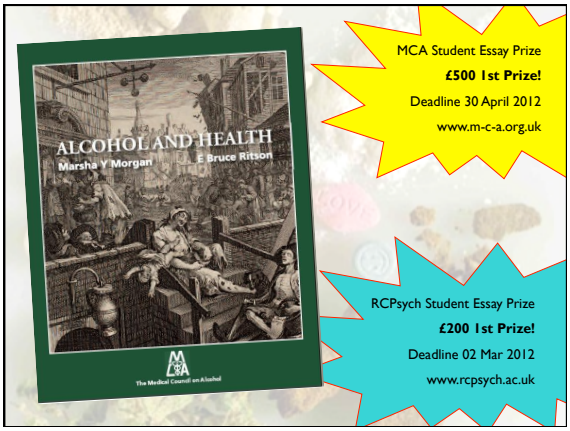
Substance misuse and clinical specialities I

- 09:00 **Introduction and learning objectives**
- 09:15 From substance use, misuse to dependence
  You, your friends & colleagues, & your patients
  Prof Anne Lingford-Hughes
- 10:30 *Break*
- 10:45 Opportunistic interventions
  Neal Richardson, Substance Misuse CNS
- 11:30 Everything you already know about drugs and alcohol and *we're* not afraid to ask
  Dr Chris Hilton, SpR Liaison Psychiatry



Substance misuse and clinical specialities 2

- 09:00 **Introduction and learning objectives**
- 09:30 Alcohol and the GI patient
  Dr Thillainayagam & Dr Chris Hilton
- 10:30 *Break*
- 10:45 Substance misuse and the heart
  Dr John Baksi, Clinical Fellow, Hammersmith
- 11:30 Substance misuse and the brain
  Dr Rick Adams, Clinical Fellow, Queens Square
- 12:15 Substance misuse and behaviour - parties and sex
  Dr Chris Hilton, SpR Liaison Psychiatry

Learning objectives

By the end of the lecture students should be able to:

- make an assessment of drug and alcohol in a **variety of clinical settings**
- recognise **life threatening complications** of substance misuse, including septicaemia, pulmonary emboli, delirium and overdose and be able to carry out appropriate interventions
- Describe and explain the links between substance misuse and:
  - **accidents**
  - **liver disease, pancreatitis and gastritis**
  - **heart disease and hypertension**
  - **infectious diseases** including HIV and hepatitis
  - **neurological conditions** including seizures, paraesthesia and stroke
- demonstrate a **professional attitude** towards substance misusers

Taking a substance misuse history

Who? **Everyone**. 70 year olds were in 20s in the swinging sixties!

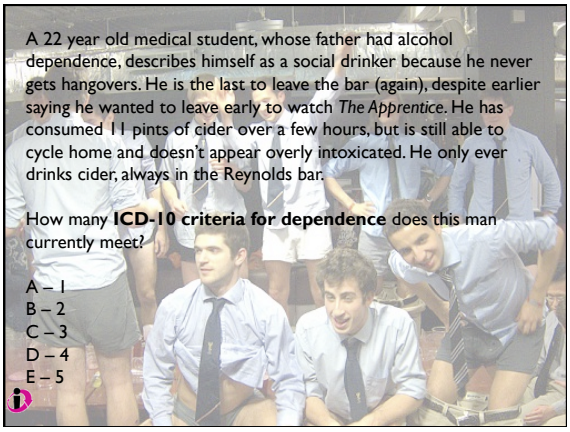
Where? **Every clinical encounter** – not just psychiatry clinic!

What substances?

