Clearing the Air on Marijuana & Athletic Performance

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• Conduct campus-wide surveys
• 1-on-1 marijuana interventions
• Team conflict resolution workshops
• Train student-athlete and med student peer support programs
• Faculty advisor for a fraternity
• Oversee addiction recovery student community
Does pot make you a better athlete?

In America’s mecca for both endurance training and legalized marijuana, one competitive triathlete is challenging the definition of ‘recreational’ drugs.

by Frederick Dreier

Running Stoned? The Effects of Marijuana on Athletic Performance

Pot changes your mental state and athletic performance—but not necessarily for the worst. Here, a look at the effects of marijuana on running stamina, endurance, and race training.

By the editors of Shape.com | Sep 16, 2015

Topics: running

Pot is pretty popular these days, and becoming more so every year as the push toward nationwide legalization inches forward. But while the culture and stereotypes surrounding weed are evolving, the effects of marijuana are still being studied—even as the way people are using it change. Consider this example: The more than 500 people recently ran a 5K in San Francisco’s Golden Gate Park as part of the annual 420 Games—and half of them had (legally) used marijuana in some form before the event. The 420 Games, a series of athletic events were, according to the games’ promoters, established “to show that cannabis users are not lazy, unmotivated, or ‘stoners’ and to de-stigmatize the millions who use cannabis in a healthy and responsible lifestyle.”

This all begs the question: Is running stoned safe? And could the effects of marijuana benefit—or hurt—your workout?

Pot may help manage pain and improve focus, but using it to improve your workouts is still a stretch.
The Formula

1. Headline contains a question??
2. Anecdote about an athlete who loves marijuana
3. Scientific studies about how marijuana really isn’t good for you, but leaving just enough doubt...
4. Back to the athlete, aren’t they impressive?
5. Back to the science, yep, controversial at best...
6. Obligatory weed pun
7. Story about how the athlete did ‘research’ on themselves
8. Conclusion that it’s probably not safe, possibly just wishful thinking + placebo effect, and not supported by science.
9. #AdRevenue $$$ #Clickbait 😊
Why do people use and abuse substances?

Research identified correlates:

White, male, single, more time socializing, less time studying, more likely to binge drink, smoke cigarettes, have multiple sex partners, rate parties as important, rate religion and community service as not important.

Connection to mental health:

Correlates with academic difficulty, generalized anxiety, depression, hostility, interpersonal sensitivity, paranoia, social influence, trauma, social anxiety.
Why do people use substances?

**Relief**
Coping for negative emotional states

- To lessen feelings of distress
- To numb negative emotions
- To detach from life’s problems
- To cope with anxiety
- To escape intense feelings
- To deal with depression
- To navigate social anxiety

**Reward**
Sensation seeking low impulse control

- To feel good
- Sensation of euphoria
- To get high
- To feel relaxed
- To feel satisfied
- To feel energetic
- To feel powerful
- To feel confident
Reported Reasons for Use

The #1 reason for marijuana use reported by NCAA athletes is “social use.”

The #2 reason for marijuana use reported by NCAA athletes is “anxiety or depression.”

The #3 reason for marijuana use reported by NCAA athletes is “to aid sleep.”
Only 0.3% of NCAA athletes said performance enhancement was a main reason for using marijuana.
Reported Reasons for Use

Anxiety or depression

Difficulty sleeping

Marijuana Withdrawal Symptoms

- Trouble sleeping
- Irritability
- Loss of focus
- Anxiety
- Headaches
- Depressive states
- Cravings
- Indigestion / loss of appetite
- You can change your answer.

- If you see $\Theta$ it means your answer didn’t go through and you should click again.

- The default channel is 41.

- Anonymous responses.
Return your clicker at the end.

Do not take it with you.
Main reason for not using marijuana

1. Against beliefs / values
2. Fear of getting drug tested
3. No desire, just not something I want to do
4. Concerned about negative health effects
5. Concerned it would hurt athletic performance
6. Afraid consequences of being caught
7. Other
Monitoring the Future Dataset
Alcohol Use by College Students (30-day Prevalence)
Monitoring the Future Dataset
Marijuana Use by College Students (30-day Prevalence)
Do student-athletes use marijuana more or less often than other college students?

1. Way more often
2. More often
3. About the same
4. Less often  (13.7% Past Month Use by Athletes)
5. Way less often
Marijuana Use by Division
(Within the Last 12 Months)

- Division III: 26% (2005), 28% (2009), 29% (2013)
- Division II: 19% (2005), 21% (2009), 20% (2013)
- Division I: 17% (2005), 17% (2009), 16% (2013)
**Products / Forms**

- **Spliff** – Marijuana + tobacco in rolling paper
- **Joint** – Marijuana in rolling paper
- **Blunt** – Marijuana in cigar paper
- **Pipe/Bowl** – Marijuana in pipe heated with lighter
- **Bong** – Marijuana smoke cooled in water held in chamber
- **Dab Rig** – Marijuana oil, wax, or resin heated through conduction on quartz, ceramic, or metal nail
Higher THC Concentration
How does marijuana produce its effects?
How does marijuana produce its effects?

