

Speed G E Ecstasy

Designer Drugs:
What's New & Ongoing

BZP Special K
 Pot DMT Crystal

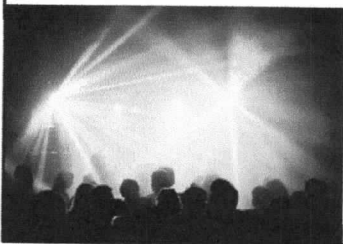
Designer Drug

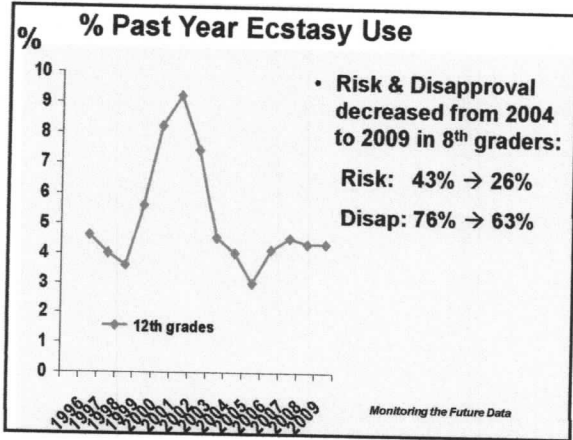
- A psychoactive drug deliberately synthesized or marketed to avoid anti-drug laws or mimic the effects of a banned substance usually by modifying the molecular structures of existing drugs to varying degrees or by creating entirely different chemical structures to produce effects similar to banned psychoactive substances

Buchanan JF & Brown CR (1988). Designer drugs: a problem in clinical toxicology. Medical Toxic and Adverse Drug Experience, 3(1): 1-17

"Ecstasy" - The Party Drug!

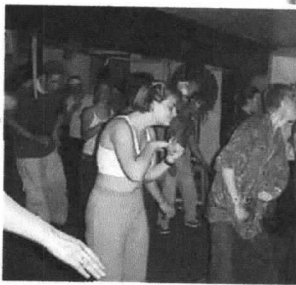
- Enhances energy, endurance, sociability and sexual arousal
- Hallucinogenic effects





Ecstasy - very appealing

- "Ecstasy is the fuel that drives the Party engine"
- Helps them feel one with the loud "techno" music:
"I become one with the beat"
"It feels like my heart is outside chest"



Party Drug use has spread to a wide variety of age groups and settings

- We are now seeing ecstasy at sports bars, private parties, college parties, in dorm rooms, on campus...
- High schools students are also using ecstasy at social gatherings, even at school

MDMA "Ecstasy"

"The pills look so innocent"

Cartoon characters:
Flintstones vitamins,
Snoopy...

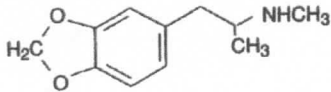
Wide range of logos,
colors, shapes:

A.k.a.: X, E, XTC,
Adam, Smurfs,
Clarity, the Love
pill, "The Hug
Drug", Rolls



Ecstasy

- Ecstasy is both a stimulant and psychedelic drug:
 - User doesn't lose touch with reality but many claim altered perceptions or feelings



3,4-methylenedioxyamphetamine
MDMA

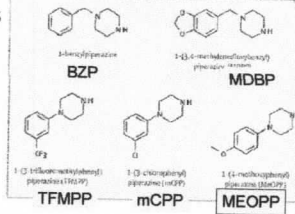
"Extreme Ecstasy"

Ecstasy laced with Meth

- More than 55% of the samples seized by DEA in 2008 contained methamphetamine
- Drug dealers make more money with this mix but it is more dangerous
 - Single pill sells for \$30-50

BZP or A2 1-Benzylpiperazine

- Recently emerged as a new class of designer drugs
- Serotonergic compounds studied for psychiatric use
- Being sold as a safer alternative to ecstasy



The Lancet 369:1411-1413, 2007

BZP or A2 1-Benzylpiperazine

- Amphetamine effects, mimics ecstasy: *include rapid heart rate, increased blood pressure, high temperature and seizures*
- Poisoning cases reported as well as serotonin syndromes in clinical studies
- Scheduled CI in 2004
- Not detected by routinely used immunochemical screening procedures; require GCMS

Foxy Methoxy, Nexus etc...

