

# Update on Club Drugs and Methamphetamine

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# MDMA

- Methylendioxyamphetamine
- X
- XTC
- Hug Drug
- Love Drug
- Adam

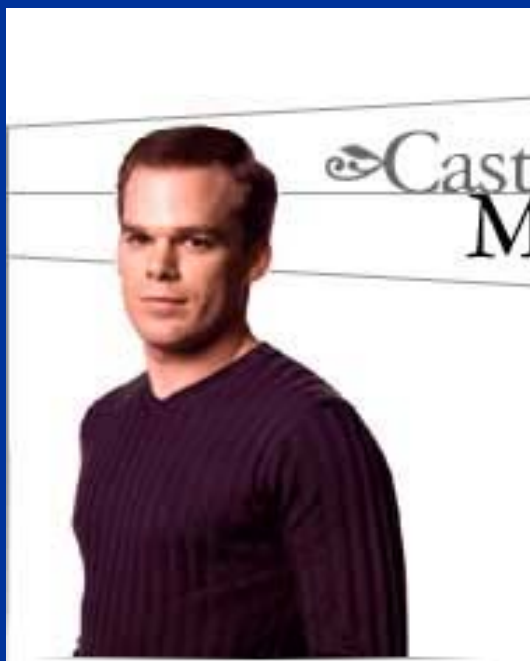
# Ecstasy facts

- Patented in the early 1900's
- Classified as an illegal drug in 1985
- Produced in Holland and Belgium for less than \$1 a tablet
- Domestic traffickers sell tablets for \$20 to \$40 each
- Customs seized 10 times more MDMA tablets in 1999 than in 1998.

# Who uses ecstasy?

- In 1998, 3.4 million Americans had used ecstasy at least once. (*1998 SAMHSA Household Survey*)
- Ecstasy use is most widespread among white, upper-middle-class youth. (*2000 Monitoring the Future*)
- African-American students are much less likely than white or Hispanic students to use ecstasy. (*2000 Monitoring the Future*)
- MDMA use has jumped, especially among younger students. (*2000 Monitoring the Future*)
- This years use appears to have stabilized (*2001 Monitoring the Future*)

