  - Higher and/or longer term doses show shrinkage of Hippocampus
  - Subclinical symptoms-odd beliefs, paranoia, delusions
- Chronic Use

Cannabinoids and Receptors

Cannabinoids and Receptors

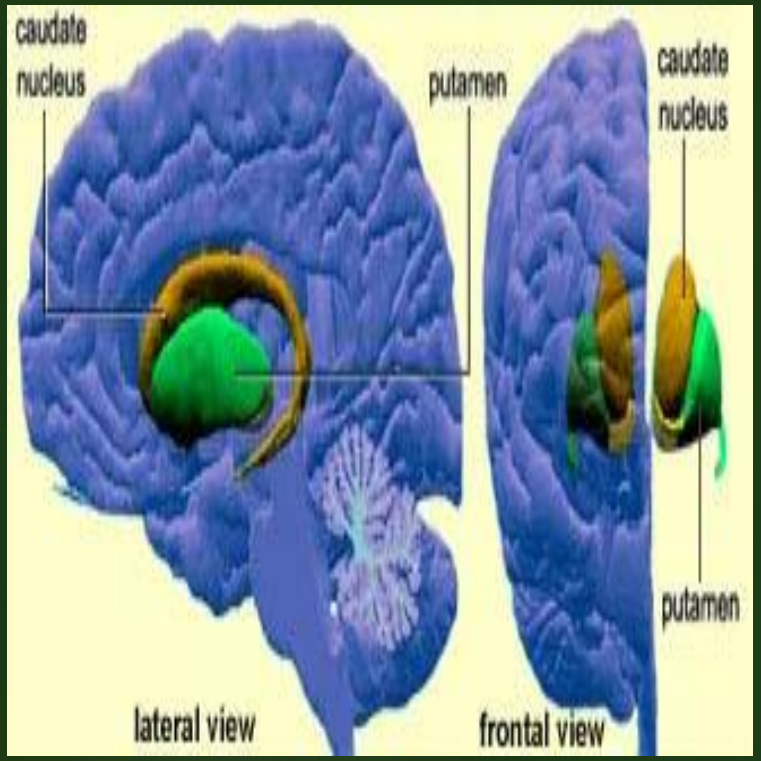
- “Dimmer Switch”
- Regulates the other neurotransmitters messages
- Brain is the most dense region. Also in Liver and Vertebrae
- Euphoria, anxiety relief or increase

Cannabidiol

- One of the cannabinoids identified in cannabis.
- Considered to have a wider scope of medical applications than THC. Used as a liquid.
- Strains of cannabis containing higher concentrations of Cannabidiol did not produce short-term memory impairment vs. strains with similar concentrations of THC.
- Decreases activity of the limbic system and decreases social isolation induced by THC. Cannabidiol has also been shown to reduce anxiety in social anxiety disorder.
- But, prolonged treatment with Cannabidiol increases anxiety.

THC and Psychotic Symptoms?

- When Smoked THC affects the brain in how the brain responds to stimuli.
- THC had boosted responses to the mundane stimuli, and were less responsive to the unexpected ones. In the real world, if one has problems ignoring ordinary stimuli in the environment – and even has a ramped-up or atypical response to them – this could creep into the territory of hallucination.
- Less active area in the brain Called Caudate Nucleus. This has connection to prefrontal cortex, hippocampus and supply of dopamine neurons in the reward area of the brain.
- Less active Caudate Nucleus will increase the chance for hallucination and other psychotic symptoms.
- Cannabinoids have the opposite effect.



THC/Psychotic Symptoms

- Higher risk if personal and/or family hx of substance abuse and/or mental illness.
- Some studies suggest as high as 40% greater likelihood of psychotic symptoms with this hx.

Withdrawal

- First Withdrawal Symptoms
  - Insomnia, shakiness and decreased appetite come first, peaking at 1 or 2 days post abstinence and then leveling off, so you're at about 75% recovered at a week in and almost entirely back to normal at 2 weeks in.
- Second Wave Withdrawal Symptoms
  - Irritability, restlessness and anxiety come next, coming on at about day 3 or 4 and peaking at roughly day 6, before gradually subsiding so you're about 80% back to normal by 2 weeks in and totally recovered by 3 weeks post quit.
- Third Wave Withdrawal Symptoms
  - Anger and aggression come last, emerging at day 5 or 6 and then gradually increasing to a peak at about 2 weeks in and then subsiding by 3 weeks post quit.

Practical Applications

- Myths vs. Reality
- Understanding the personal risk factors. If I have a family history I am more at risk.
- You don't have to avoid the 
- Use their intelligence about the subject to your advantage.
- Can address certain behavior they experience such as procrastination, memory issues, sleep, anxiety through the back door. We can assist them in addressing these goals while we decrease their use.

Resources

- https://ncpic.org.au/workforce/alcohol-and-other-drug-workers/
- http://www.forbes.com/sites/alicegwalton/2012/01/11/the-neuroscience-of-pot-researchers-explain-why-marijuana-may-bring-serenity-or-psychosis/
- http://psychology.tools/download-therapy-worksheets.html
- https://www.youtube.com/watch?v=iVSbk_E5kRs
- https://www.youtube.com/watch?v=GEwrGKrLH8I
- https://www.youtube.com/watch?v=pnVZVxaAvmI
- http://www.drugabuse.gov/publications/term/210/TeachingPackets
- http://norml.org/aboutmarijuana