Current use - **quantity / frequency**
which route(s)
when / why

History - first use / regular use
heaviest use / cumulative use – cf. pack years

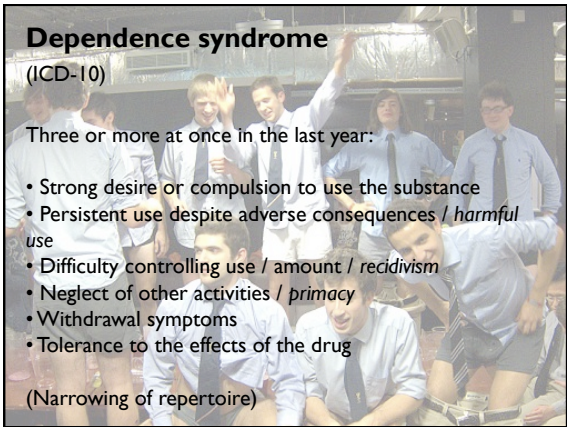
Negative effects – **physical** (direct and indirect)
psychological or social
Features of **dependence** and **withdrawal**



A 22 year old medical student, whose father had alcohol dependence, describes himself as a social drinker because he never gets hangovers. He is the last to leave the bar (again), despite earlier saying he wanted to leave early to watch *The Apprentice*. He has consumed 11 pints of cider over a few hours, but is still able to cycle home and doesn't appear overly intoxicated. He only ever drinks cider, always in the Reynolds bar.

How many **ICD-10 criteria for dependence** does this man currently meet?

A – 1
B – 2
C – 3
D – 4
E – 5



Dependence syndrome

(ICD-10)

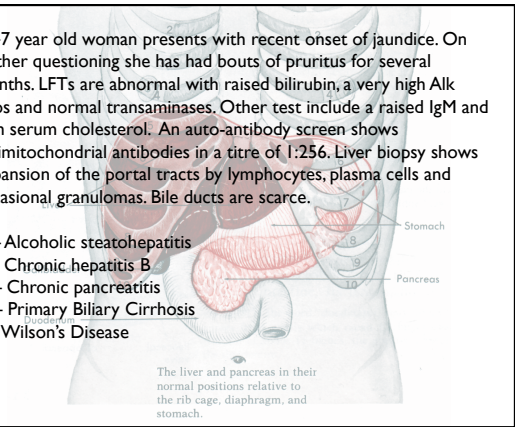
Three or more at once in the last year:

- Strong desire or compulsion to use the substance
- Persistent use despite adverse consequences / *harmful use*
- Difficulty controlling use / amount / *recidivism*
- Neglect of other activities / *primacy*
- Withdrawal symptoms
- Tolerance to the effects of the drug

(Narrowing of repertoire)

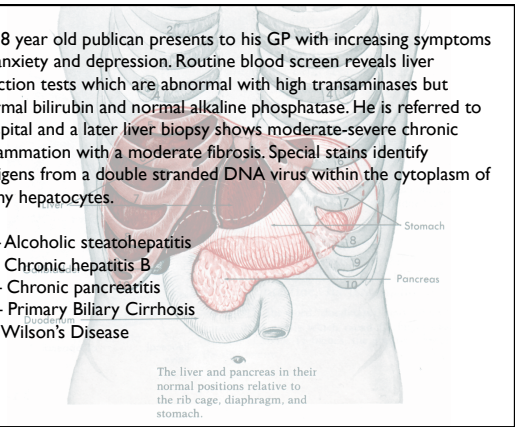
A 47 year old woman presents with recent onset of jaundice. On further questioning she has had bouts of pruritus for several months. LFTs are abnormal with raised bilirubin, a very high Alk Phos and normal transaminases. Other test include a raised IgM and high serum cholesterol. An auto-antibody screen shows antimitochondrial antibodies in a titre of 1:256. Liver biopsy shows expansion of the portal tracts by lymphocytes, plasma cells and occasional granulomas. Bile ducts are scarce.

