

AMPHETAMINES

Amphetamine, dextroamphetamine, and methamphetamine are collectively referred to as amphetamines. Their chemical properties and actions are so similar that even experienced users have difficulty knowing which drug they have taken.

Amphetamine was first marketed in the 1930s as Benzedrine in an over-the-counter inhaler to treat nasal congestion. By 1937, amphetamine was available by prescription in tablet form and was used in the treatment of the sleeping disorder narcolepsy and the behavioral syndrome called minimal brain dysfunction (MBD), which today is called attention deficit hyperactivity disorder (ADHD). During World War II, amphetamine was widely used to keep the fighting men going; both dextroamphetamine (Dexedrine) and methamphetamine (Methedrine) became readily available.

As use of amphetamines spread, so did their abuse. Amphetamines became a cure-all for helping truckers to complete their long routes without falling asleep, for weight control, for helping athletes to perform better and train longer, and for treating mild depression. Intravenous amphetamine abuse spread among a subculture known as "speed freaks." With experience, it became evident that the dangers of abuse of these drugs outweighed most of their therapeutic uses.

Increased control measures were initiated in 1965 with amendments to the federal food and drug laws to curb the black market in amphetamines. Many pharmaceutical amphetamine products were removed from the market and doctors prescribed those that remained less freely. In order to meet the ever-increasing black market demand for amphetamines, clandestine laboratory production mushroomed, especially methamphetamine laboratories on the West Coast. Today, most amphetamines distributed to the black market are produced in clandestine laboratories.

Amphetamines are generally taken orally or injected. However, the addition of "ice," the slang name for crystallized methamphetamine hydrochloride, has promoted smoking as another mode of administration. Just as "crack" is smokable cocaine, "ice" is smokable methamphetamine. Both drugs are highly addictive and toxic.

The effects of amphetamines, especially methamphetamine, are similar to cocaine, but their onset is slower and their duration is longer. In general, chronic abuse produces a psychosis that resembles schizophrenia and is characterized by paranoia, picking at the skin, preoccupation with one's own thoughts, and auditory and visual hallucinations. Violent and erratic behavior is frequently seen among chronic abusers of amphetamines.

[Abstracted from D.E.A. website q.v.]

AMPHETAMINES

Effects

Euphoria! Feeling of enhanced well being, increased energy and loss of appetite. Potent stimulus -- used to compensate for sleep deprivation (Truck drivers, students, etc.) Both adrenergic and dopamine-ergic -- increasing "energy" and enhanced athletic ability!
WITHDRAWAL OFTEN POSSIBLE WITHOUT HOSPITALIZATION (if good support system!)

Incidence of Abuse

Very common - especially in trucking industry and among athletes. Methamphetamine is increasing in popularity among "recreational" users with number of clandestine labs increasing!

Chemical Name

Dextro-amphetamine and dextro-methamphetamine

Forms and Street Names

Amphetamine = Speed, Uppers, Pep pills, Bennies, Wake ups, Eye-openers, Co-pilots, Coast-to-coast, Cartwheels, A's, Black beauties,
Methamphetamine = Crank, Speed, Met, Crystal met, Crystal Smokable = "Ice."
Methamphetamine is available on the street in liquid form and many abusers "inject."

Preferred routes of administration

Ingested, snorted, or used I.V. Methamphetamine: "Crystal Met" or "crank" is made in simple & ubiquitous clandestine labs. Smokable form of Met. is called "ice." Amphetamine: Abused for decades; but has legitimate uses: for obesity, ADD, premature ejaculation, et. al.

Length of time detectable after user

1 to 4 days

Elimination is pH dependent. ACIDIC URINE ENHANCES EXCRETION!