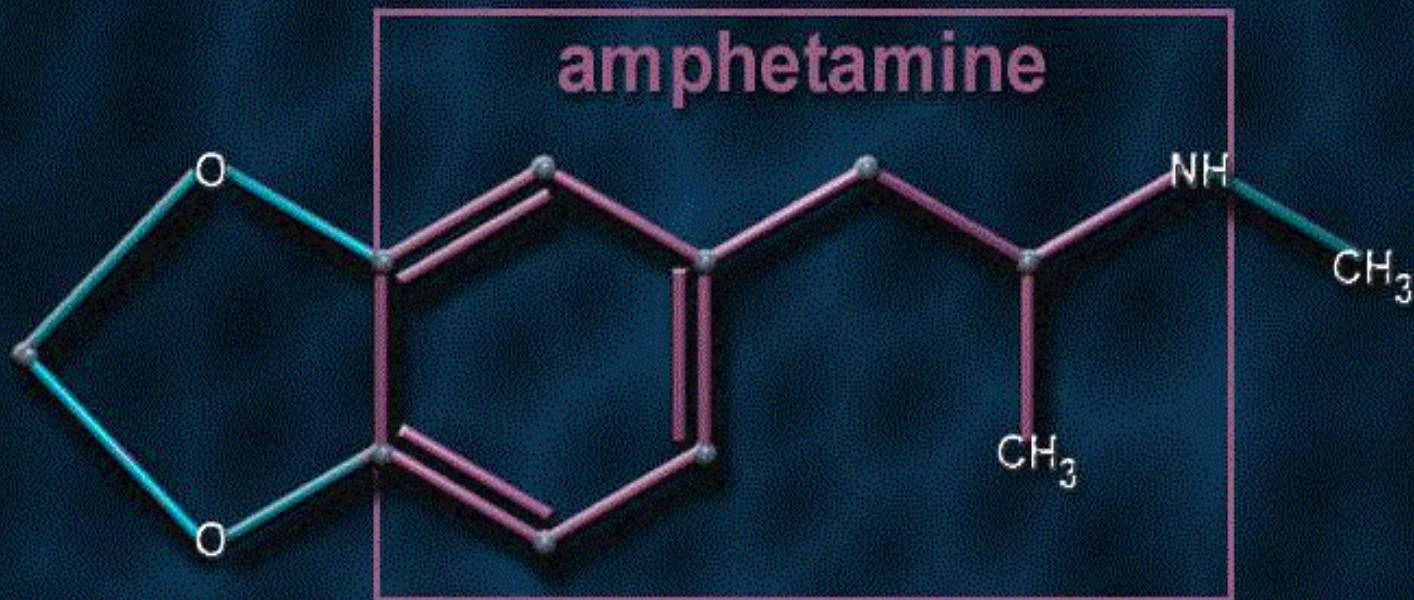
# SIX FEET UNDER





# Defining Ecstasy

A derivative of amphetamine



MDMA, XTC, E, essence, Adam

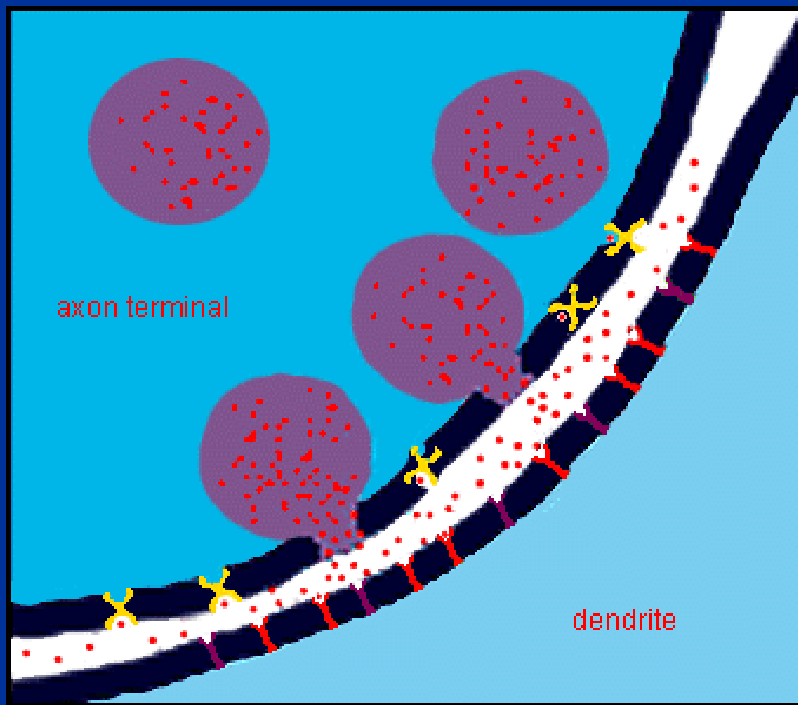
# MDMA



- Causes a feeling of closeness and bonding to people
- Popularly known as the “Love” drug
- “I wanted to call it **empathy**, but who would know what that means”
- Usually taken with others in a social setting
- Effects include stimulation, increased energy, heightened awareness
- Side effects include muscle spasms, hyperthermia, and anorexia
- Interference with sexual response cycle

# MDMA

 = serotonin molecule     = serotonin receptor  
 = reuptake transporter     = other receptor



- Pharmacologically is a “dirty drug”
- Most actions may be tied to Serotonin
- It is an indirect Serotonergic agonist
- Repeated doses in the same time frame are not as effective



# What comes after the “high”?

- Hungover feeling and depression—  
“e-tarded”
- Moodiness, anxiety, and paranoia
- Irritability
- Loss of appetite
- Insomnia
- Chills or sweating
- General tiredness

# Ecstasy's Side Effects

- Increases in heart rate and blood pressure
- Nausea
- Loss of appetite
- Jaw tightness
- Compulsive chewing and teeth clenching
- Anxiety, panic, and depression
- Health risks increase if ecstasy is combined with another drug (PMA)

