

Drugs and dependence

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ABUSE DRUGS

- After application change of perception
- Substances which form a habit

WHO definition

Drug

- natural or synthetic substance, which can change one or more functions of organism after use
- interaction with CNS
- should be use as a medicine

WHO definition

habituation

- condition, when exists thirst for drug, but his necessity isn't urgent
- dependence on drug is only mental
- generally lost tendency to increase dose

WHO definition

Drug dependence

- mental and sometimes somatic condition, (reciprocal interaction between organism and drug)
- characteristic changing in the behavior, or another reactions, which always include compulsion to take drug all time or at least regular, and do this for its mental affect or only for stop difficulties which lead from its absence

WHO definition

Mental dependence

strange tuning of mental function, which get to do person to next apply of substance for create agreeable mental affection or stop a bad mood and no agreeable feelings

Definice WHO

somatic dependence

- adaptation of the organism to enjoyed substance, which is a part of metabolism, and its absence lead to rising of abstinence signs

Definice WHO

toximania

- periodical and recurrent or chronic situation of intoxication developed by repeated application of drugs

Medicine or drug?

- opium
- morphine
- heroin
- codeine
- ethylmorphine
- hydrocodone
- phentanyle
- tilidine
- buprenorphine
- methadone
- pentazocine
- cocaine
- THC
- LSD-25
- atrophine
- pethidine
- ketamine
- AM
- MA
- MDMA

Medicine or drug?

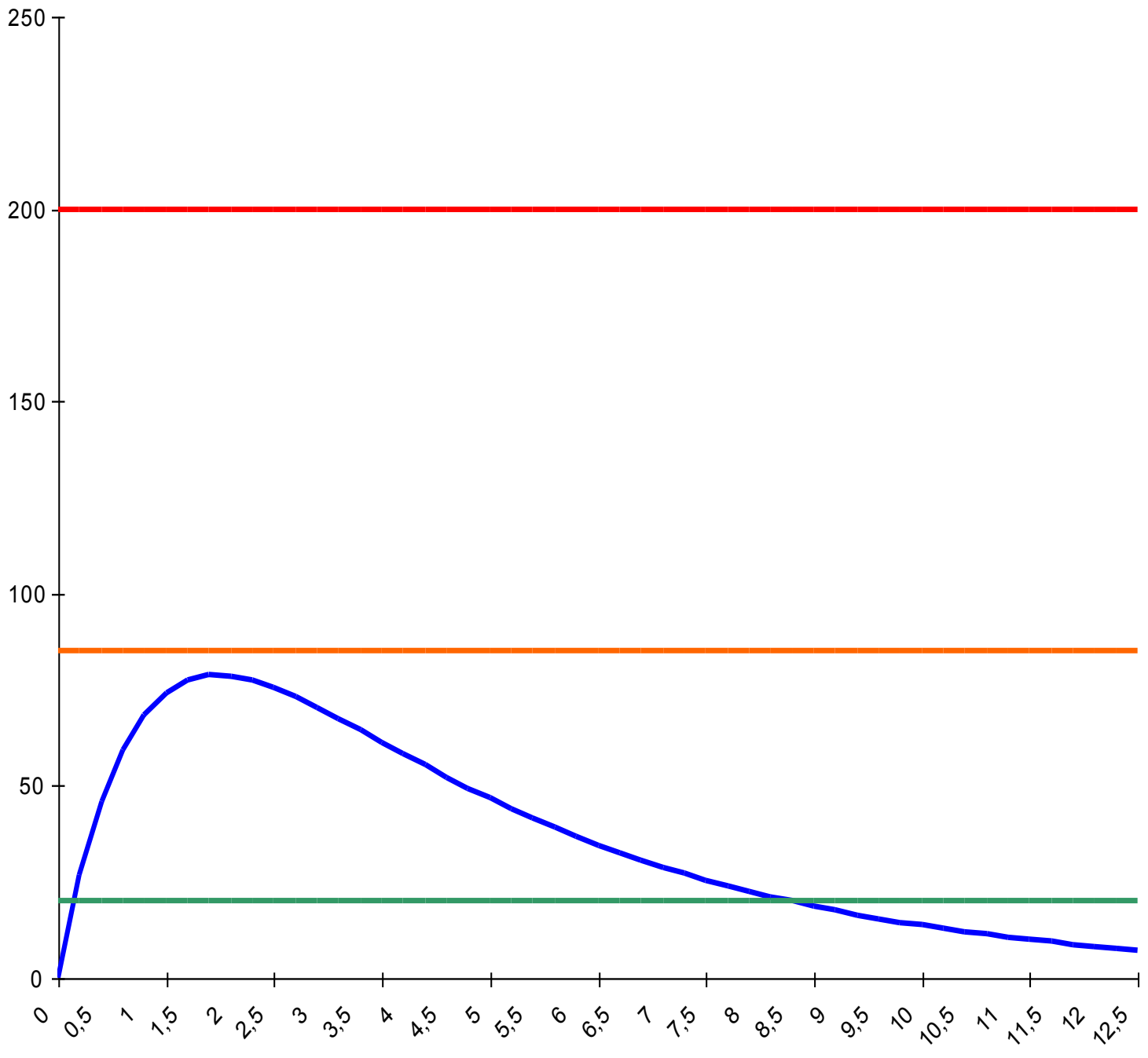
crucial is purpose of application:

- indication
- dose
- frequency



medicine

drug



DL50

poison

min. therap. c.