CAUTION:

1. Acidification will "backfire" on donor by increasing urinary concentration!
2. Do not acidify urine during intoxication because this can exacerbate myoglobinuric renal failure secondary to rhabdomyolysis! [EMERGENCY MEDICINE, JULY 1995]

Metabolite Actually sought in urine

Screen is sensitive to both Amphetamine and Methamphetamine in both D and L isomers!
GC/MS differentiates Amp and Met..... Isomers are a separate assay. Federal regs call for

confirmation assays including "Amp," "Met," and isomers of "Met."

Confounding drugs (or factors):

SPECIAL PROBLEM #1:

High Ephedrine levels can cause false positives for Methamph. Because of problem #1 (see cascade above): POSITIVE METHAMPHETAMINE REQUIRES BOTH 500 "Met" AND AT LEAST 200 "Amp."

SPECIAL PROBLEM #2:

ISOMERS! Both Amp and Met have L (legal) and D (drug) isomers. Because of problem #2, If donor claims Seligiline or Vick's Inhaler use or asserts use when "prompted," Stereoisomer assay must be performed by lab!

[Vick's Inhaler and Seligiline = L-Methamphetamine!] POSITIVE

METHAMPHETAMINE REQUIRES AT LEAST 20% D-Methamphetamine! THE ISOMER PROBLEM:

The clever "Ice" or "Speed" user may be sniffing Vick's to confound test! The innocent Vick's user should have ZERO -- or VERY LITTLE D-Methamphetamine He is NOT INNOCENT (POSITIVE) if D-met is over 20%.

FALSE POSITIVES:

Remember that Vick's Inhaler AND the Anti-Parkinsonism drug, Seligiline, are both L-methamphetamine and will cause positives on both the screening and GC/MS study! ISOMERS must be ordered!!!

FINAL REMINDER:

The "DESIGNER DRUGS" (Amphetamine derivatives) "Ecstasy - Eve: MDMA, MDA, & MDE, etc. ...plus Ephedrine ("Mini Thins") & many others are all frequently abused but NOT DETECTED with current testing methods! [They do NOT metabolize to pure Amp or Met.] See Section on "Designer Drugs"

Screening Cut-off:

1000 ng/ml

Confirmation GC/MS Cut-off:

500 ng/ml (for both)

LEGAL (PRESCRIPTION) FORMS:

Amphetamine: Adderal, Amphogel, Biphphetamine, Dexedrine, Dextrostat,

Dextroamphetamine (generic)

Methamphetamine: Desoxyn

Other drugs which metabolize to amphetamine and/or methamphetamine:

DRUG

METABOLITES

MEDICAL USES

benzphetamine (U.S.: Didrex®)

d-amphetamine

d-methamphetamine

Anorectic.

clobenzorex (Mex.: Asenlix®, Fr.: Dinintel®, Spain: Finedal®)

d- and l- amphetamine

Anorectic.

famprofazone (Geodowin®)

d- and l- amphetamine

d- and l- methamphetamine

Sold as an analgesic and antipyretic in Europe and, until mid-1990, Korea.

fencamfamine (Altimine®, Envitrol®, Phencamine®)

d- and l- amphetamine

d- and l- methamphetamine

Antidepressant.

fenethylamine (Ger.: Captagon®)

d- and l- amphetamine

A Schedule I drug in the United States. Used elsewhere to treat attention deficit disorder, narcolepsy, and depression.

fenproporex (Ger.: Appetizugler®, Mex.: Fenisec®, Spain: Antiobes Retard®, Dical®)

Falagan®, Grasmin®, Tegisec®)

d- and l- amphetamine

Anorectic.

mefenorex(Arg.: Doracil®, Fr.: Incital®, Ger.: Rondimen®, Spain, Switz.: Pondinil®)

d-amphetamine

Anorectic.

mesocarb(Europe: Sydnocarb®)

amphetamine

prenylamine(Segontin®)

d- and l- amphetamine

Coronary vasodilator

selegiline(deprenyl, Spain: Plurimen®, U.S.: Elderpryl®)

l-amphetamine

l-methamphetamine

Parkinson's Disease.

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