ADDICTION (I.) SUBSTANCE USE, DEPENDCIES…

Addiction

In medicine, an **addiction** is a chronic neurobiological disorder that has genetic, psychosocial, and environmental dimensions and is **characterized by one of the following:**

the **continued use** of a substance despite its detrimental effects,

impaired control over the use of a drug (compulsive behavior), and

preoccupation with a drug's use for non-therapeutic purposes **(i.e. craving** the drug). Addiction can be behavioral addiction.

- Psychoactive substances are compounds, that can alter one's state of mind
- Since antiquity….
- All age groups are affected, particularely the young people

Terminology

- Brain-altering substances
- Psychoactive substances
- Legal-illegal substances
- Substance ≅ drug (manifactured chemical)

- Addiction
- Dependence: withdrawal + tolerance
  - Physical – behavioral
  - Psychological (= habituation)
- Abuse
- Misuse

Lot from the Bible, the first grape and the wine

Reasons individuals may give for drinking excessively

Pleasure from the intoxicating effects.
Boredom and loneliness ("alcohol is my best friend").

To treat depression (despite alcohol's being a depressant).

To treat anxiety (despite increased anxiety during the withdrawal phase).

To treat insomnia (despite impairment of deep sleep patterns).

- To cope with guilt and remorse (often over excessive drinking, creating a vicious cycle).
- To reduce physical pain.
- To reduce emotional pain (e.g., to numb feelings).
- To regain a feeling of normality ("I was born a pint low").
- To come down from the effects of stimulants (e.g.

. Lot from the Bible, and the first drunkness

Substance Use

Several aspects:

- Moral
- Legal
- Economical
- Medical
- Scientific

DRUG

- Any substance, natural or artificial, other than food, that by its chemical nature **alters** structure or function in the **living system**

- Every drug has **multiple effects**
- Both the size and the quality of a drug's effect depend on the **amount** and the individual has taken

- The effect of any psychoactive drug depends on the individual's **history** and **expectations**. **Reward, neuroadaptation**

Psychoactive drug

Psychoactive drug can be behaviorally **reinforcing**, produce altered states of consciousness, and help individual make a social statement about what group he or she belongs.

Chemical and behavioural dependency spectrum - loss of control

- Vulnerability, genetic background
- Primary or secundary (dual diagnosis) depression, anxiety, self destruction,,,

- culturally prescribed, or tolerated habits, availability, individual personality traits, direct group-impacts, interpersonal conflicts

Figure 8. Molecular genetics of addictions as summarized by Kendler and colleagues (2003)

- **Alcohol** DRD2 1A allel polimorphism (11q22-23)DAT polimorphismDRD3-, DRD4 receptor polimorphism5HTR 1B receptor polimorphism5HTTP polimorphism
- **Opiates** μ receptor polimorphism
- **Nicotine** SLC18A2 (synaptic vasicular amin transporter) polimorfism