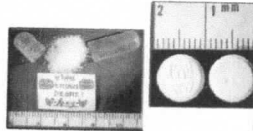
Designer drugs:

1. Foxy or Foxy Methoxy
2. Nexus, or 2C-B
3. Blue Mystic or 2-CT-7



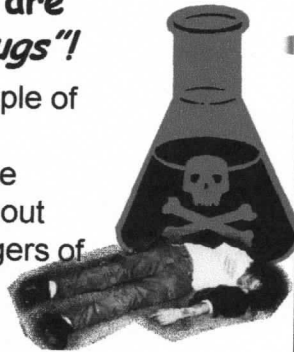
Foxy Methoxy, Nexus etc...

- Hallucinogenic tryptamines and phenethylamines in Schedule C1
- Generally used at clubs, parties, rave type venues
- Taken orally, smoked or snorted
- Effects last 2-6 hours
- Problematic physical & psychological effects

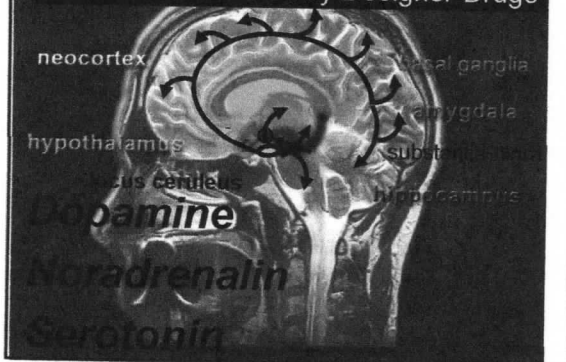


These Drugs are NOT "Fun Drugs"!

There are a multiple of physical and psychological side effects that point out the extreme dangers of their use!



Brain Areas Affected by Designer Drugs



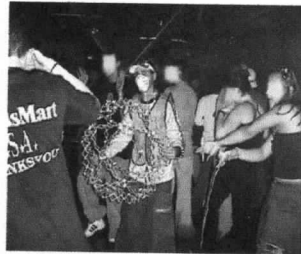
↑ **Dopamine Release: "DA rush"**

- Ecstasy/Meth produces feelings of well-being and euphoria, along with stimulation
- Users claim the intoxicating high enhances the party or trance experience



Stimulation – Noradrenalin rush!!!

Users claim:
Heightened awareness and desire to dance
Sustains them through long sessions of dancing or gyrating

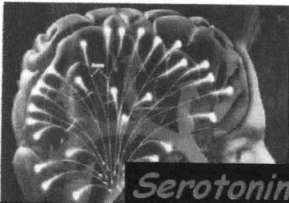
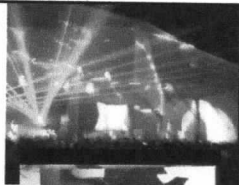


"Rolling" – using Ecstasy, "spaced out on E"

Health/impairment issues

"It's All About Lights"

- Visual images are enhanced by ecstasy
- Fascinated by seeing light trails, strobe lights, glow sticks ...



Serotonin rush



"Its All About Sensation"

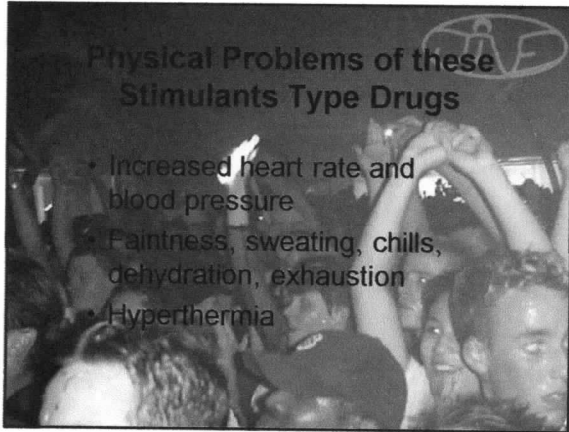
- Smell sensation is intensified by the high, resulting in a pleasurable effect from the fumes
- Vicks inhalants, cough drops, surgical masks with med rub

Serotonin rush



Physical Problems of these Stimulants Type Drugs

- Increased heart rate and blood pressure
- Faintness, sweating, chills, dehydration, exhaustion
- Hyperthermia