Types of drugs dependence

stimulative effect

amphetamines

alcohol

hallucinogenic

solvent

canabis

cocaine

cofeine

tobacco

inhibition effect

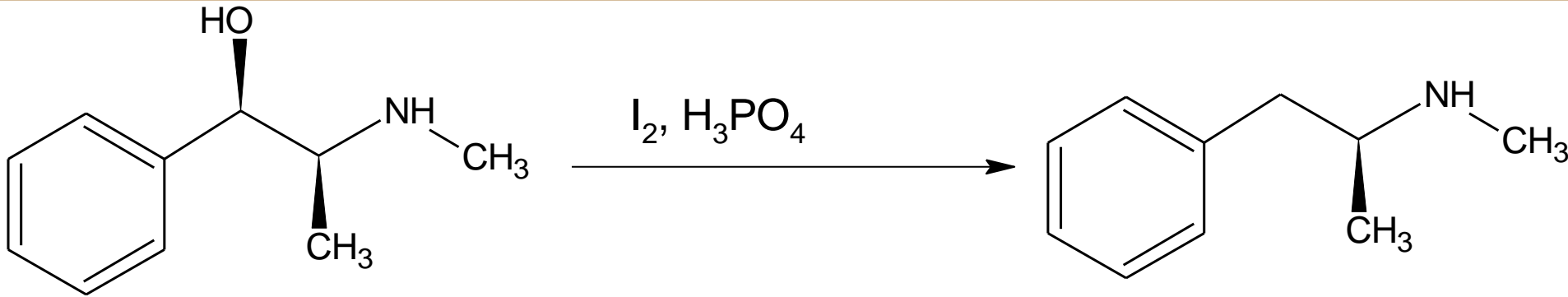
barbiturates (anxiolytic,
sedative)

opiates

Amphetamines type of dependence

effective substance	metamphetamine (Pervitin), amphetamine
application	per os, i.v., rarely inhalation
effect	inhibition of hungry feelings, fatigue; feel as hale and hearty, quickly start, effect for few hours; biological halftime 12 up to 34 hours.
express	hyperactivity, irritation, tremor, lose of self control, fuzziness up to paranoi feelings; mydriasis, sweating, loss of appetite, sleeplessness; loss of weight; vasoconstriction, high pressure, quickly pulse, failure of thermoregulation; anaesthesia of periferal nervs, transient skin exanthéma, punctures
therapy	acute phase benzodiazepine, later neuroleptic medicine
abst. symptoms	nervousness, disquiet, apathy, long sleep
death	circulatoryfailure,or.brain haemorrhagy

metamphetamine - production



ephedrine

metamphetamine

czech way

metamphetamine - effects

- bigger communicativeness, quickly speaking, feeling of big physical and mental power
- in higher doses lead to status of intensive emocional hypereuphorie (lightning intensive well-being, orgasm of whole human), total perceptions are unusual strong and clear, time go slowly
- man is very conversational, coping hard mental work (at least subjectively)
- chronic abuse - disquiet, hallucination, psychosis

Halucinogenic type of dependence

effective substance	mescaline, psilocybin, atropine; MDA, MDMA (ecstasy); LSD
aplication	per os
effects	transient mental changes which lead to affecting sensation, myšlení a nálady bez výraznějšího tlumivého nebo stimulačního efektu na CNS
symptoms	changing between anxiety and depression with euphoría; ecstasy: loose of barriers, tendence to get-togetherness, sexual stimulation; disturbance in time perception, space perception, perception of own body, "crossed" sense perception, pseudoillusions (acustic and visuál) up to hallucination, disorientation, paranoid status up to psychosis <ul style="list-style-type: none">- personal changing- higher selfdestructive, suicidal and agresive tendence against surround;- mydriasis, sweating, tremor;- extremly high blood pressure, palpitation, higher body temperature but you feel it as cold – „creepiness“, shakes, muscles fibrillation; rapid – breathing have character of hyperpnoe- „flash-back“ fenomén - suddenly spontaneous status. comeback intoxication with few days or month latency, when the drug was use (LSD)
abstinence symptoms	unpredictable statuses
death	failure of breathing - malfunction of breathing centre in the CNS; at ecstasy dehydratacion, exhaustion, circulatory failure

MDMA

- Increase blood pressure and pulse
- dryness in mouth, teeth creak, closing jaws, discomfort, sweat, lose of appetite, muscle fibrillation, nystagmus, spasms
- body termoregulation is unfunction
- lost connection with feelings of warm and cold
- risk of overheating

MDMA

- after lose of effect, becam often depression and thick head
- paranoia became
- thick head at combination with amphetamine
- MDMA is neurotoxic (change the brain tissue), can break ability of coordination

MDMA

Secondary effects

- persisting less than one week
 - shorter sleeping, low appetite, bigger emotional sensitivity, lost of possibility to do mental or physical work
- persisting more than one week
 - better social or inter personal relations, changing in religious or spiritual orientation or customs, better work activites, changing of live priorities and valuation, changing in perception of one's ego