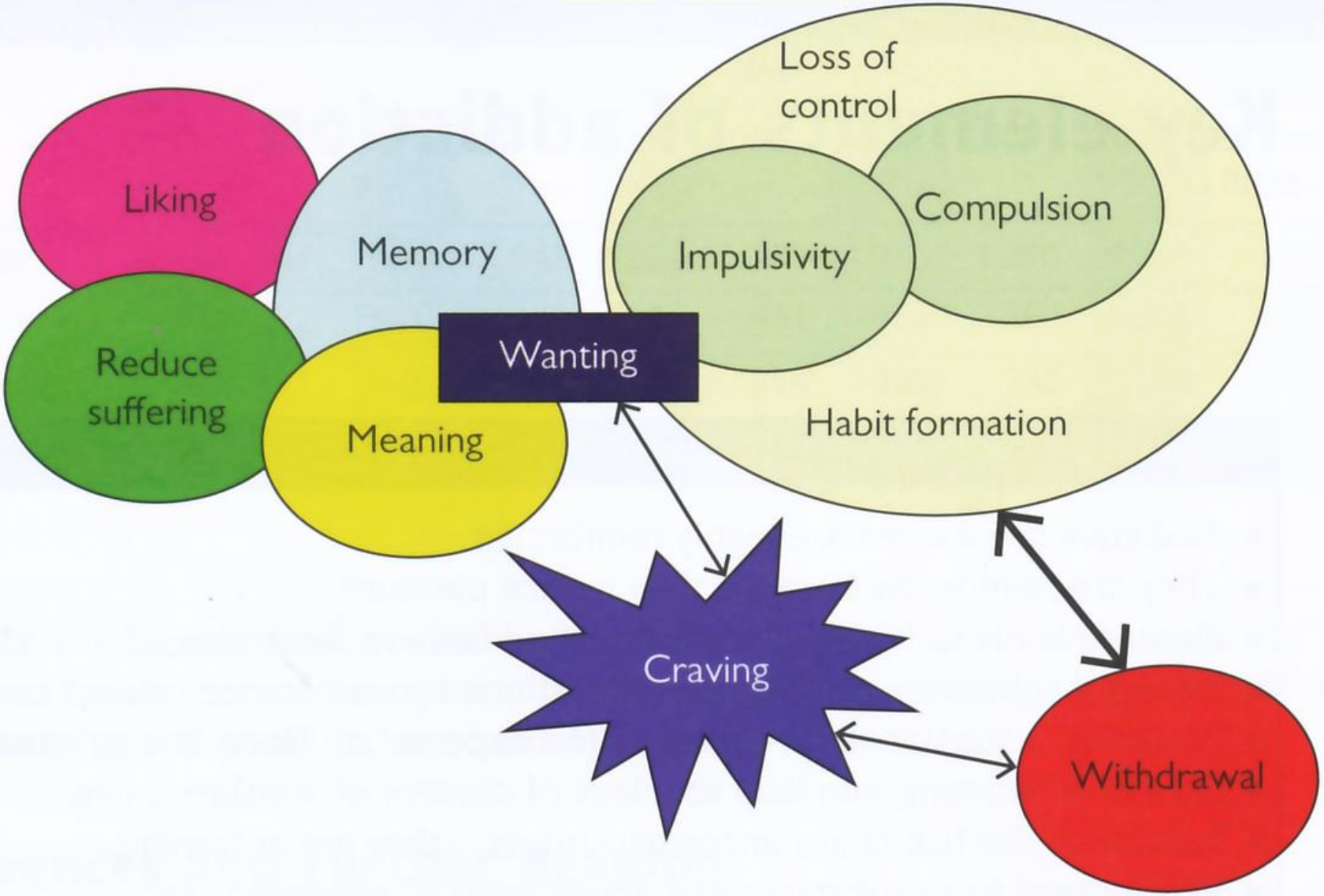
Figure 7. Heredity rates in addictions as summarized by Kendler and colleagues (2003))

- Alcohol dependency50 – 60% (male = female)
- Nicotine dependency50%
- Opiate dependency53 – 70%
- Nicotine use44% genetic, 51% environmental factors, 5% individual
- Nicotine dependency75% genetic, 25% environmental factors
- Cannabis use50% genetic, 50% environment factors
- Cannabis abuse70% genetic, 30% environmental factors

The most abused substances are (NIDA, 2013)

Cocaine
Heroin
Inhalants
K/2 Spice herbal mixtures (synthetic marijuana)
LSD (Acid)
Marijuana
MDMA (Ecstasy)
Methamphetamine
Bath Salts (Synthetic cathiones: mephedrone, methylone, MDPV, pentedron…
Club Drugs (GHB, ketamine and Rohypnol)
PCP/Phencyclidine
Prescripton Drugs
Salvia