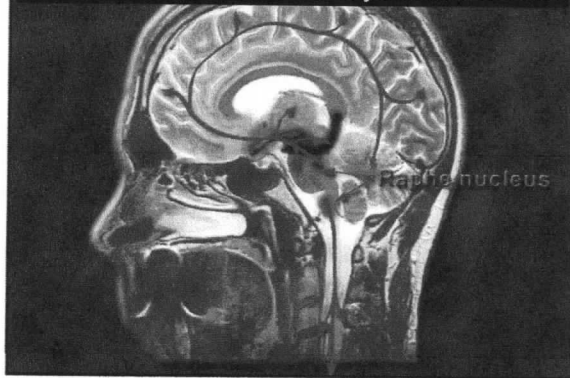


- Pupil dilation
- Eyelid twitches
- Blurred vision
- Headache
- Nausea
- Loss of appetite

What makes you think I've been using drugs?

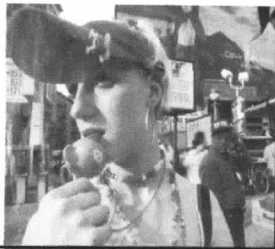


Serotonin Nerve Pathways in the Brain



Physical Problems

- Generalized muscle tension and spasms
- Teeth grinding, clenching
- Jaw muscle spasm or locking



Ecstasy as the "Hug Drug"

- Ecstasy has been dubbed the "Hug Drug"
- "It's more about a loving feeling than increased sexual activity"
- Gives kids feelings of "kissy, huggy, lovey"

Ecstasy as the "Hug Drug"

- Touch and fondle each other

"It's OK, he's my boyfriend, we met two hours ago"



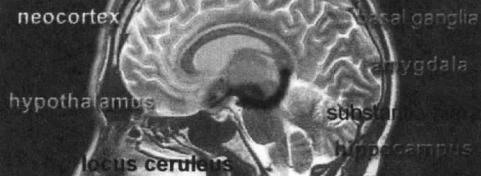
BUT...

- *It may not be about sex, but ... the party/drug scene certainly opens the door to problems:*

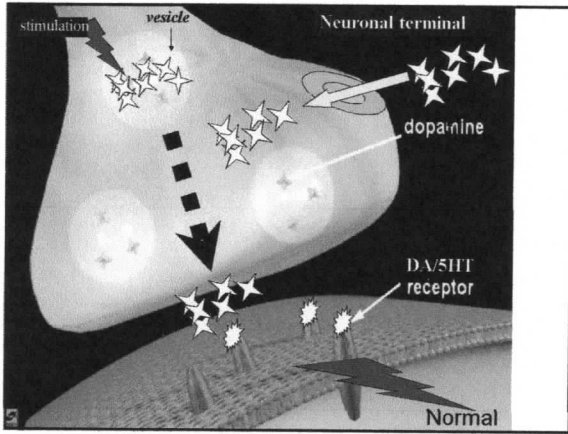


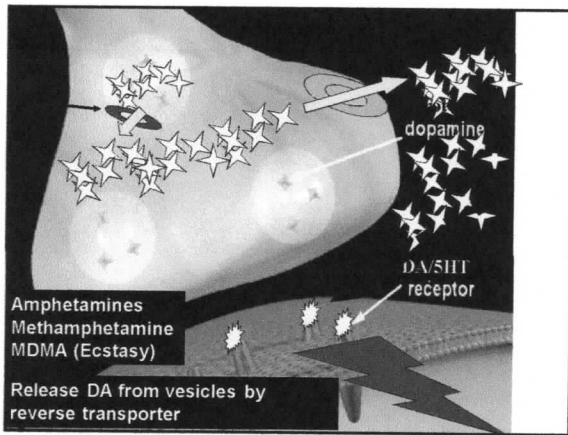
Inappropriate sexual behavior, STD's, and to exploitation by sexual predators