A – Alcoholic steatohepatitis
B – Chronic hepatitis B
C – Chronic pancreatitis
D – Primary Biliary Cirrhosis
E – Wilson's Disease



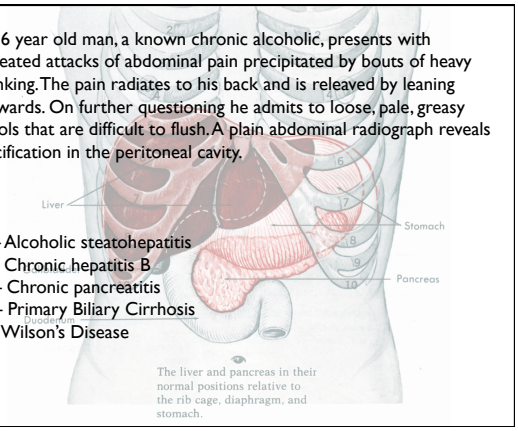
A 38 year old publican presents to his GP with increasing symptoms of anxiety and depression. Routine blood screen reveals liver function tests which are abnormal with high transaminases but normal bilirubin and normal alkaline phosphatase. He is referred to hospital and a later liver biopsy shows moderate-severe chronic inflammation with a moderate fibrosis. Special stains identify antigens from a double stranded DNA virus within the cytoplasm of many hepatocytes.

A – Alcoholic steatohepatitis
B – Chronic hepatitis B
C – Chronic pancreatitis
D – Primary Biliary Cirrhosis
E – Wilson's Disease



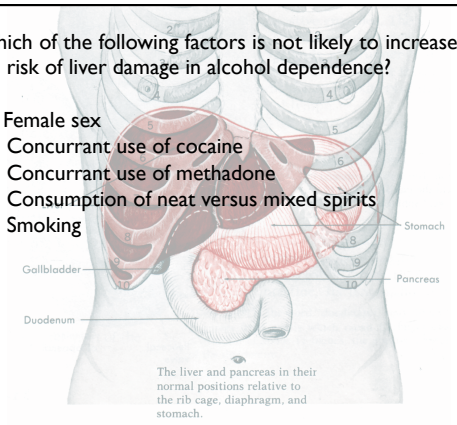
A 56 year old man, a known chronic alcoholic, presents with repeated attacks of abdominal pain precipitated by bouts of heavy drinking. The pain radiates to his back and is releaved by leaning forwards. On further questioning he admits to loose, pale, greasy stools that are difficult to flush. A plain abdominal radiograph reveals calcification in the peritoneal cavity.

A – Alcoholic steatohepatitis
B – Chronic hepatitis B
C – Chronic pancreatitis
D – Primary Biliary Cirrhosis
E – Wilson's Disease



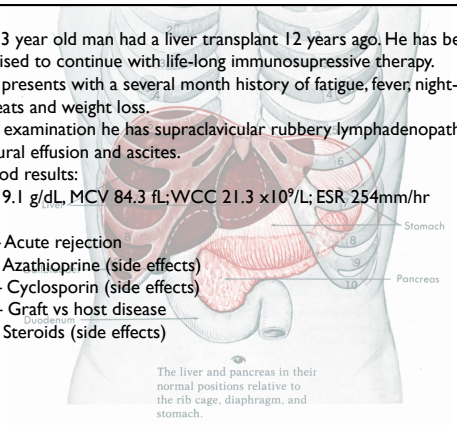
Which of the following factors is not likely to increase the risk of liver damage in alcohol dependence?

A. Female sex
B. Concurrant use of cocaine
C. Concurrant use of methadone
D. Consumption of neat versus mixed spirits
E. Smoking



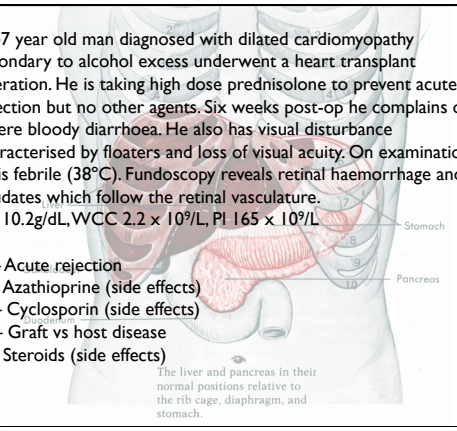
A 53 year old man had a liver transplant 12 years ago. He has been advised to continue with life-long immunosupressive therapy.
He presents with a several month history of fatigue, fever, night-sweats and weight loss.
On examination he has supraclavicular rubbery lymphadenopathy, a pleural effusion and ascites.
Blood results:
Hb 9.1 g/dL, MCV 84.3 fL; WCC 21.3 x10^9/L; ESR 254mm/hr