Figure 3.1 The key elements of addiction



- NEUROBIOLOGY OF ADDICTION……

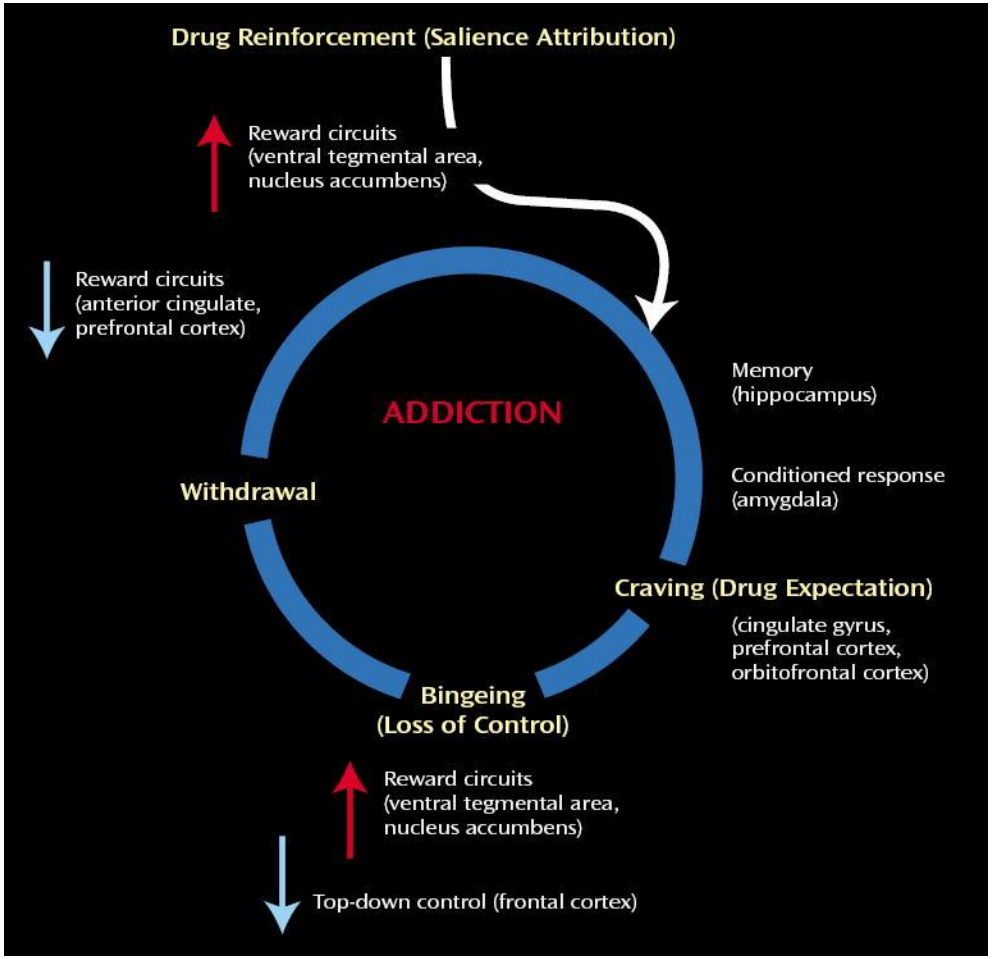
- A framework of **neuroadaptive changes within key brain neurocircuitry responsible** for different stages of the addiction cycle

- Human and animal studies have revealed **dysregulation of specific neurochemical mechanisms (dopamine, opioid** peptides) in the **brain reward systems** during the development of dependence that convey vulnerability to relapse. **N.accumbens** –**the reward centre!**

- studies have implicated the **prefrontal cortex and amygdala in drug-**induced relapse, respectively, and the brain stress systems in stress-induced relapse.

- **Genetic studies** suggest roles for the genes encoding the neurochemical elements involved in **both the brain reward and stress systems in the vulnerability to addiction**,

Integrative model of brain and behavior: the I-RISA syndrome of drug addiction



Addictive (dependence) potential

Very high: heroin (iv), crack cocaine

High: morphine, opium (smoked)