MDMA

- stimulant
- feelings of empathy (ability to feel feelings of others), freedom, equanimity, interest about others
- communications barriers fall down
- feelings of peace, common every day seeing things are happen beautiful and interesting.
- abusers are well-rested, happy, relaxed and heartily (friendly) to other one
- depress erection, women are sexual excitable than men, but even they haven't full orgasm

Cocaine type of dependence

effective substance	cocaine, crack (cocaine with alcali substance)
aplication	sniffing, i.v., smoking (crack), chewing leaf of coca
effects	better temper, become feel of freshness, powers and spiritual abilities; quickly start; biological halftime is dependent on dose - ½ up to 1½ hod. tolerance is increasing – time of effect is shorter
express	hyperactivity, irritation, euphory, verbosity, paranoid statuses, tremor, agresivity; personal changing; mydriasis, sweat, loss of apetite, vasoconstriction, higher blood pressure, quicklier pulse damage of nose epithelium and nasal septum, puncture; paralysis of CNS, damage of brain;
abstinence symptoms	irritation, apathy, dejectedness
death	hearth arhythmia which is induced by toxic effect on to nervous system of hearth, so called cocaine shock; bleeding into brain at hypertenzion, depress of breathing centre
demonstration	in urine can demonstrate few hours, metabolites few days, hair

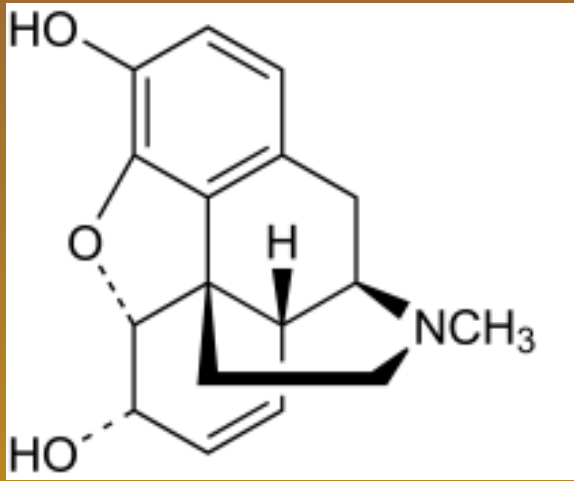
Cannabis type of dependence

effective substance	Δ^9 -THC delta-9-tetrahydrokanabinol (marihuana, hashish)
aplication	smoking, per os
effects	better temper , feelings of pleasant dreams, lethargy; sometimes feelings as gloominess, anxiety
express	<p>euphory or depression, inner disquiet, verbosity; disorders of time and space perception, short memmory and reminisce, criticism, thinking (not coherent), concentration and attention; intensive perception of sound and colours, low interest about surroundings - sometimes on the contrary aggression against surroundings, disorientation, fuzziness;</p> <ul style="list-style-type: none">- lost of stimuli and motivation, paranoid statuses, depersonalization, halucination; dementia- mydriasis, red conjunctiva, photodysphoria, sometimes double vision; loss of appetite or contra higher appetite; worse coordination;- fall of blood pressure, slower pulse, decrease of body temperature; dry and irritable cough
abstinence symptoms	nervousness, hyperactivity, insomnia
death	deathly overdosing wasn't describe

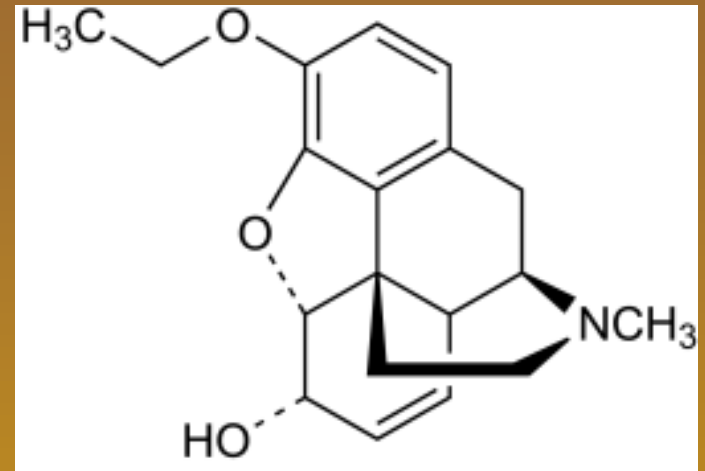
Opiate type of dependence

effective substance	opiates: opium, morphine, ethylmorphine (Diolan), diacetylmorphine (heroin), codeine, dihydrocodeine opioids: buprenorphine (Subutex), methadone, pethidine (Dolsin)
aplication	Intra venous, per os (methadone), sniffing, inhalation
effects	changing of affection - euphory; inhibition of affective part of pain; quckly start; perzistence, dependent on degree of tolerance, few hours (biological halftime dependent on kind of the substance: heroin 5 to 20 min.; morphine 2 up to 3 hours, at depot forms longer; methadone 10 up to 18 hours,, pethidine 2,5 up to 4 hours);
symptoms	Inhibition of CNS – slowly reactions, reflexes, slowly speaking, sleepiness, concentration disorders, apathy, rigidity; - extreme miosis, sometimes nettle rash, constipation; punctures; bloody spume in the mouth and in the nostrils; - low blood pressure, slowly pulse, breathing disorders, immune-suppression; - cachexy, total personality marasmus ;
therapy	Naloxone, Intrenone – shorter biological halftime (1 up to 2 hours) – repeat doses
abstinence symptomsy	persists - 5 up to 7 days - disquiet, nervousness, irritation up to aggression, sleeping disorders, depression; thirsty for opiates - mydriasis, disorders of vision; tremor, attacks of spasms, pains of muscles, joints; cold sweat, vomiting, diarrhoea; - ascendent breathing and hearth frequency, arhythmia
death	stop of breathing, circulatory failure; „opiates“ brain oedema