A – Acute rejection
B – Azathioprine (side effects)
C – Cyclosporin (side effects)
D – Graft vs host disease
E – Steroids (side effects)



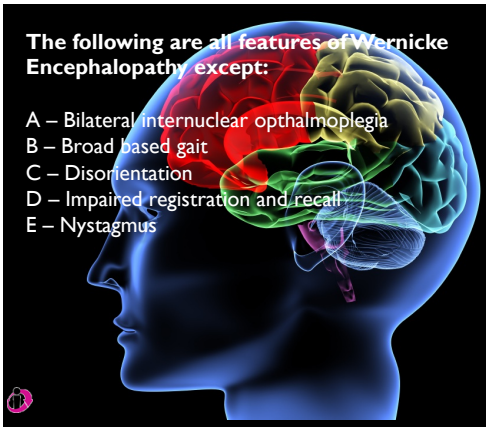
A 47 year old man diagnosed with dilated cardiomyopathy secondary to alcohol excess underwent a heart transplant operation. He is taking high dose prednisolone to prevent acute rejection but no other agents. Six weeks post-op he complains of severe bloody diarrhoea. He also has visual disturbance characterised by floaters and loss of visual acuity. On examination he is febrile (38°C). Fundoscopy reveals retinal haemorrhage and exudates which follow the retinal vasculature.
Hb 10.2g/dL, WCC 2.2 x 10^9/L, Pl 165 x 10^9/L

A – Acute rejection
B – Azathioprine (side effects)
C – Cyclosporin (side effects)
D – Graft vs host disease
E – Steroids (side effects)



The following are all features of Wernicke Encephalopathy except:

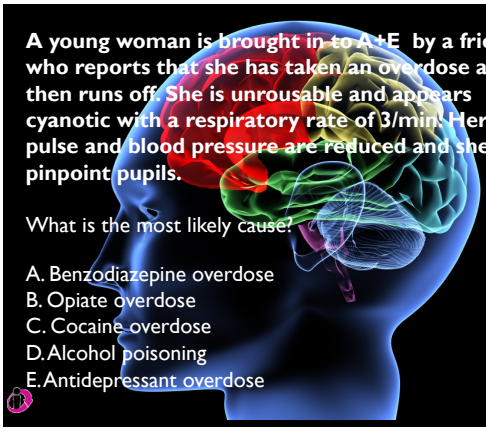
A – Bilateral internuclear opthalmoplegia
B – Broad based gait
C – Disorientation
D – Impaired registration and recall
E – Nystagmus



A young woman is brought in to A+E by a friend who reports that she has taken an overdose and then runs off. She is unrousable and appears cyanotic with a respiratory rate of 3/min. Her pulse and blood pressure are reduced and she has pinpoint pupils.

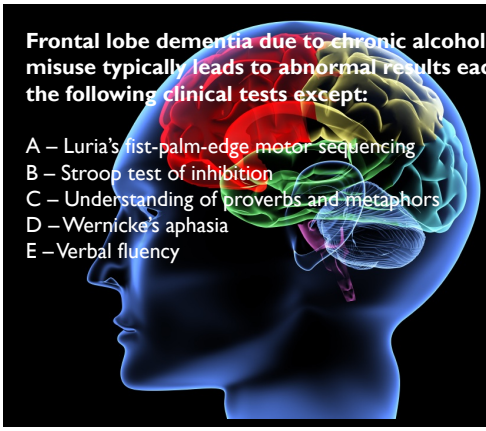
What is the most likely cause?

