SUBSTANCE-FREE ATHLETICS

…a conversation with **Athletes**

Pre-presentation SURVEY - https://forms.gle/rRGp2iZPVFyVnvMc8

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Overview – high school sports

- Nationally, 50-60% of students play a sport
- Athletes have a lot of influence in their schools - culture, how the school sees itself, etc…
- Every athlete has a unique role to play on their team and is important to their team's success
- The team needs every athlete to be at his/her best

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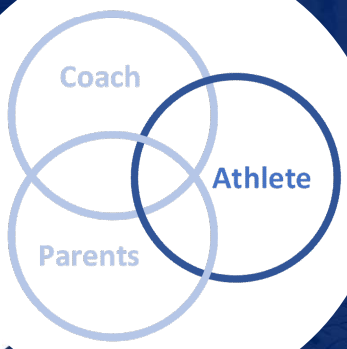
Substance Free Value for Athletes

- Optimal health – physical & mental
- Maximum athletic performance
- Team performs at highest level possible
- Real team bonding

Substances hurt all of these



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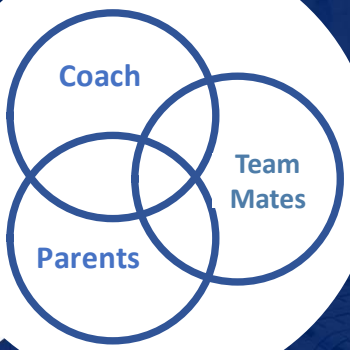
Athletes have to make the decision - but they are not alone - 3 important stakeholders exist



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The NCAA recognizes these stakeholders & is prevention focused (Effective Prevention Partners)

NCAA: "Legal ≠ permitted (or safe)"

Athletewellness.uncg.edu

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Substances – what's the big deal

Why these policies anyway – alcohol, marijuana, nicotine and the Athlete.

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Alcohol

- Alcohol is a **depressant**
- It causes impairment (drunkenness) in a relatively **non-specific** way – dehydration - alters the cellular membranes in the brain – changing the way cells and neurotransmitters function
- Alcohol a.k.a ethanol is **water soluble** and flushes out of body in 24 hours

Dr. Katie Defea – Research Scientist specialized in Gprotein receptors

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Alcohol = physical impacts

METABOLISM
Constricts aerobic metabolism – reduces endurance

WEIGHT
Makes weight difficult to maintain (gain or lose)

NUTRIENTS
Inhibits absorption of nutrients
- ↓ endurance
- ↓ protein synthesis for muscle-fibre repair
- ↑ risk of injury

SLEEP
Disrupts sleep and hydration

PERFORMANCE
Use within 24 hours of activity significantly reduces aerobic performance

INJURY
Weekly use doubles rate of injury

YLM Sports Science; NCAA athletewellness.uncg.edu; https://www.nsca.com/education/articles/nsca-coach/the-effects-of-alcohol-on-athletic-performance/; https://nutritionandmetabolism.biomedcentral.com/articles/10.1186/1743-7075-11-26#Sec15;

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Marijuana

- Marijuana is a **hallucinogen** – distorts perception – distorts time and space
- It causes impairment (high) in a **specific way** – spoofing the endocannabinoid receptor system and neurotransmitters disrupting brain function

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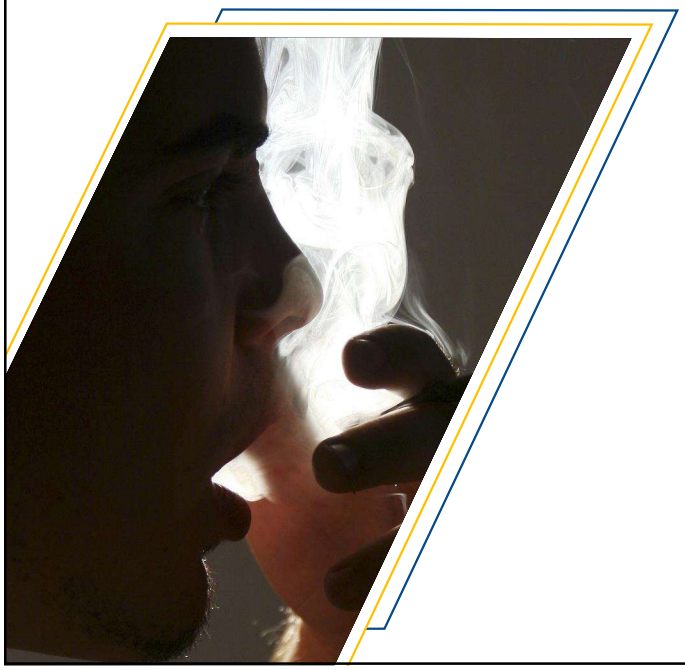

Marijuana, cont.