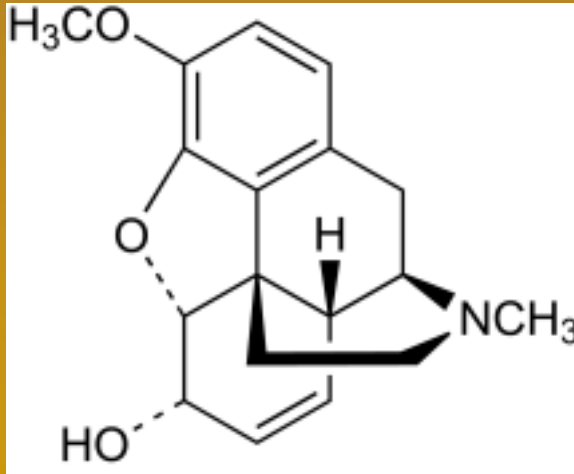
Opiates



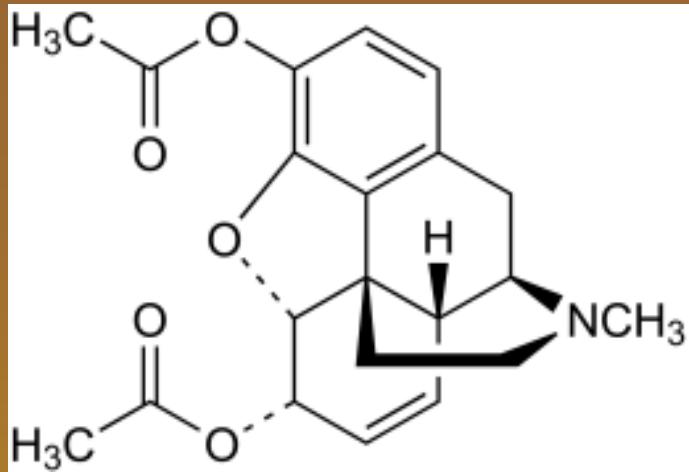
morphine



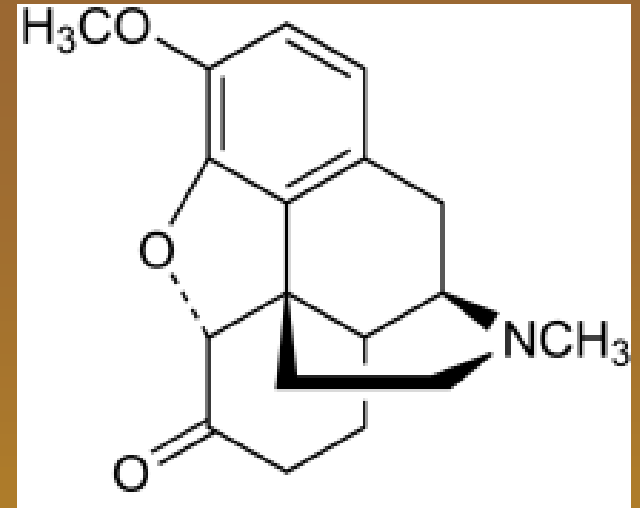
ethylmorphine



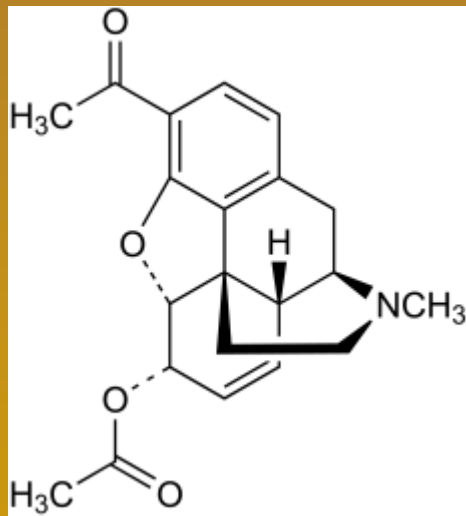
codeine



heroin



hydrocodone



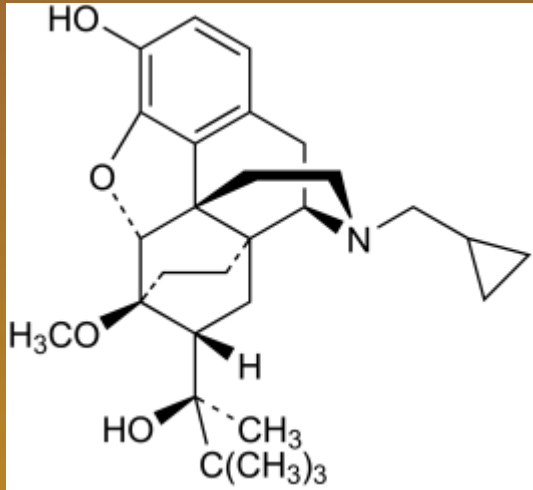
acetylcodeine

Heroin

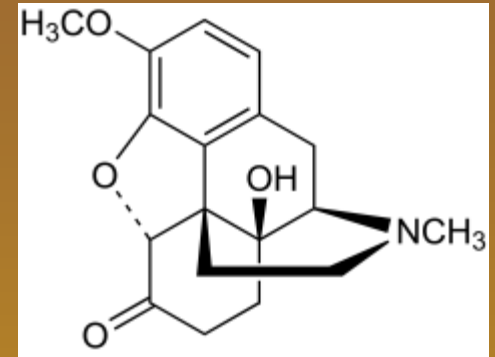
- most effective opiate
- rising physical dependence
- increasing tolerance
- abstinence symptoms
- further dose or substitute is necessary
- **no possibility of healing**