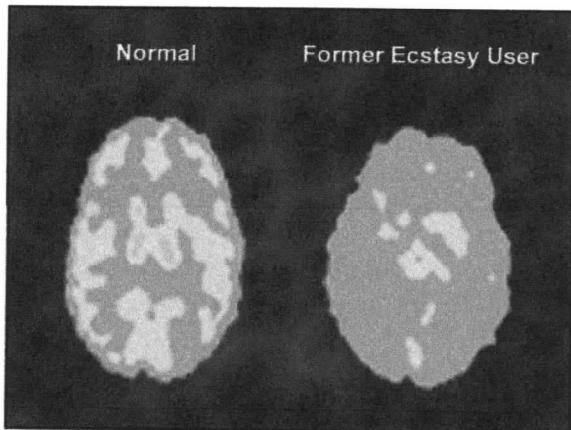
Neurotoxicity of Drugs

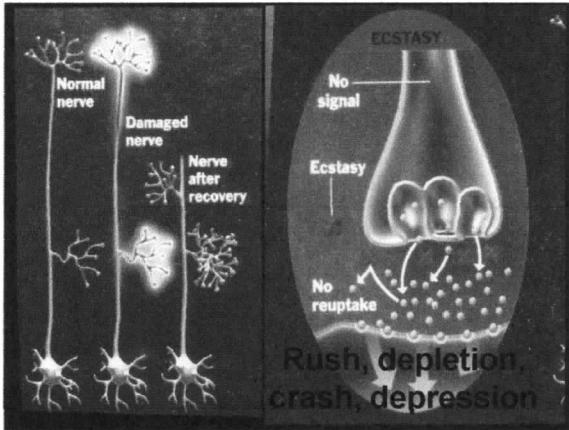


What's happening at the cellular level?









Psychological Problems

- Disorientation and confusion
- Agitation, anxiety, irritability, mood swings
- Depression – may last several days
- Mild hallucinations, depersonalization and insomnia
- Panic attacks, delirium, or even psychotic episodes have occurred

“Goodbye fun... Hello depression”

Human Studies

Chronic users do poorly on memory tests:

- Showed significant impairments compared to controls on:
 - visual memory scores
 - ability to reason verbally
 - decision-making
 - ability to sustain attention

McCann, *Psychopharmacology* 143:417,1999

Adulterants

- Illicit manufacture in Clandestine labs:

- No quality control, impurities, dose unknown,...

- Dealers often mix drugs:

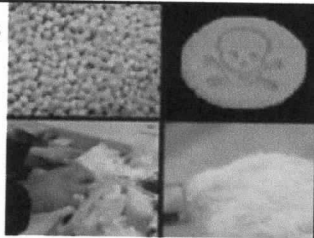
- methamphetamine/LSD
- meth/Ketamine or meth/GHB powder



You really don't know what you're getting

Laboratory analysis of pills sold as ecstasy contained:

- MDMA
- MDA
- MDEA – “Eve”
- PMA - para-methoxyamphetamine
- MBDB - 3,4-methylenedioxy-phenyl-N-methylbutamine
- Dextromethorphan (DXM)
- Ephedrine, caffeine, pseudoephedrine



Kalant, H. CMAJ 165(7):917, 2001

What to look for

- Possession of hollowed out pens, butane lighters, pacifiers, lollipops, glow sticks
- Red irritated nostrils, increased heart rate and blood pressure
- Dilated pupils, blurred vision, rapid eye movement
- Headaches, dizziness, muscle aches, clenching of the jaw, sore jaw, grinding teeth

What to look for

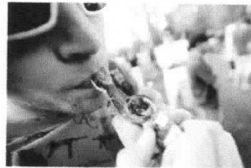
- Nausea, vomiting, weight loss
- Chills or sweating, high body temperature, profuse sweating, dehydration
- Faintness, confusion, trance-like state
- Depression, anxiety, panic attacks and paranoia
- Changes in sleep pattern, awake for extended periods of time

DMT Dimethyltryptamine

- Another designer/hallucinogen type drug originally from South American plant, tribes called it *yopo*



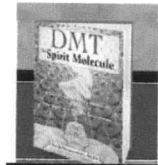
Synthetic DMT available
Users soak DMT with
parsley flakes or
marijuana leaves, dry and
smoke



DMT Dimethyltryptamine

- Popularity has grown recently with use at "*Spiritual Retreat Weekends*"

"The Spirit Molecule"
and
"The Essential
Psychoactive Guide"



*Psychopharmacology of serotonin &
the potential beneficial properties of
psychedelic drugs*

"Shadow people" and "Alien Abductions"