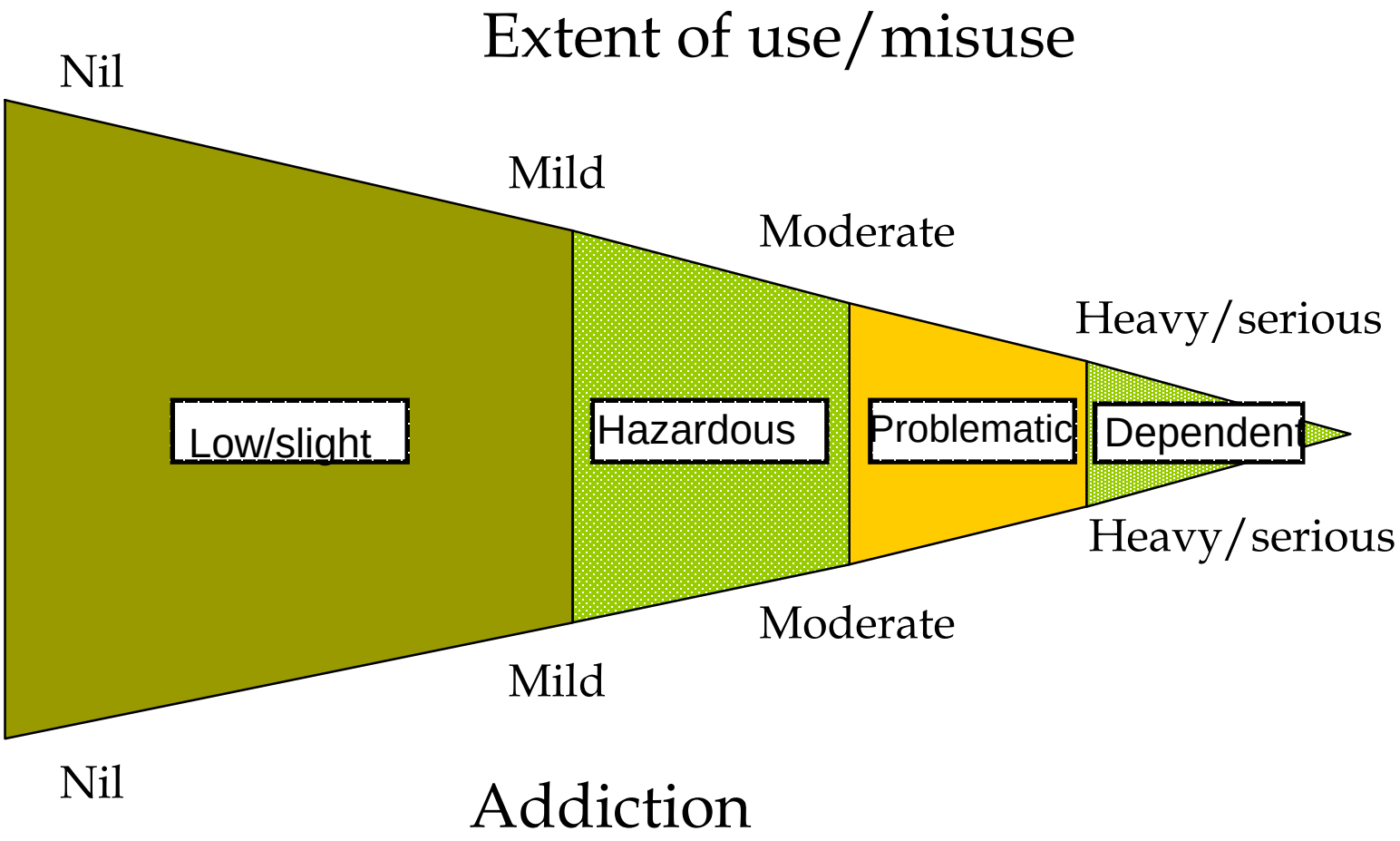
Moderate/high: cocaine (powder), tobacco, PCP

Moderate: Diazepam, alcohol, amphetamines (oral)

Moderate/low: caffeine, MDMA (ecstasy) marijuana, ketamine

Very low: mescaline, psilocybin, LSD

Addiction spectrum



Criteria for Substance intoxication

A. The development of a reversible substance-specific syndrome due to recent ingestion of (or exposure to) a substance
B. Clinically significant maladaptive behavioral or psychological changes that are due to the effect of the substance on the central nervous system, and develop during or shortly after use of the substance
C. The symptoms are not due to a general medical condition and are not better accounted for by anorther mental disorder.