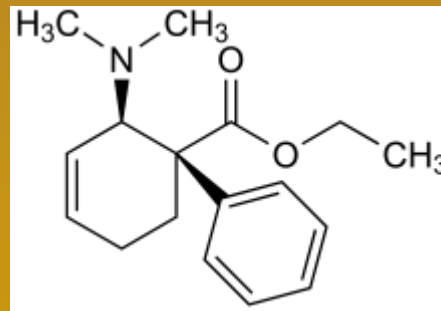
Substitution



buprenorphine

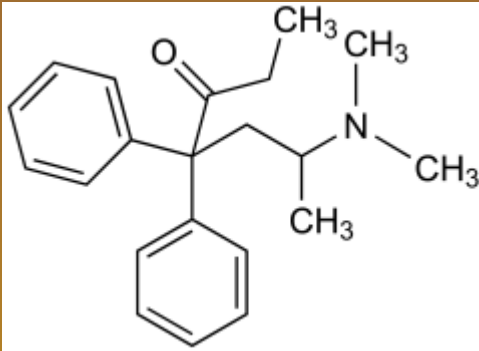


oxycodone

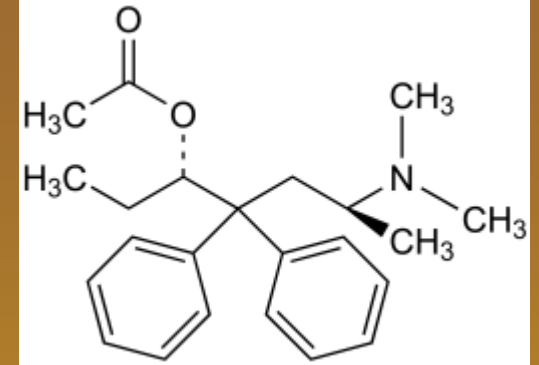


tilidine

Substitution

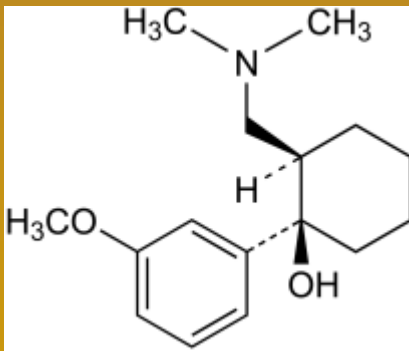


methadone

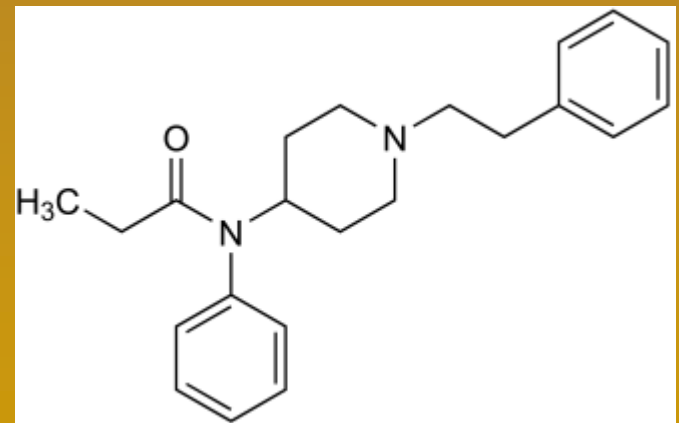


LAAM

levacetylmethadol



tramadol



fentanyl

Heroin abuser – trofic changes on the crus



Heroin abuse – trofic changes on the crus



Heroin abuser – a lot of punctures in cubita



Heroin abuser – congested arachnoid and pia mater
– haemorrhagy in the right occipital lobe



Solvent type of dependence

effective substance	toluene, benzene, gasoline, ethylene chloride
aplication	inhalation
effects	lower concentration: excitation; euphory, "light drunk" higher concentration: inhibition; dosorders of perception, lethargy, not full and quality sleeping - quickly start, few hours of effect
symptoms	euphory, verbalism, loss of scrupless and criticism, colourness vison, acoustic and vision halucinations; disorientation in space, - slower reflexes, speaking and coordination disorders, nausea, spasms, aggression to surroundings , bad sleep; worse memmory, loss of intellect, hard depression, deliriums, tremors, break up of personality; mydriasis, photodysphoria, whiteness of face, little dizziness, nausea, vomiting, tinnitus, lacrimation, deterioration of nose epithelium, CNS, liver, kidney, peripheral nerves, hearth muscle; respiratory difficulties, degenerative changes in the bone marrow
abstinence symptoms	irrritation, depression, aggression towards surroundings; tremor, nausea, hard headache, delirium looks like as „delirium tremens“
death	Complications by reason of adverse side effects or manner of application; toxic evoke hearth arythmia (sometimes is few of breath enough) – suddenly death syndrome

Toluene

Effects: narcotic effect, in higher concentration leads to excitation, unconsciousness and perhaps even death

At chronic exposition cause sleepiness, weariness, headache, sleep disorders. On the skin rise dermatosis.