DMT Dimethyltryptamine

- Rapid onset of action, resembling LSD in action, lasts about an hour:
 - Produces mystical experiences in some individuals; others have had terrifying experiences
 - Anxiety attacks in users have been reported after these weekends
 - At high doses individuals may become catatonic and lose consciousness

Incense and Herbal Smoking Blends

- New products popped up on the internet and in headshops in 2002
- Variety of trade names: Spice Gold®, Spice Silver®, Spice Diamond®, Buddha Melt®, Yucatan Fire®, Genie®, and Skunk®



Incense and Herbal Smoking Blends

- Smokers claimed they produced strong marijuana-like effects
- Analysis could not detect any chemical responsible for alleged effects
- Attributed it to a "placebo effect"
- *But... analysis also failed to find any of the herbs listed on the packet labels*

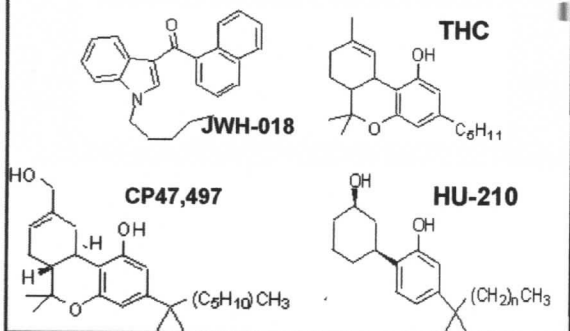
Designer Cannabinoids

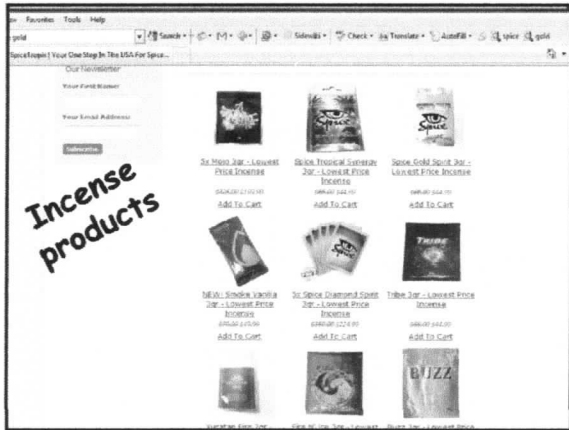
- *This raising suspicion that these products may contain unknown chemicals that produce effects similar to cannabinoids*
 - In Dec. 2008 a synthetic cannabinoid JWH-018 was discovered in the herbal smoking blend Spice®
 - Other synthetic cannabinoids: HU-210, HU-211, and JWH-073 were also discovered and are likely responsible for the psychoactive effects in these products

Designer Cannabinoids

- Synthetic cannabinoids can produce the same or even more powerful effects as those produced by the cannabinoid molecules in the marijuana plant
- They also have very different molecular structures than the plant cannabinoids

Designer Cannabinoids do not test positive for THC or THC metabolites by traditional drug testing methods





Withdrawal Syndrome After Consumption Of Designer Drug "Spice Gold"

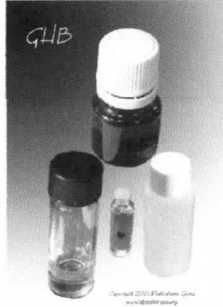
- Patient consumed "Spice Gold" daily for 8 mos.
- He rapidly increased daily dose from 1 g to 3 g
- He admitted continuous craving the drug
- He demonstrated loss of activity, neglect his duties, cognitive impairment, and was threatened with job lose
- Abstinence triggered a withdrawal symptoms:
 - Internal unrest, tremor, palpitations, headache, nausea, vomiting, depression
- These symptoms abruptly disappeared when he started consuming Spice Gold again

Deutsches Ärzteblatt International/ 106: 464-467; 2009

GHB
 (Gamma Hydroxybutyrate)
 and its precursor drugs:
GBL - Gamma Butyrolactone
1,4-BD - 1,4 Butanediol

GHB, GBL and 1,4 Butanediol

- All are rapidly acting, strong CNS depressant type drugs
- GHB is used as an anesthetic in Europe and approved in the U.S. as for sleep disorders



GHB, GBL and 1,4 BD

- Abused for their intoxicating, euphoric, and sedative effects
- GHB was banned by FDA in 1990 after concern for its safety and respiratory depression cases
- GHB was put in Schedule 1 in 2000 after reports of overdoses, deaths, and use in sexual assaults