A. Benzodiazepine overdose
B. Opiate overdose
C. Cocaine overdose
D. Alcohol poisoning
E. Antidepressant overdose



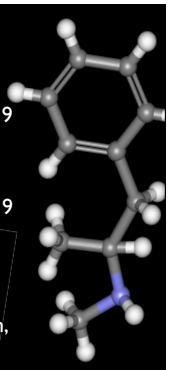
Frontal lobe dementia due to chronic alcohol misuse typically leads to abnormal results each in the following clinical tests except:

A – Luria's fist-palm-edge motor sequencing
B – Stroop test of inhibition
C – Understanding of proverbs and metaphors
D – Wernicke's aphasia
E – Verbal fluency



BLUE RED YELLOW ORANGE
GREEN BLUE PURPLE RED
PURPLE YELLOW RED BLUE
ORANGE BLUE YELLOW RED
RED GREEN ORANGE BLUE
PURPLE YELLOW BLUE ORANGE

Methamphetamine



Amphetamines first developed in late C19 and marketed as brochodilators or for narcolepsy

Methamphetamine first developed in 1919 in Japan. In USA sold as Desoxyn / Methedrine / Pervitin

Recommended for: pain, narcolepsy, Parkinsonism, ADHD, obesity, depression, cocaine addiction, alcoholism - still licensed!

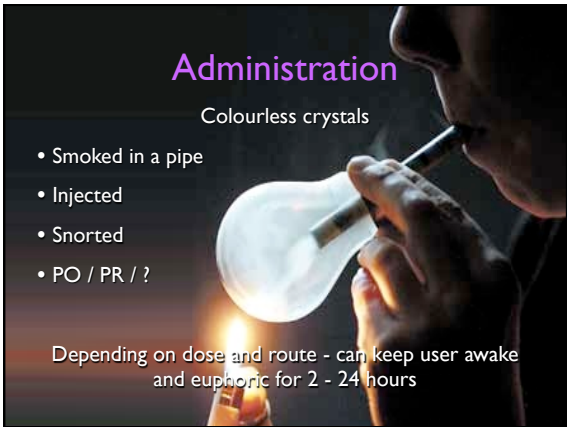
Crystal meth

Easily synthesised from over the counter ingredients in 'meth labs'

Street names: crystal, ice, chalk, glass, crank, Tina, go-fast, redneck cocaine, chandelier, tweak

Three waves of endemic use in USA: post WW2 by veterans, mid sixties when over prescribed, 1990s from illicit sources.

Administration



Colourless crystals

- Smoked in a pipe
- Injected
- Snorted
- PO / PR / ?

Depending on dose and route - can keep user awake and euphoric for 2 - 24 hours

Prevalence?

2005, est 0.5% of the USA population (1.3 million) had used crystal meth in the last year Office of Applied Statistics 2007

2005, est 0.1% - 12% lifetime experience rates of meth/ amp (UK highest) EMCDDA

Prevalence?

2005 gay men: 0.8% >1 per month, 2.8% used in last year. Sigma Research 2007

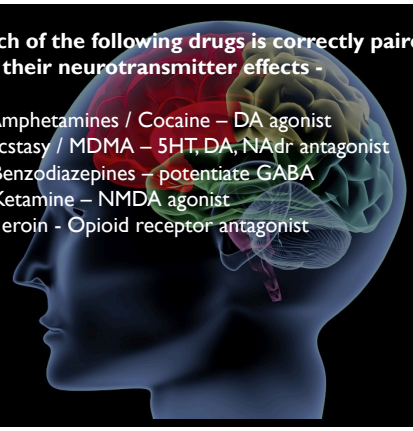
2006 London gay men: gym users: 21% had crystal use in last year. GUM clinic: **8%** Bolding et al 2006.

2010 London gay men: **7.8%** responding to questionnaire reported using in last year (2.2 - 4.8% other regions) Bonnell et al 2010.

HIV positive gay men considerably more likely to report methamphetamine use than HIV negative men (**19.5%**) Bonnell et al 2010.