Inhalation of toluene lead to euphoria, sleeping with colour dreams and development of fantasy mind and ideas.

After application come very quickly sleeping, sometimes unconsciousness.

Be on (take drug): 200 g toluene / m³

Industry : 0,2 g toluene / m³

Another abuse substances

butane

we can't estimate right dose
death - suffocation

azoxide

„coloured visions“ – memories illusions

Barbiturates type of dependence

effective substance	barbiturates, benzodiazepines
aplication	per os
Effect	anxiolytic, amnestický (sedace při vědomí), central myorelaxans, anticonvulsie, sedative, hypnotic
symptoms	sleepiness, fuzziness, dyplopia, disorientation in time and space, concentration disorder, ataxy, coordination disorder, low blood pressure, inadequate behaviour, sometimes hostility, at women amorosis notions; rise of habit
therapy	symptomatic, flumazenile
abstinence symptoms	anxiety, sleepessness, tremor, convulsions, epileptic fit
death	complications by reason of side effects

suicide Rohypnol



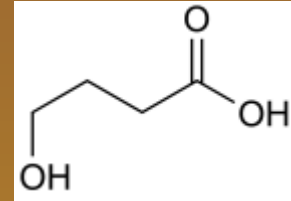
Rohypnol



Another abuse substances

- PCP
- ketamine

- GHB



- ayahuasca (harmine, harmaline)
- chloral hydrate $\text{CCl}_3\text{CHO}\cdot\text{H}_2\text{O}$
- nutmeg
- ...

