Psychedelics

Psychedelic comes from the Greek words “psyche” (soul) and “delein” (to manifest) = soul-manifesting

Often compared to non-ordinary forms of consciousness: dreaming, religious ecstasy, near death experiences
Traditional Use

Traditional use in medicine/religion

- Aztecs in Mexico – 1400's
- Mentioned in the *Rig Veda* (Hindu Holy Book)
  - Seems to date back thousands of years!!!
Psychedelics

- Different types
- Examples:
  - LSD, Shrooms, Molly, DMT, etc.
- Act on **Serotonin**
  - Serotonin effects mood and hallucinations
Magic Mushrooms

Aka Shrooms, Mushies, Boomers
Mushrooms

• Chemical *psilocin* cause hallucinations
• Same founder as LSD (Albert Hoffman)
• Most illegal class *(Schedule 1)*
• Different part of mushroom = different feeling/effects
Pharmacokinetics

• Predominantly ingested
  – Fresh mushroom, dried, powdered, encapsulated
  – **Slower onset** compared to smoking, injecting
    • 10-40 min onset
  – **Longer lasting** compared to smoking, injecting
    • Lasts 3-8 hours
Acute Effects

- Elevated senses (auditory, visual, emotions)
- Hallucinations
- Euphoria at lower doses
- Anxiety at higher doses (bad trip)
- Limited dopamine release
Mode of Action

• Same receptor as LSD
  – Causes Tolerance (need more to get high)
• Increase serotonin release in synapse
Withdrawal

• Insignificant “comedown”
• Hallucination Persisting Perception Disorder (HPPD)
  – Flashbacks
Treatment

• Acute (right away, for overdose)
  – Can’t undo “bad trip”
  – Wrong mushroom = DEATH!
  – Benzos (eg. Xanax) can remove some anxiety

• Chronic (long term)
  – Considered not addictive
    • Low dopamine = low addictiveness
1938: Lysergic Acid Diethylamide first found by Swiss chemist Albert Hofmann to help with breathing and circulation (analeptic)

Dr. Hofmann “accidentally” consumes LSD and experiences hallucinogenic effects
Proposed Benefits

- In the 1950s-60s, medical professionals recommended LSD as a treatment for:
  - Anxiety
  - Depression
  - Addiction
Statistics: Rise in Use...and Abuse

- 1960's: Street use of LSD reaches its peak
  - 1967: Approximately 40% or more of students at Stanford University were using hallucinogenic drugs like LSD

- 1990's: Resurgence of LSD possibly due to emergence of rave/club culture
Famous LSD Users

Ray Charles
“Made the blind man see”

Dock Ellis
70’s no hitter against Padres

Steve Jobs
“Doing LSD was one of the most important things of my life”

Eminem
Created alias “Slim Shady”
LSD Deaths

“It had a different effect on his friend, also 15, who, in a psychotic state, ran naked into traffic on a busy road and was hit by a car, leaving him with serious injuries. He is in hospital.

“Flew out the window thinking she could fly”
Oral Administration

- Most common method of recreational use
- Only need to take around 25 micrograms (around a few grains of salt)
- Trip begins within 1 hour, peak at around halfway into trip, and can last up to 12 hours
How Does It Work?

- LSD looks like serotonin (5HT)
- LSD binds to many serotonin receptors, causing hallucinations
- Profound cross-tolerance with other hallucinogens (i.e shrooms, molly)
Mechanism

Serotonin!
LSD and You

- Short term effects
  - Dilated pupils
  - Increased blood pressure
  - High body temperature
  - Dizziness
  - Tingling of hands/feet

- Long term effects
  - Psychosis
  - Prolonged depression
  - Hallucinogenic Persisting Perception Disorder (HPPD)
The “Trip”

Differing perception of reality
Colors look more vibrant
Spiritual ecstasy
Religious enlightenment
Objects become alive
Paranoia
Addictiveness/Dependence

- Not considered an addictive substance
- Very little risk of physical dependence, no documented evidence of physical withdrawal symptoms
Consequences of LSD Use

- About 50% of patients admitted to hospitals for LSD toxicity had actually been given other dangerous substances (not pure LSD!)
- Altered perception! Many users accidentally walk in front of cars, get into accidents while driving, or fall from windows/buildings
Legality

To which Drug Scheduling do you think LSD belongs?
Legality

Does LSD have a high potential of abuse? In other words, is it addictive?
Legality

Does LSD have a high potential of abuse? In other words, is it addictive?  
**NO**
Does LSD have any current medical purposes?
Does LSD have a high potential of abuse? In other words, is it addictive?

**NO**

Does LSD have any current medical purposes?

**NO...not yet**
Schedule 1: Legal Consequences

- First offense simple possession of LSD: imprisonment for not more than one year or fine of $1,000 or both
- First offense making/selling LSD (up to 10 grams): 5-40 years in jail and fine of up to $2 million

**LSD offenses number less than 2% of all DEA arrests**
Treatments

- Benzodiazepines (Xanax) used to initially manage anxiety
- Patient put in quiet, safe room with a low level of sensory stimulation (avoid a bad trip!)
- Psychotherapy to discuss consequences/triggers of use