- Marijuana is **fat soluble** (lipophilic) and can stay in the body for weeks
- Weekend use may compromise skill and performance improvements all week

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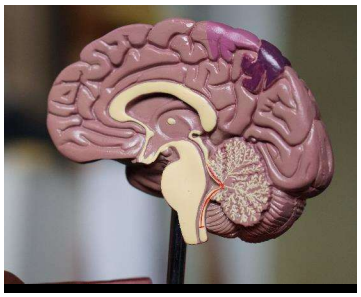
Marijuana = neurological impacts



Your Brain Today

"The brain you go to bed with tonight is not the same brain you work up with this morning" - ELASTICITY

Brain = Adaptive

Your brain is highly adaptive.
It is the repository of who you are and manages your arc of understanding

Brain = Athletic Tool

Condition, practice, play, get feedback - repeat = Athletic knowledge - physical and intellectual repository

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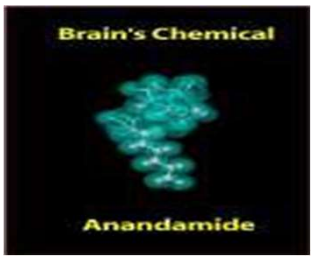
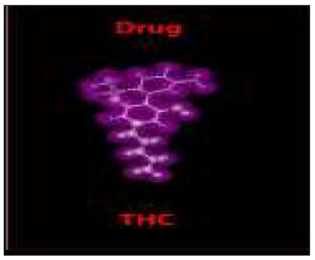
Marijuana = understanding how it works

Endocannabinoid Receptor Site System (CB1 & CB2):

- Anandamide – naturally occurring cannabinoid
- THC (Delta 9 – Tetrahydrocannabinol) rides on CB1 & CB2 receptors
- THC interferes & takes over Anandamide's role
- Can see the similarities between them molecularly





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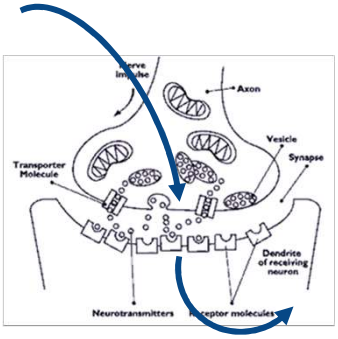
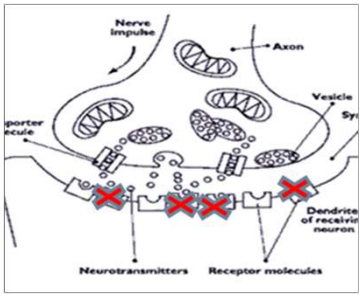
Marijuana = synaptic connections

- Homeostasis: balance & neutrality
- Over stimulating a synaptic system will cause receptors to shut down





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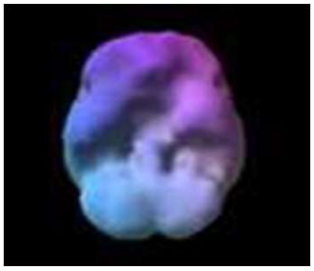
Marijuana = neural compromise

Receptor shut down = real physiological event

It reduces neural activity overall

Prefrontal/temporal lobe activity – 16 yo



Non-using

2 year daily user

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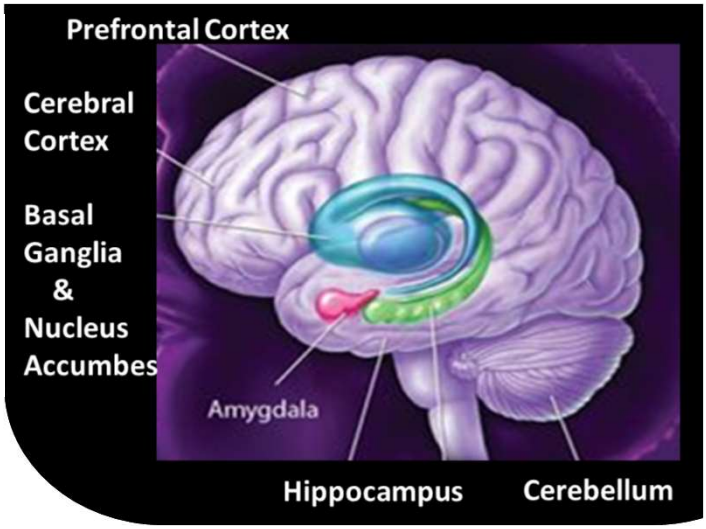
Endocannabinoid Receptor Site System