# MDMA Intoxication

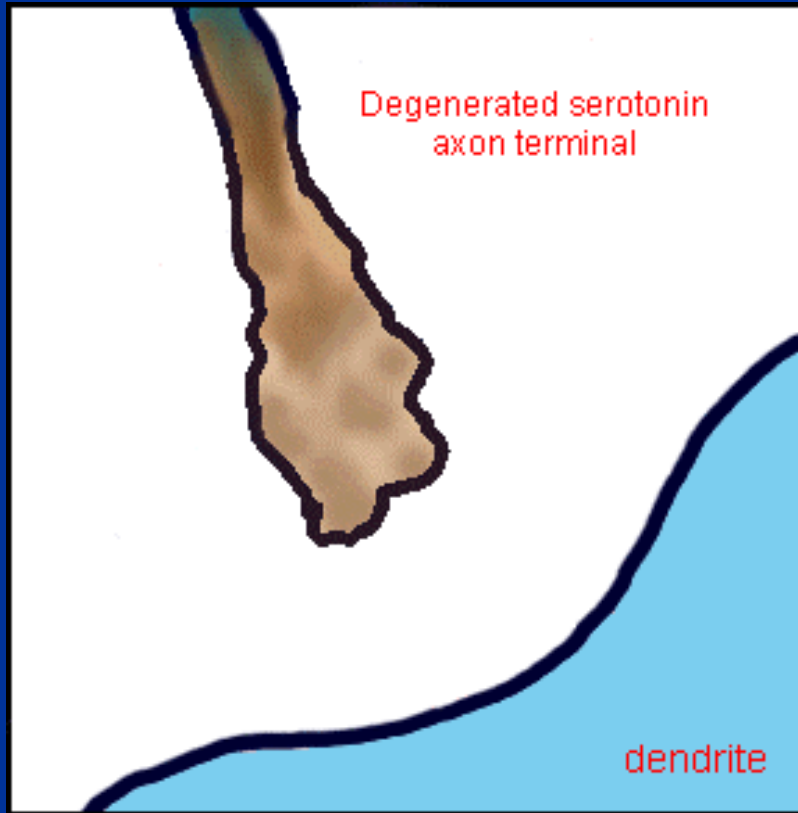


- Immediate concerns are for overheating, which in extreme cases may cause death.
- This phenomena is associated with dehydration and may be compared to both the Serotonin syndrome and Neuroleptic malignant syndrome
- Treatment for this should involve hydration, cooling and agents used NMS
- Mixing with PMA can produce a fatal overdose

# Ecstasy pills often contain other dangerous substances



# Long Term Dangers of MDMA



- It does appear to cause permanent alterations in serotonin axons
- This may have long term effects on memory, cognition, and mood
- “Freshmen love it, Sophomores like it, Seniors are afraid of it
- MDMA is a true “gateway” drug