Which of the following drugs is correctly paired with their neurotransmitter effects -

A – Amphetamines / Cocaine – DA agonist
B – Ecstasy / MDMA – 5HT, DA, NAdr antagonist
C – Benzodiazepines – potentiate GABA
D – Ketamine – NMDA agonist
E – Heroin - Opioid receptor antagonist



Effects: desirable

Euphoria

Heightened attractiveness

Decreased anxiety

Increased productivity

Increased energy

Curiosity

Hypersexuality

"On top of the world"

Decreased tiredness

Increased confidence

Delayed ejaculation

Feel less pain

Lowered inhibitions

Effects: desirable

Longer uninhibited sex with multiple partners

"marathon sex"

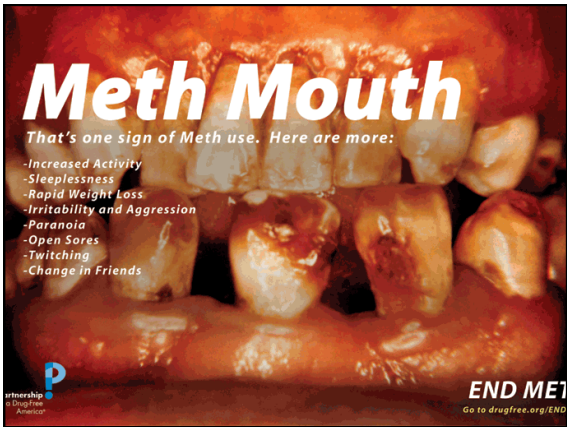
Negative Effects: Physical

Direct effects: tooth decay: "meth mouth", vapour burns and crystal deposition in lungs

Autonomic effects: tachycardia, palpitations, blood pressure. CVA, MI, permanent vessel damage in eyes / kidneys. "Crystal dick"

Neurotoxicity: tardive dyskinesia, neuropathy

Behavioural consequences: anorexia, malnutrition, HIV, STDs, poor medication compliance, pregnancy (foetal abnormalities)



Negative Effects: HIV

HIV positive crystal meth users have higher viral loads due to:

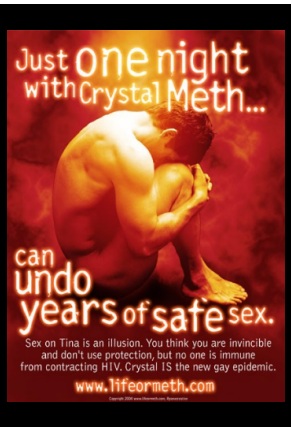
weakened immune system / nutrition

poor compliance with ART

drug interactions esp with ritonavir

Risks of drug resistant HIV

Other STIs including syphilis, HBV, HCV



Negative Effects: HIV

Associations between substance use, erectile dysfunction medication and recent HIV infection among MSM

Drumright et al AIDS Behav 2009

Case-control study between recently infected HIV+ MSM and HIV-. No significant differences in number of partners but cases more likely than controls to report methamphetamine or nitrate use.

Negative Effects: HIV

Amphetamine use is associated with increased HIV incidence among MSM in San Francisco

Buchacz AIDS 2007

2991 MSM in San Francisco (anonymous HIV test)
290 admitted to crystal meth use
6.3% recent HIV acquisition
8% if used crystal meth during sex
Others 2.1% HIV aquisition

Psychiatric Consequences

Intoxication - as above but also aggression etc

Withdrawal - "crashing" includes irritability, fatigue, depression, anxiety, impaired social functioning, aggression

27% of 1016 methamphetamine users had a history of attempted suicide Zweben et al, Am J Addiction 2004

Classic symptom is formication "crank bugs" leading to skin picking and tearing

21 June 1969 — British Medical Journal — 715

Papers and Originals

Abuse of Methylamphetamine

DAVID HAWKS,* B.A., DIP.PSYCHOL., PH.D. ; MARTIN MITCHESON,† M.B., B.CHIR., D.P.M.
ALAN OGBORNE,‡ M.SC. ; GRIFFITH EDWARDS,§ M.A., D.M., D.P.M.