Criteria for Substance Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

(1) Tolerance

(2) Withdrawal

(3) More use than was intended

(4) Unsuccessful efforts to cut down or control

(5) Great deal of time is spent to obtain…

(6) Important activities are given up…

(7) Use despite knowledge of problems…

Criteria for Substance Dependence

TOLERANCE

(a) A need for **markedly increased amounts of the substance** to achieve intoxication or desired effect

(b) Markedly **diminished effect** with continued use of the same amount of the substance

Criteria for Substance Dependence

WITHDRAWAL

(a) The **characteristic withdrawal syndrome** for the substance (eg. tremor, sweting, anxiety, nausea)

(b) The same (or closely related) substance is taken to relieve or avoid withdrawal symptoms

Criteria for Substance Dependence

LOSS OF CONTROL

More use than was intended

The substance is often taken in larger amounts or over a longer period than was intended

Criteria for Substance Dependence

RELAPSE

Unsuccessful efforts to cut down or control

There is a persistent desire of unsuccessful effort to cut down or control substance use

Criteria for Substance Dependence

POWERLESS OVER TIME

Great deal of time is spent to obtain…

A great deal of time is spent in activities necessary to obtain the substance (eg. Visiting multiple doctors or driving long distance), use the substance (eg. Chain-smoking), or recover from its effects

Criteria for Substance Dependence

PATHOLOGICAL PASSION

Important activities are given up…

Important social, occupational, or recreational activities are given up or reduced because of substance use

Criteria for Substance Dependence

DENIAL

Use despite knowledge of problems

The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g. current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption

Comorbidity

2 or more psychiatric disorder in a single patient

- **Depression** (life-time prevalence of major depressive disorder)
  - 33-50% of opioid depents
  - 40% of alcohol dependents
- **Suicide**
  - 20 X more likely to commit suicide
- Antisocial Personality Disorder
  - Prevalence: 35-60% of patients with substance abuse or dependence

Why do people use drugs?

perspectives in order to get objective knowledge:

natural **historical**,

sociological-ethnographic and

empirical (laboratory and statistics),

Natural historical perspective

Pre-modern attitude

Chemicals alter consciousness, awareness, and mood.

Social lubricant. Pleasure.

Religious experience or requisite.

Medication (e.g. painkiller).

Food.

Sociological-ethnographic perspective

Modern attitude

Protestant ethics…

Change in attitudes – self-control (self-reliance), „**willpower", disciplined and rational pursuit of money** (hard work, thrift, industry, persistence) has become fundamental virtues.

„You should **enjoy life only after much hard work**!"

Irrationality, release, pleasure seeking are antithetical with greater consumption.

Empirical perspective

Post-modern attitude

Consumer society

Expand consciousness - Timothy Leary:

Turn on, tune in, drop out (detach yourself from the external social drama). Dolce vita

Forgeting the concept of enough!

Narcissism, „me" generation, metaphysical desire (longing for constant mirroring and reinforcement) Shame, fear from inadequacy, sense of entitlement, believe that s/he is unique, **lacks empathy, interpersonal exploitation.**

Drugs may produce intense state of pleasure

Cocaine

My body was full of energy and at the same time completely relaxed.

I felt like a total body orgasm.

I feels like every cell and bone is in your body is jumping with delight.

Cocain-related Disorders

Drugs may produce intense state of pleasure

Ecstasy

There is a pervasive body warmth.

The hot bath was so good I could not speak.

I felt like your head blowing up… a pleasant warmness and intensive feeling of relaxation.

Drugs may produce intense state of pleasure

Heroin

It is like the relaxed feeling you get after sex but better.

My body felt instantly warm, especially my cheeks, which felt quite hot.

You feel as if you have been wrapped in the most pleasing, warm, and comfortable blanket in the world.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View addicion as an active affair

The **addict usually lives in denial of the addiction** or simply does not believe that resulting behavior has contributed to relational problems.

The **addict is 'married' to the drug** of choice.