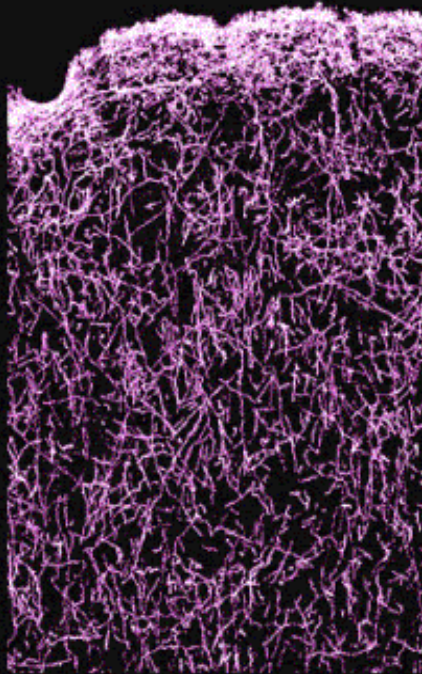
# MDMA Studies in Primates



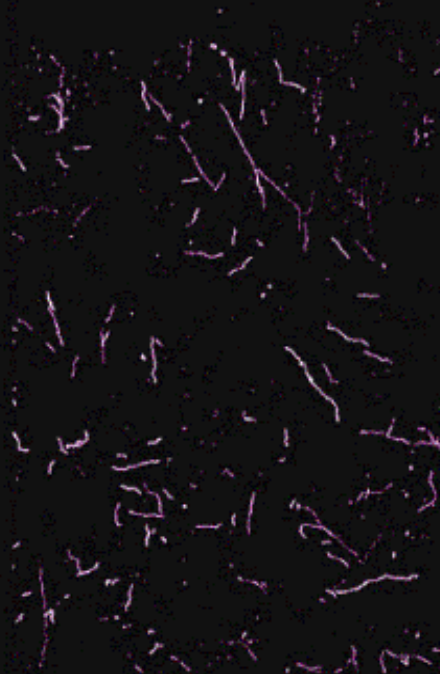


# Serotonin Present in Cerebral Cortex Neurons

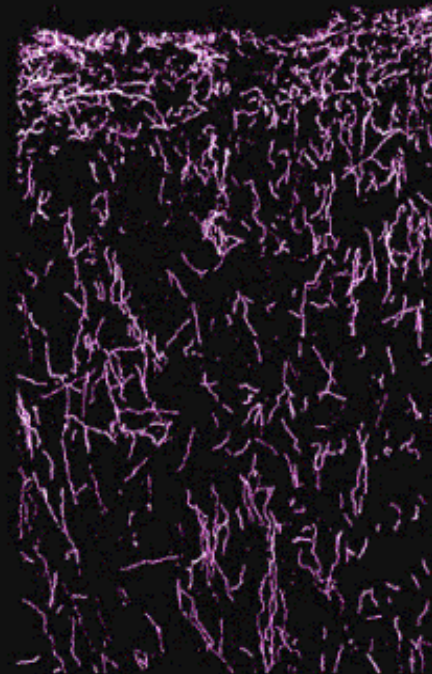
Normal



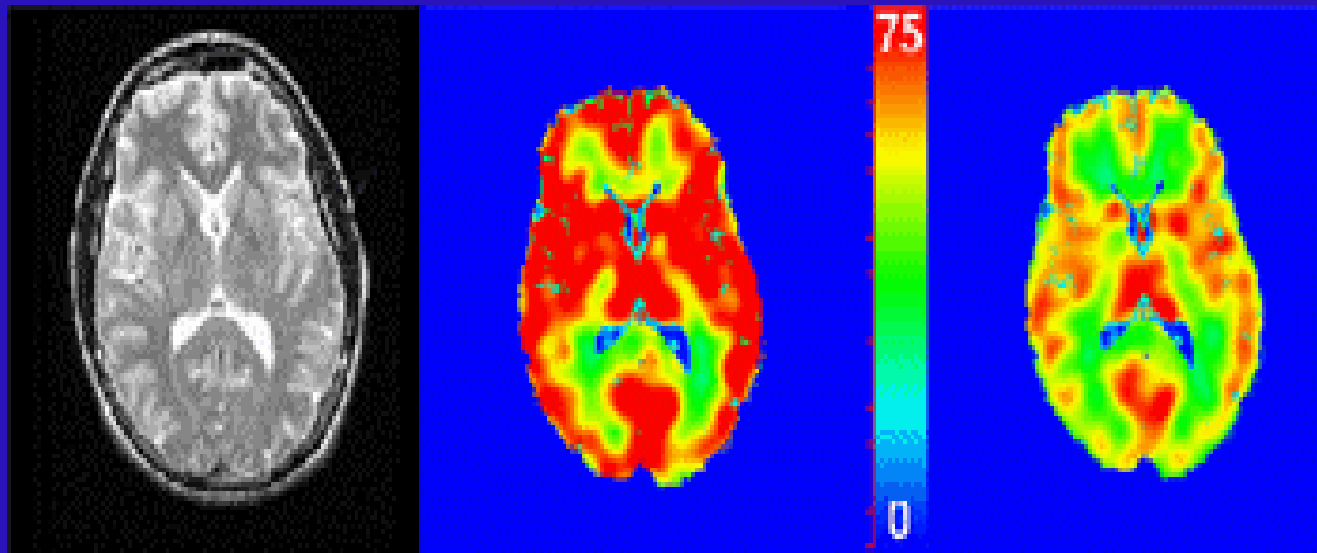
2 weeks after Ecstasy



7 years after Ecstasy



## Effect of MDMA Administration on rCBF

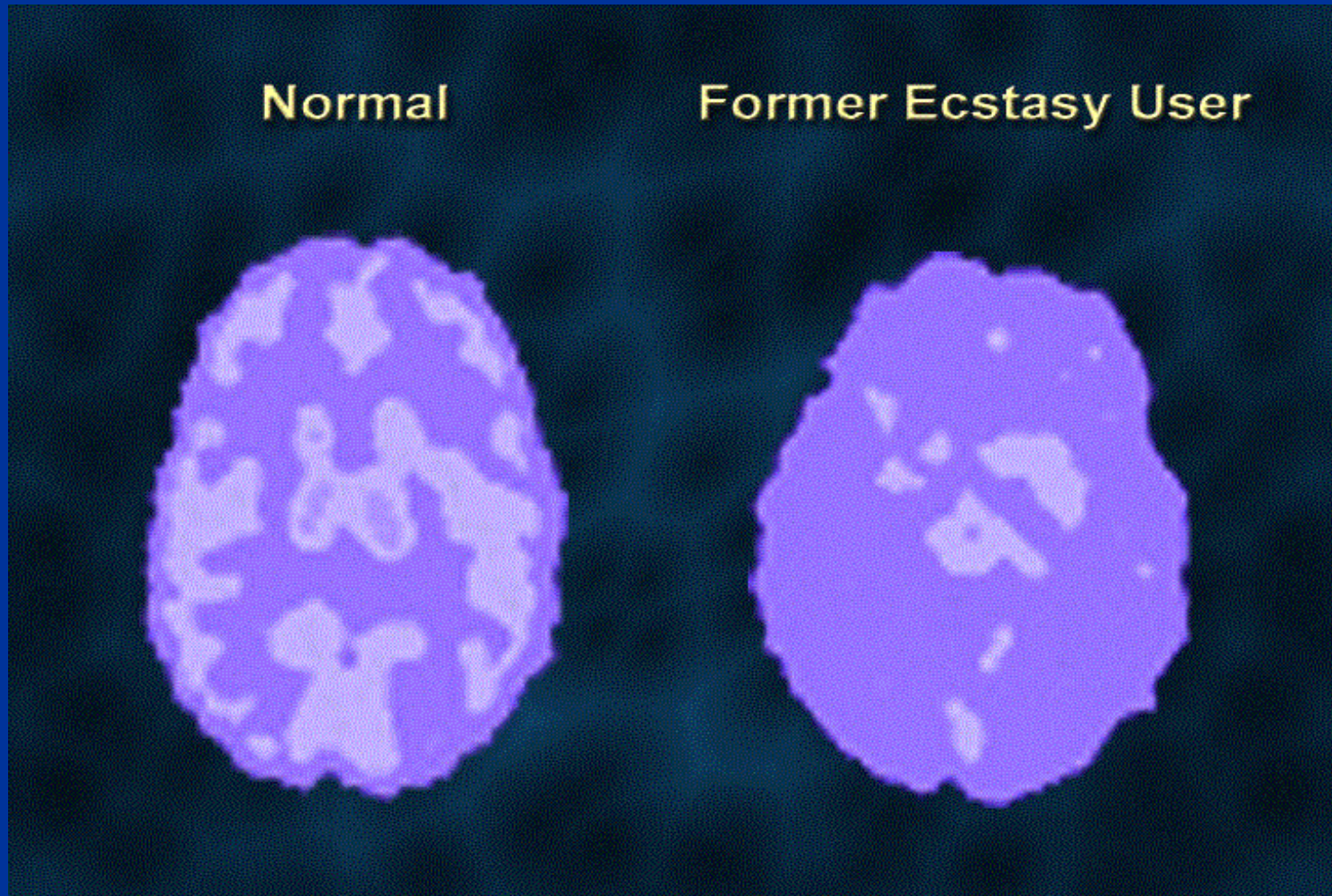


Subject  
(age 21 yr)

Baseline

2 weeks  
post-MDMA

# Human Studies of Chronic Users





# Ketamine



- Originally manufactured as a dissociative anesthetic for adults.
- It is derived from, and related to PCP.
- Still used in pediatrics, and in veterinary practices.
- Causes a dose dependent intoxication characterized by decreased levels of thinking, and a “zombie like” affect.
- Is classically dependency inducing.