amfetaminy

stimulation drugs

cocaine

ego

opiates

escape

tobacco

remove stres

drogy

marihuana

relaxation drug

ecstasy

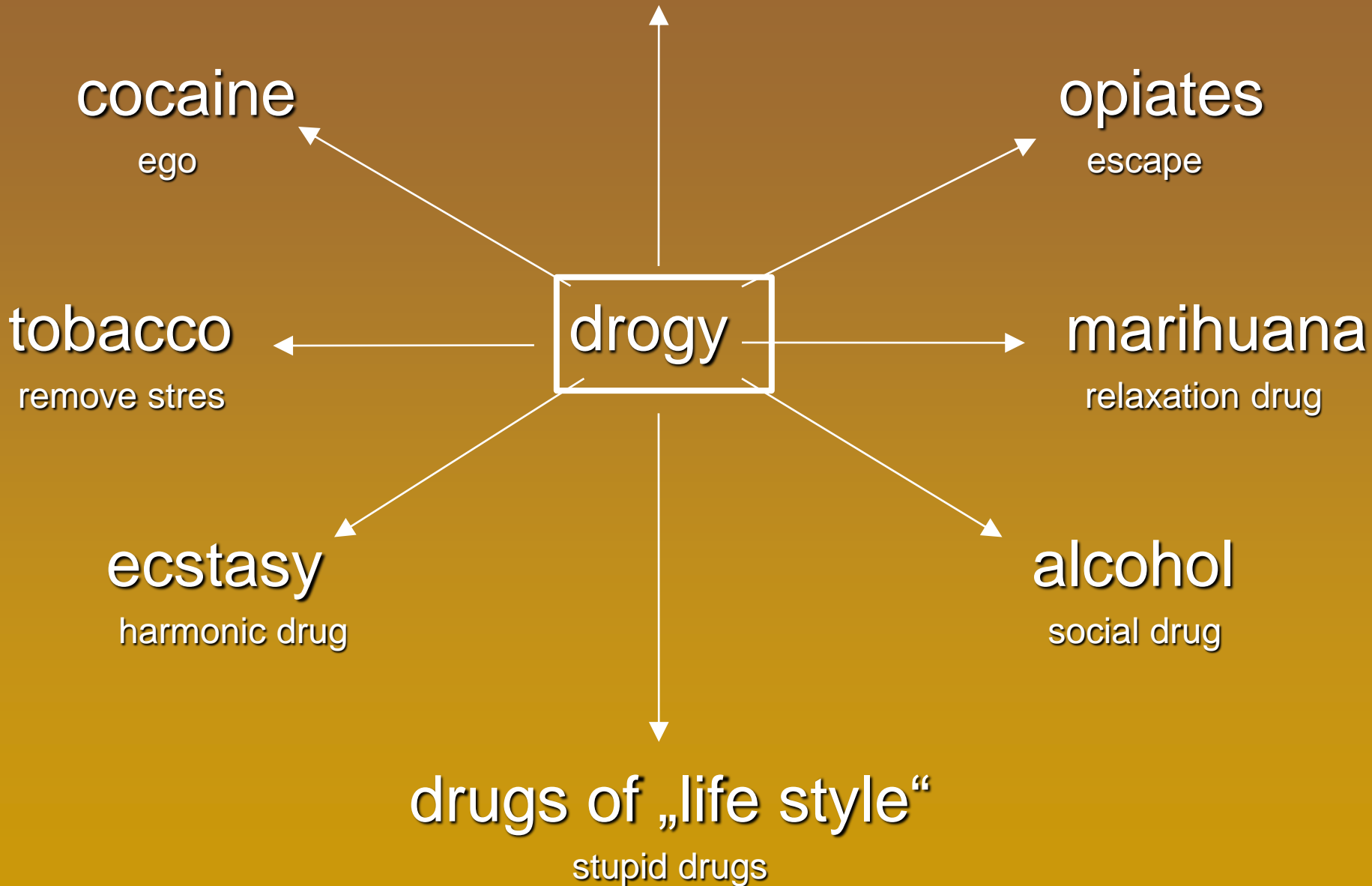
harmonic drug

alcohol

social drug

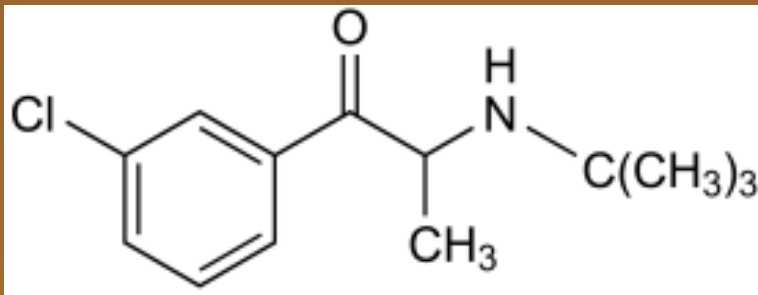
drugs of „life style“

stupid drugs



rozdělení zneužívaných látek

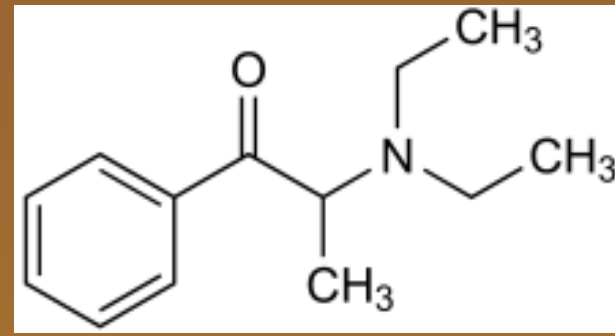
- chemické skupiny – aminy, tryptaminy, opitáty
- účinku – halucinogeny, stimulanty, entaktogeny
- přírodní × syntetické
- legální - nelegální
- ~~● měkké - tvrdé~~



amfebutamon

Zyban[®]

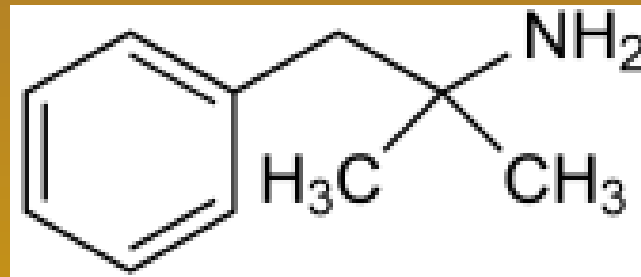
odvykání kouření



diethylpropion

Anorex[®] Tenuate[®]

anorektikum



phentermin

Adipex[®]

anorektikum

Omamné látky

např.

- Seznam I:** KOKAIN, KOKA – list
koncentrát z makové slámy
MORFIN, FENTANYL
METHADON
OPIUM
oxykodon
PETHIDIN
TILIDIN
- Seznam II:** KODEIN, dihydrokodein, norkodein
- Seznam III:** HEROIN
KONOPÍ
pryskyřice z KONOPÍ