Sometimes **partners collude** in or enable the addiction because it serves some underlying **psychological or practical needs in them.**

Commonly abused drugs

Stimulants

Amphetamine – *Black Beauties, Crosses, Hearts*

Cocaine – *Coke, Flake, Rocks, Snow*

Methamphetamine – *Crank, Crystal, Ice, Speed*

Nicotine – *Cigarettes, Snuff*

Betel nut, khat (the fourth most widely used drug in the world, after nicotine, ethanol and caffeine)

Commonly abused drugs

Hallucinogens

LSD – *Acid*

Mescaline – *Cactus, Mesc, Peyote*

Phencyclidine – *PCP, Angel dust*

Psilocybin – *Magic mushroom, Purple passion*

Amphetamine – ***MDMA, Ecstasy****, Adam*

Marijuana – *Grass, Weed, Herb, Pot, Smoke*

Hashish – Hash

High Tetrahydrocannabinol – *THC, Skunk*

Commonly abused drugs

Opioids and Morphine Derivates

Codeine

Heroin – ***Gear, Smack***, *Horse,*

Methadone – *Buzz Bomb, Junk*

Buprenorphine (Subutex or Suboxone) - *Buke*

Morphine

Opium

Commonly abused drugs

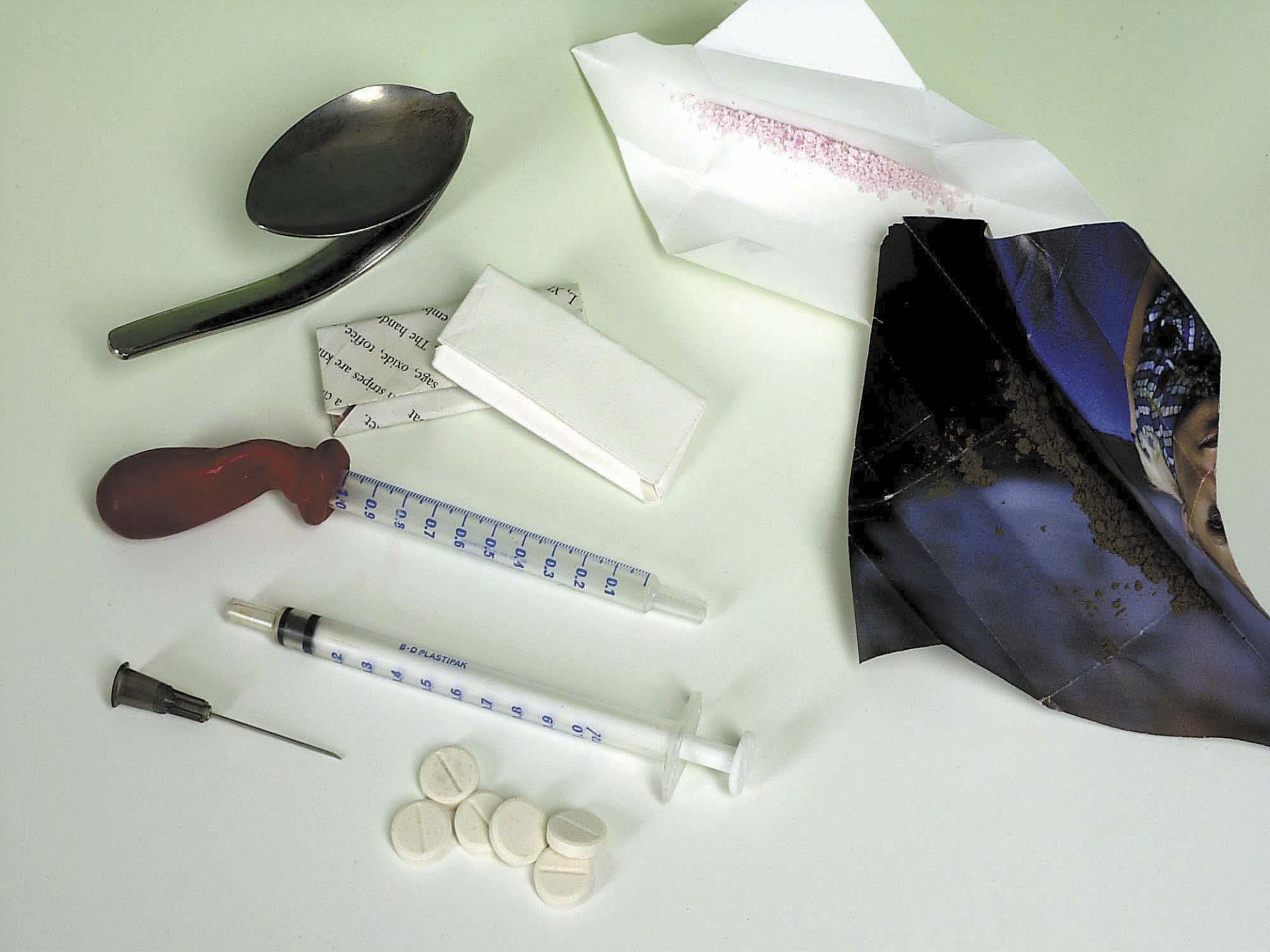
Depressants

Alcohol – ***Booze***

Barbiturates – *Barbs, Block Busters*

Benzodiazepines (Xanax, Rivotril)– *Benzo*

Methaqualone – *Disco Biscuits*


B-D PLASTIPAK

Speedball (snowball) combinations..

Speedball (alternatively known as **snowballing** or **powerballing**) is a term commonly referring to the hazardous intravenous use of heroin and cocaine together in the same syringe. The combination is also known as **moonrocks** when smoked. Cocaine acts as a stimulant, whereas heroin acts as a depressant. Coadministration provides an intense rush of euphoria with a high that combines both effects of the drugs, while excluding the negative effects, such as anxiety and sedation.

Many prescribed and over-the-counter medication can also cause Substance-Related Disorders.

- Anesthetics and analgesics
- Anticholinergic agents
- Anticonvulsants
- Antihistamines
- Antihypertensive and cardiovascular medication
- Antimicrobial medication
- Anti-parkinsonian medication
- Chemotherapeutic agents
- Corticosteroids
- Gastrointestinal medications
- Muscle relaxants
- Nonstereoidal anti-inflammatory medications
- Antidepressant medication and disulfiram


Cannabis
Marihuana