GBL & 1,4-BD

- When ingested GBL and 1,4-DB are rapidly metabolize to GHB
- Same physical and behavioral effects and serious health hazards as GHB
- Commercially available as industrial cleaning solvents
- Neither are Scheduled but listed as a controlled substance analogue
- Warnings have been issued by FDA

GBL & 1,4-BD Sold on Internet

- **Advertised as:**

- Sports and nutrition supplements
- Anti-aging drugs
- Sleep aids
- Mood enhancers
- For anxiety & depression
- Weight loss aids
- Sexual stimulants



GHB, GBL, & 1,4-BD as *Date-rape Drugs*

- Sexual predators use these drugs to lower the inhibitions and defenses of women:

- Clear, odorless, nearly tasteless (salty) liquid
- Easily slipped into a drink w/o detection

- *"Date-rape, facilitated sexual assault, acquaintance rape"*



"Date-rape Drugs"

The victim becomes:

- Sleepy and lethargic
- Disorientated
- Experiences extensive muscle relaxation
- Confused and amnesic

Less able to resist or ward off unwanted sexual advances or assaults

GBL

- Use has become popular recently
- Multiple overdoses reported and some deaths
- Several reports of "blackout intoxications" and date rapes



Recent controversy – women who have lost control or consciousness due to excessive drinking have blamed it on spiked drinks

British Journal of Criminology 49:848-862, 2009

Ketamine (Ketalar, Ketaset)

- Short acting analgesic
- Used in critical care settings and veterinary medicine
- Chemically similar to PCP
- Abused at Raves and other settings



Ketamine (Ketalar, Ketaset)

- Produces feeling of dissociation, "Out-of-Body" experience, hallucinations
- Users develop confusion, negativism, and delirium
- Toxic to heart and respiratory systems



A.k.a.: "Special K, Kit-Kat, Super K, Vitamin K, Super Acid"

Nitrous Oxide

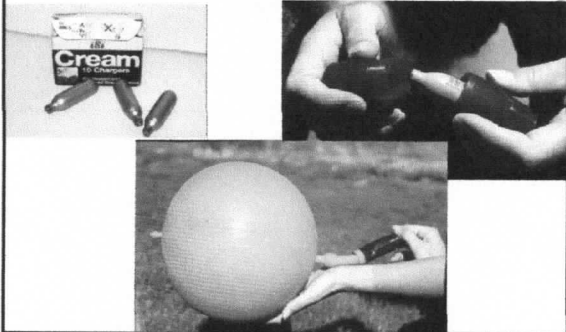
- Dissociative anesthetic
 - Fast acting, rapid recovery
- Discovered in 1870
 - “Laughing gas”
 - Euphoric, serene, calming effect

Nitrous Oxide

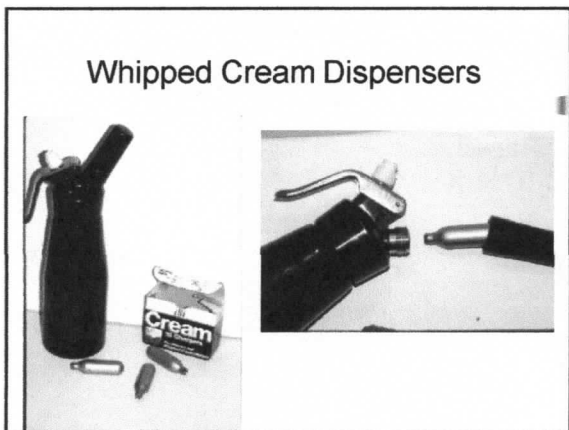
Canisters from medical supply house, auto shops, or dental offices



Whippets and Crackers Used to Fill Balloons







Effects of Nitrous Oxide Abuse

- Produces a “rush”
 - intoxicated/euphoric state
 - uninhibited and impulsive behavior
- Powerful hallucinogen
 - *distorted perception*
 - *spiritual or demoniac experiences*

Effects of Nitrous Oxide Abuse

- Dizziness, confusion, slurred speech and staggered gait
- *Impaired motor skills*
- Paresthesia and neuropathy
- Death – asphyxiation, aspiration