- CB1 & CB2 over entire body
- 6 major regions of the brain contain huge number of endocannabinoid receptors
- This indicates anandamide is important for proper function in these regions



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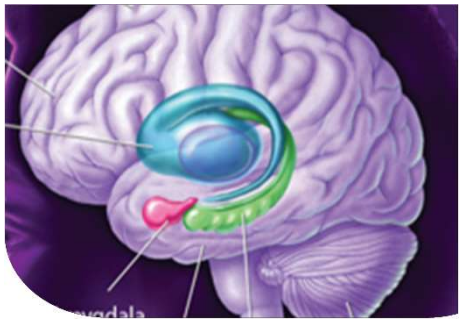
Endocannabinoid signalling



Hippocampus – memory or not
- Memory storage; eliminates memory

Frontal Lobes – working memory
- Ideas, thoughts, goals spark here
- Working memory –held for up to 2 minutes before processed through rest of the brain for implementation & long-term memory storage

Basal Ganglia – body organization
- Translates prefrontal cortex goals into action plan

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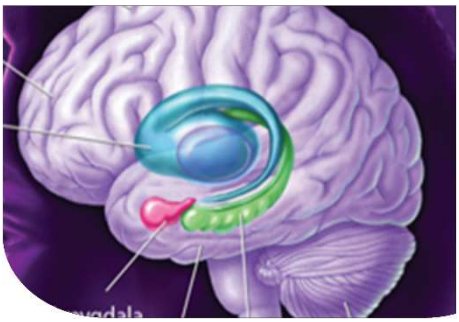
Endocannabinoid signalling, cont.



Cerebellum – fine motor
- Manages grace & fine motor movement

Amygdala – emotional processing
- Bonding, nurturing - connection
- Boredom, excitability, virtual newness - motivation
- Spirituality - awe

Nucleus Accumbens – pleasure/reward pathway
- why we do NOT get addicted to anti-biotics
- "Importance meter" - Dopamine
- Anticipatory pleasure

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Marijuana effects on memories, knowledge & experience

(1:00)

https://youtu.be/HLYlDpJxxqs

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Nicotine

- Nicotine is a **stimulant**
- It doesn't intoxicate, but **over stimulates the adrenaline** system and can addict
- Nicotine is **water soluble**

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Nicotine effects =

Artificial stimulation of the neuro-muscular junction

- Immediate burst of energy (adrenaline)
- Quickly resolves (goes away)
- Leads to lethargy (adrenal exhaustion)
- Crave/need more nicotine

→ makes nicotine so addictive

physical

Vasoconstriction (narrowing of blood vessels)

- ↑ Blood pressure (hypertension)
- ↓ Blood flow to the heart
- Irregular heart rhythm (arrhythmia)
- ↑ Heart rate (cardiac output)
- Places greater workload on heart overall

→ Which athletics is already doing

Source: LiveStrong.com; American Heart Association; smokefree.gov; https://www.drugabuse.gov/about-nida/noras-blog/2018/09/recent-research-sheds-new-light-why-nicotine-so-addictive

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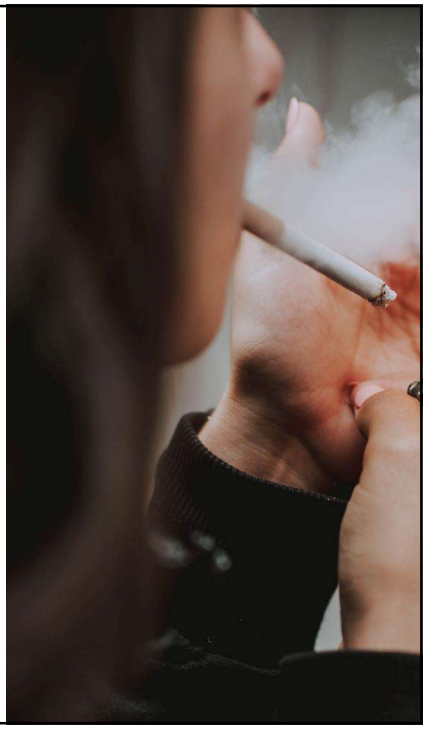
Consuming via lungs

(Smoking or vaping Nicotine or THC)