Haschisch

Recommendations for management of psychoactive substance abuse

1.Do not let your personal beliefs and attitudes about drug abuse interfere with your care of the addict.

. Patients need consistent yet firm handling.

. Neither condemn addicts nor condone their behavior.

2. Be sure to consider both medical and psychiatric comorbidity. Many addicts have potentially serious medical problems that require treatment , other substances, mood disorders,

3. Be prepared for relapses during the rehabilitation phase of treatment. Relapse is alost inevitable, but it does not represent failure of the treatment program.

4. Support groups, to community-based organizations

Psychosocial treatments

1. Cognitive behavioral therapies
2. Behavioral therapies
3. Individual psychodynamic/interpersonal therapies
4. Group therapies
5. Family therapies
6. Self-help groups

Rehab. care….outpatient care

- Rehab. facilities
- Drug outpat.care
  - Self help groups
  - Communty care

Pharmacologic treatments

1. Medications to treat intoxication or withdrawal states
2. Medications to decrease the reinforcing effects of abused substance
3. Medications that discourage the use of substances
4. Agonist substitution therapy
5. Medications to treat comorbid psychiatric conditions

PharmACOTHERAPIES

alcohol – antagonists naltrexon…., mu opiat antagonists

SSRI

disulfiram

accamprosat

nikotin -partalis agonist –

vareniclin (buproprion

BZDs - antagonista flumazenil

Methadon, LAAM,

Support meetings AA - NA:

- Narcotics Anonymous is a 12-step programs focusing on total abstinence, reduction of stress, and a "one day at a time" philosophy.
- Frequent meetings (e.g., "30 meetings in 30 days") and a sponsor who has been drug-free for at least 1 year are recommended.
- The first step is to acknowledge lack of power over drugs

Learn from the patient

Do you trust or respect any drug user?

There is a lot to be learned from a drug addict.

The most common self-help group in the world community is Alcoholics Anonymous (AA) and other types of 12-step groups (Narcotics Anonymous.etc).

Convincing your patient to attend an AA (NA, CA) meeting can be a challenge.


Thank you for your attention