# Ketamine Effects

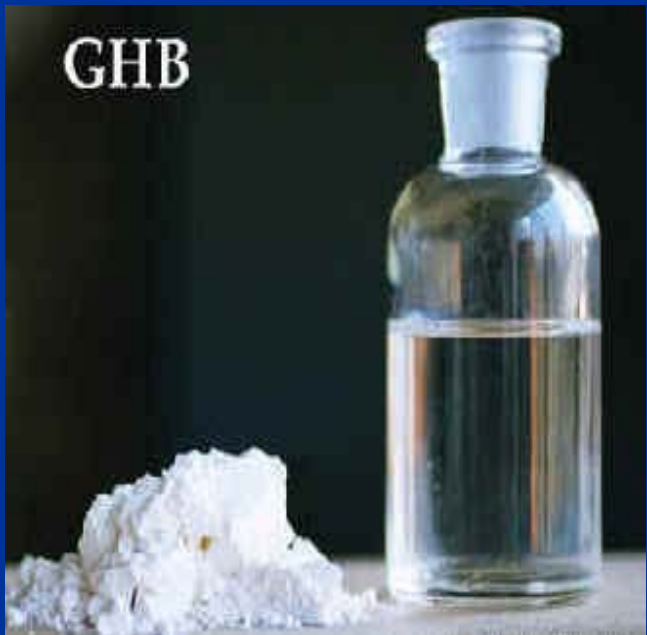
- Dose dependent dissociative affects
- Paucity of thinking
- “K Hole”
- Catatonia

# GHB

- Is a naturally occurring substance, probably a neurotransmitter
- Is available as a clear liquid
- Up until very recently its production and distribution were legal
- Causes a combination of stimulation and GABA-ergic effects
- Is one of two agents known as the “date rape drug”



# Management of Acute GHB Intoxication/Overdose



- Largely physiologically supportive
- Vigilance, with a “wait and see attitude is warranted.”
- Intubations and physiological support may be required in an overdose
- Jerking muscular movements are a result of GHB, not of seizures

# Immediate Dangers From GHB

- GHB has an incredibly small therapeutic index
- Difficult for enforcement officials to detect as it may be smuggled in vessels like Visine containers
- Overdose may result in decreased respiration and death

# Treatment of GHB Dependence/Withdrawal



- GABA agents are usually effective
- There is a paucity of well controlled studies
- Most anecdotal accounts indicate that regimens and protocols for alcohol withdrawal are likely to be effective for the treatment of GHB dependence

# Conclusions



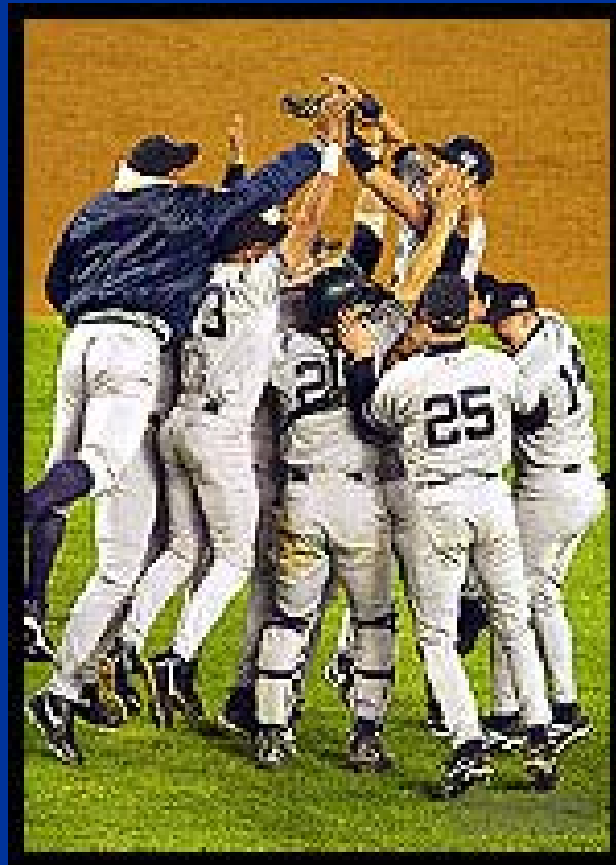
This is a scene from the movie “half baked.”

# Treatment Approaches



- Psychosocial
- Medical and Physiological Approaches
- In almost all cases, these must be combined
- An eclectic, flexible and thoughtful approach is almost always best.

The treatment should be done  
with a thoughtful team effort





The treatment should be done by  
a team