- Repetitive bronchi-dilation caused by smoke or aerosol:
  - Reduces the capacity of lungs to take in oxygen over time
  - Decreases oxygen in bloodstream (critical for endurance)
  - Air breathed in contains less oxygen
  - Carbon monoxide (smoke) and chemicals (areosol) binds to hemoglobin which should be bound to oxygen
  - Ingesting carcinogens and other toxins
- Causes the release of enzymes that break down and slow the synthesis of collagen needed for healing/recovery of tendons, ligaments and bones
- Athletes who use via lungs:
  - Have less endurance,
  - Recover more slowly,
  - Heal more slowly,
  - Are weaker, and
  - Suffer more injuries than their non-smoking peers



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Opioids – Athletes need to be careful –

Oxycontin, Vicodin, Percocet

- Highly addictive – need to stay aware of how they are affecting you
- Don't be over-prescribed
- Dispose of properly
- CDC flyer is good

- Heroin – street opioid. Street drugs (cocaine, meth-amphetamines, ecstasy, etc…) are becoming lethal –fentanyl

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Addiction – protect yourself

- 90% of Adult Addicts started using something before 18
- Addiction is a chronic disease
- Your brain is not fully developed until 26
- If addiction is in your family, you have a 50% greater chance of becoming addicted
- 3 gateway drugs:
  - Alcohol - 15% - 20%
  - Marijuana - 30%
  - Nicotine - 85% - 90%

The Center on Addiction (aka CASA);NIDA addiction rates

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Understanding Addiction as a Disease (3:40 - *Wait 21)*

https://youtu.be/-w8n9UOiBxE

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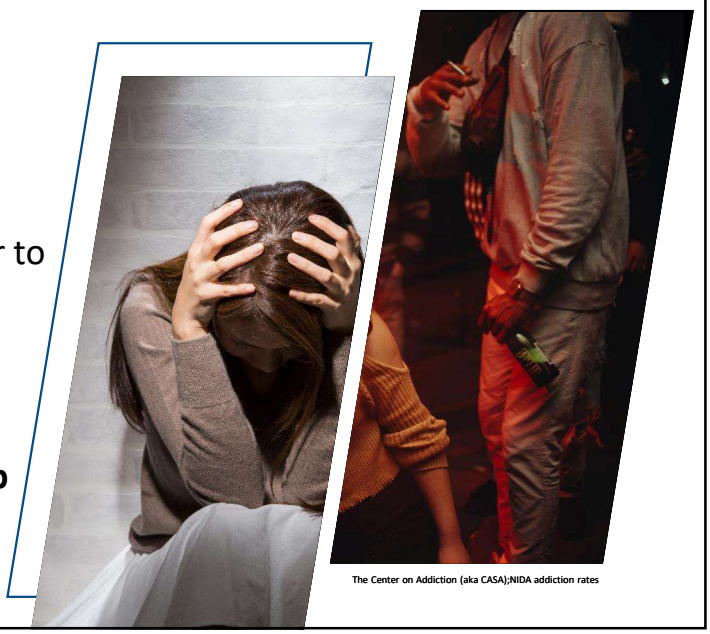
If you're using…?

- It's simple – **Stop**
- *Good news:* what makes your brain more vulnerable - its adaptability - can make it easier to stop now
- Withdrawal discomfort of each drug
- If stopping is difficult – **Get help**



The Center on Addiction (aka CASA);NIDA addiction rates

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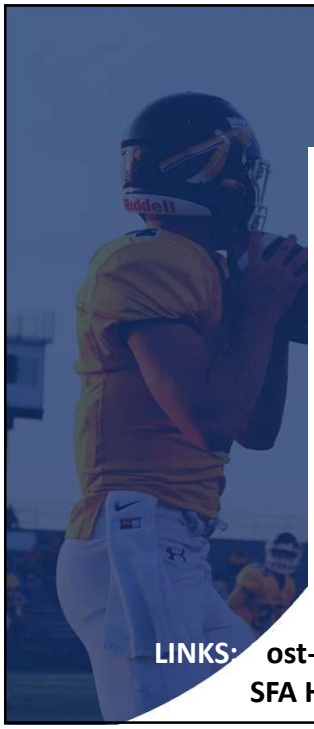

Questions

- Any more questions?
- Need additional information/materials?
- Follow SFA on Instagram!
- POST Survey (get active link in chat)
- Active Handout Link in chat

Media

https://www.substance-free-athletics.org

info@substance-free-athletics.org

Substance_Free_Athletics

LINKS: **ost-presentation Survey** - https://forms.gle/esAybpwE3Esw7eaq9

SFA Hand outs - https://www.substance-free-athletics.org/resources#handouts

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