British Medical Journal, 1969, **2**, 715–721

Summary: Seventy-four regular users of methylamphetamine injections were interviewed in four settings by use of a relatively structured standardized questionary. All but two had injected methylamphetamine within the previous 48 hours and had on average been using methylamphetamine continuously for 19 months.

such as "meth head" and "speed freak" became part of the underground vocabulary. Some doctors working in private practice or hospitals prescribed methylamphetamine as a substitute for cocaine. By the spring of 1968, however, two doctors were prescribing quantities of the drug to an extent which contributed directly to the growth of the illicit market. In October the manufacturers, by arrangement with the Ministry

Side-effects of Methylamphetamine

All subjects were asked whether they had experienced "the horrors" when taking methylamphetamine. In almost all cases the subjects then described the various adverse effects experienced. On those isolated occasions in which subjects asked

TABLE VIII.—*Delusional and Hallucinatory Side-effects of Methylamphetamine Abuse*

Delusions of persecution	77%	Tactile hallucinations	30%
Ideas of reference	55%	"Bugs"*	24%
Visual hallucinations	54%	Olfactory hallucinations	9%
Auditory hallucinations	39%		

* "Bugs" were not distinguished from tactile hallucinations in 31% of cases.

We are particularly grateful to those who allowed us facilities to interview their patients and to Miss Adele Kovriner, who participated in the interviewing. Our thanks are also due to Miss Jane Chandler for help with the computer programming.

Psychiatric Consequences

Psychotic states last days or weeks compared with cocaine induced psychosis (occur in up to 50% users)

Can persist long term after discontinuation (up to 40% users)

Most common features: paranoid ideation and delusions

Kittirattanapaiboon et al 2010

Psychiatric Consequences

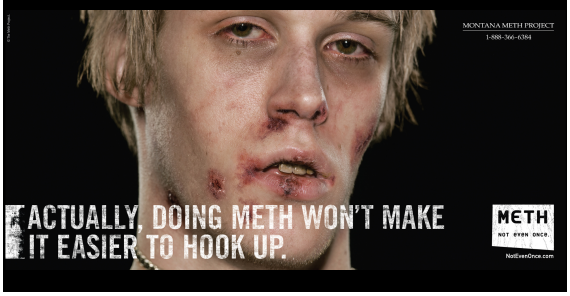
Kindling effect of stimulant induced psychosis (reverse tolerance) - the more psychotic symptoms are experienced the more likely to experience on subsequent use and with heightened and lengthened course

Can lead to a chronic state of methamphetamine induced psychosis similar to schizophrenia.

Short term improved performance. Long term cognitive decline: poor recall, information manipulation, abstract thinking, and ability to ignore irrelevant information (eg Stroop). Verbal fluency and digit span unaffected.

Primary prevention

Public health campaigns eg: THT, schools



Treatment

- Addressing link with sex
- CBT / Motivational Enhancement Therapy to promote abstinence
- Pharmaceutical options to promote abstinence and treat psychosis

Biological
Directly elated to route eg burns / thrombosis
Acquired due to route eg HIV, septicaemia

Due to effect of drug eg arrythmia, HBP
Acquired due to use of drug eg TD

Acquired due to behaviour whilst on drug eg HIV

Psychological
Due to effect of the drug eg delirium
Due to withdrawal from drug eg psychosis
Due to long term effects eg dementia
Addiction

Social
Self neglect, non-compliance

Could you apply these headings to other drugs?

Learning objectives

By the end of the lecture students should be able to:

- make an assessment of drug and alcohol in a **variety of clinical settings**
- recognise **life threatening complications** of substance misuse, including septicaemia, pulmonary emboli, delirium and overdose and be able to carry out appropriate interventions
- Describe and explain the links between substance misuse and:
  - **accidents**
  - **liver disease, pancreatitis and gastritis**
  - **heart disease and hypertension**
  - **infectious diseases** including HIV and hepatitis
  - **neurological conditions** including seizures, paraesthesia and stroke
- demonstrate a **professional attitude** towards substance misusers