- THC is structurally similar to other neurotransmitters, it can imitate these chemicals and bind like a lock and key.

- THC stimulates neurons in the reward system to release the signaling chemical dopamine at levels higher than typically observed in response to natural stimuli.

- THC also affects the hippocampus (memory and focus) and cerebellum (balance, coordination, reaction time).
• THC itself has proven medical benefits in particular formulations.

• Medications that use purified or derived chemicals are considered more promising therapeutically than use of the whole plant. (Analogous to aspirin discovery and isolation).

• Two FDA-approved, THC-based medications, dronabinol (Marinol®) and nabilone (Cesamet®), prescribed in pill form for the treatment of nausea in patients undergoing cancer chemotherapy and to stimulate appetite in patients with wasting syndrome due to AIDS.
Marijuana significantly impairs judgment, motor coordination, and reaction time.

Studies have found a direct relationship between blood THC concentration and impaired driving ability.

However, a large study conducted by the National Highway Traffic Safety Administration (NHTSA) found no significant increased crash risk attributable to cannabis.
Is marijuana a gateway drug?

The majority of people who use marijuana do not go on to use other, "harder" substances.

THC has the ability to "prime" the brain for enhanced responses to other drugs – a phenomenon called cross-sensitization.
There's a lot of overlap!

Proportional Venn chart produced with Spring 2016 ICSUS data

Size shows relative number of users, overlap shows use of multiple substances
What about long term effects on the brain?

Some studies of structural brain changes show no statistically significant results.

Other studies show functional impairment and loss of IQ related to frequency and duration of use.
Research has shown that marijuana's negative effects on attention, memory, and learning can last for days or weeks after the acute effects of the drug wear off.

Marijuana users are less likely to graduate, earn less money at their first job out of college, and are more likely to be unemployed.

Pre-screen study of 2537 postal workers showed 55% more accidents, 85% more injuries, and 75% more absences compared to nonusers.
Clearing the Air

Marijuana & Athletic Performance
Marijuana weakens the pumping power of your heart.

Decreased heart stroke volume, induced tachycardia, increased blood pressure
5x increase in heart attack risk 1 hour after use.

Increased resting HR from $55_{bpm}$ to $120_{bpm}$

Reduces the blood’s capacity to carry oxygen.
Marijuana interferes with quick reactions and timing.

Delayed reaction to simple and complex visual and auditory cues
Marijuana caps aerobic performance below your true potential.

Decreased workload, decreased peak output, and decreased maximal duration.
Marijuana makes your sure-footing flimsy.

Decreased standing steadiness for eyes-open and eyes-closed conditions
THC sticks around for days or weeks after use.

Measurable physical decrement at 24 to 36 hours, cognitive effects last longer.
Marijuana makes injuries more common, and slows recovery.

Statistical increase in frequency of injuries and duration of recovery
Which of these are most important for you? (Pick 2)

1. Physical decrement for 24-36 hours after using
2. Effect on standing steadiness
3. Decreased peak aerobic capacity and peak duration
4. Delayed reaction to simple and complex cues
5. Spike in blood pressure & HR
6. Decrease oxygen in the blood
Get off my back!

Just doing what I can...

I can’t wait to get started!
No one notices when I just go through the motions.

[Stressed]
They don’t get me!

Social Drift

They don’t get me!
I’ve noticed these social forces at work on my own team.

A. I agree
B. I disagree
Alcohol / drugs have caused drama and conflicts on my team.

A. I agree
B. I disagree
Alcohol / drugs hold my team back from reaching its true athletic potential.

A. I agree
B. I disagree
Some people on my team are not contributing to team success because of their drinking / drug use.

A. I agree
B. I disagree
Anyone on the team can be a leader and a role model.

What opportunities do you have to be proactive, to support and shape your team?

And how do you get the bottom 1/3 to rise up?
Unconditional Positive Regard

• Your teammates are capable of greatness!

• Although it’s tempting to think of some as “bad apples”...

• What challenges are your teammates facing?

• Who will reach out to their teammates? Even if...
  • They can be a pain in the butt sometimes
  • They don’t seem motivated or have a bad attitude
  • They break team rules

• Approach your teammates with respect, structure, compassion and a desire to understand.
Invite, don’t shame!

• How can you bring the bottom 1/3 into the process?
  • Give them a framework to create part of the solution
  • Ask about their motivation, goals, hopes, desires

• Motivation is NOT like a pitcher of water.

• Ambivalence and status quo (vs.) education + rationale choice

• Behavior is a function of (the individual) x (the environment)
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