Psychotropní látky

Seznam I: LSD
MDMA – MMDA
MESKALIN
PSILOCYBIN
TETRAHYDROKANABINOLY – THC

Seznam II: AMFETAMIN
METAMFETAMIN

Seznam III: amobarbital
flunitrazepam
glutethimid
pentobarbital

Seznam IV: fenobarbital
diazepam

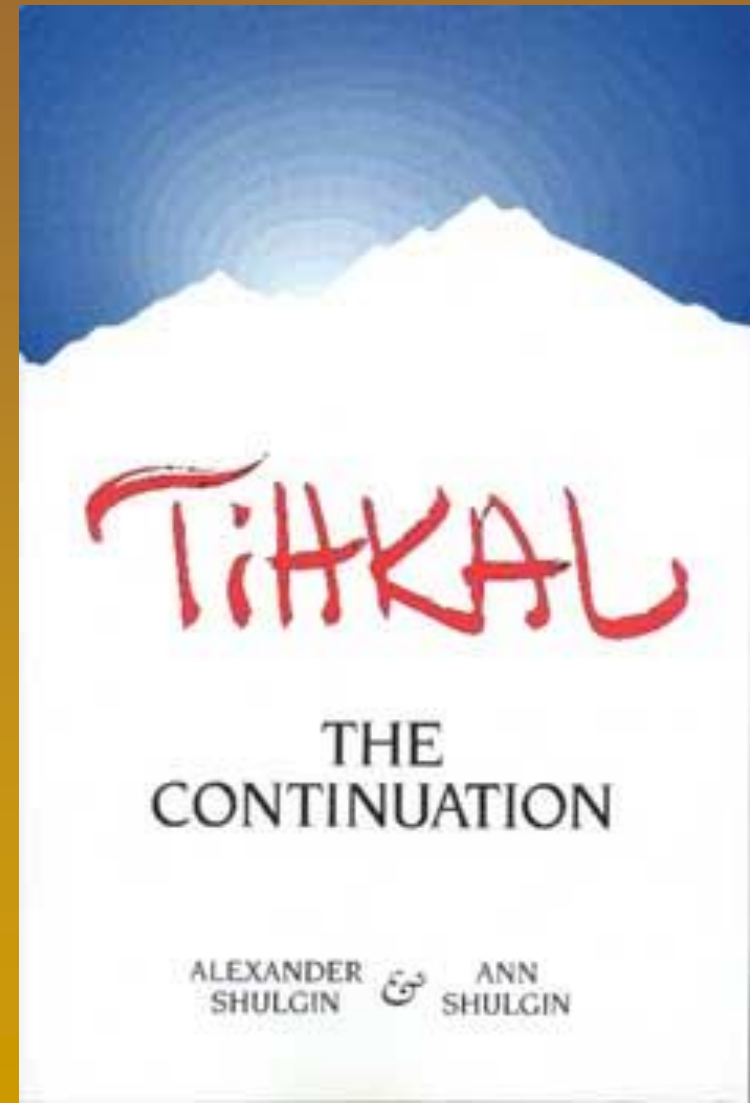
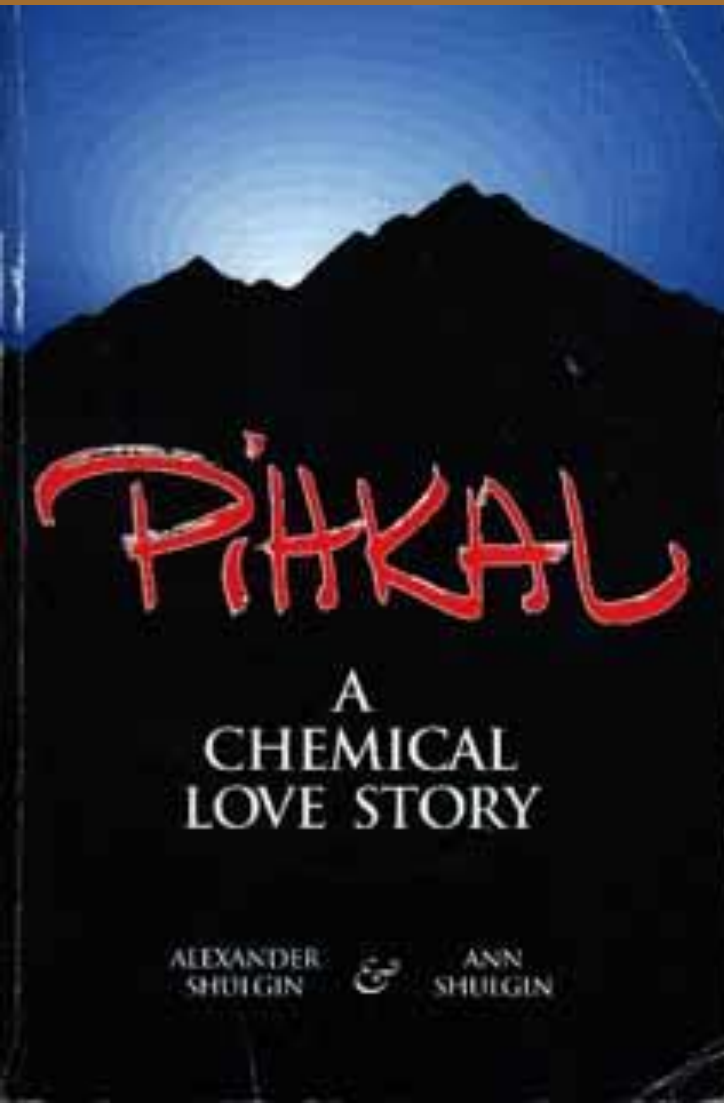
Průkaz návykových látek v biologickém materiálu

1. **Záchyt – screening**
TLC
GC
imunoanalyzátory - VIVA, ABBOT
HPLC, REMEDI
1. **Stanovení**
GC
HPLC - DAD
UV - spektrofotometrie
1. **Forenzní ověření**
GC - MS
HPLC - MS

Průkaz návykových látek v biologickém materiálu

látka	detekční limit	
	screening	konfirmace
alkohol	0,20 g/kg	0,20 g/kg
barbituráty	200 µg/l	200 µg/l
AM/MA	1000 µg/l	200 µg/l
benzodiazepiny	200 µg/l	200 µg/l
kannabinoidy	50 µg/l	5 µg/l
cocaine (metabolit)	300 µg/l	50 µg/l
kodein	300 µg/l	50 µg/l
dihydrocodein	300 µg/l	50 µg/l
methadon	200 µg/l	200 µg/l
6-monoacetyl morfin		10 µg/l
morfin	300 µg/l	50 µg/l
thebain		50 µg/l

Literatura



Clarke's Analysis of Drugs and Poisons 2004

Single-user version

Edited by: Anthony C Moffat, M David Osselton, Brian Widdop



přestávka

