# 'Heatstroke' cause of ecstasy deaths

## Surprise evidence of liver damage after repeated use

An analysis from the National Poisons Unit at Guy's Hospital of seven ecstasy deaths suggests that heatstroke caused by a combination of the drug and the rave environment caused all the deaths. The report in the *Lancet*[1] adds the surprising finding of potentially serious liver damage after repeated use.

From January 1990 to December 1991 the Poisons Unit monitored in detail seven sudden deaths directly related to ecstasy (MDMA), though Dr John Henry, consultant physician at the unit, admits there may have been up to 20 deaths in total. Also studied were five cases of severe reactions short of death, five ecstasy-related traffic accidents, and seven cases of liver damage, one fatal.

Invariably the main drug found on analysis was MDMA rather than some of the more exotic mixtures which have been turning up at raves and parties. The deaths and severe reactions appear to have occurred after normal doses of the drug – "the pattern of toxicity did not seem to be a result of overdose".

All the heatstroke deaths and most of the severe reactions were associated with rave environments. The authors conclude that combining ecstasy use with vigorous dancing in very hot atmospheres for hours on end can result in potentially fatal heatstroke. Individuals susceptible to this reaction may have had a pre-existing metabolic disorder predisposing them to overheating during exercise.

MDMA's role in these reactions seems twofold. Its stimulant effects help prolong and increase the vigour of the dancing, which itself increases body temperature, but this is a property shared by other amphetamines not generally associated with heatstroke.

Although the Poisons Unit cites one paper which refers to amphetamine-related overheating, no spate of heatstroke deaths was reported during the '60s when amphetamine pills fuelled mod dancing in hot, steamy clubs, nor in the '70s when speed was taken both by punks in similar circumstances and by the all-night dancers on the Northern soul circuit.

The key to why heatstroke deaths have been seen with MDMA but not amphetamine sulphate may be the fact that ecstasy itself appears to directly raise body temperature, aggravating the impact of stimulant-supported dancing in atmospheres sometimes deliberately kept hot and steamy and where drinks may only be available at exhorbitant prices.

The Poisons Unit's findings point to a clear harm reduction route for ravers who take ecstasy despite the risks, validating advice to take advantage of the 'chill out' areas made available at some raves and to drink lots of water or soft drinks to prevent dehydration.

Rave organisers too must now seriously question whether it is responsible to allow – or even engineer – tropical atmospheres in their venues, despite the demand from their customers, and look at their provision of drinking water. DJs too might consider breaking up the non-stop up-tempo dance songs with slower numbers or chill out breaks.

Liver damage after repeated ecstasy use now appears to be a distinct possibility in susceptible individuals.[2,3] Of the seven cases cited by the Poisons Unit, one required a liver transplant, while another died. Dr John Henry says, "If you'd asked me six months ago whether or not ecstasy could cause liver damage, I would have said no – now the picture is very different".

There is as yet no indication as to whether ecstasy itself or contaminants in the tablets are responsible for the liver damage. Dr Henry recommends that ecstasy misuse be explored with any young person presenting with unexplained jaundice or enlargement of the liver.

Brian Moss's death last October in Liverpool, on which the coroner has only recently adjudicated, was not among the Poisons Unit's cases. His may be the only death so far recorded in the UK directly caused by using ecstasy but not associated with a rave-type event or with liver disease. In this case, the drug (only 70mg) was consumed at home, resulting in fits and a fatal heart attack. At least one similar fatality has been reported from the USA.

Evidence is also emerging of possible damage due to bleeding in the brain after ecstasy use, a risk also associated with other stimulants. In three of the cases reported the consequence was a stroke and in another coma. Three recovered well but the fourth with a larger haemorrhage died.[4] Reports from accident and emergency departments suggest that many less dramatic and undocumented cases of short-term medical problems such as fits, headaches, and otherwise unexplained pain may be associated with ecstasy use.[5,6]

In a *BMJ* leader Dr Henry concludes, "claims by misusers and agencies that ecstasy is 'safer than alcohol' seem premature".[7]

Potentially one of the greatest risks of taking 'ecstasy' tablets at raves is that they may not be ecstasy at all. The episodic nature of ecstasy use and the rave scene itself militate against the development of a stable dealer-user relationship, meaning the dealers have little to lose by cheating their customers. Cases of dog worming tablets and of heroin being sold as ecstasy have been reported. In this situation even some hardline harm-reductionists are having to admit that the only responsible advice is to 'just say no'.

1. Henry J.A. *et al.* "Toxicity and deaths from 3,4-methylenedioxymethamphetamine ("ecstasy")." *Lancet*: 15 August, 1992, p.384-87.
2. Shearman J.D. *et al.* [Letter]. *British Medical Journal*: 1 August 1992, p.309.
3. Gorard D.A. *et al.* [Letter]. *British Medical Journal*: 1 August 1992, p.309.
4. De Silva R.N. *et al.* [Letter]. *British Medical Journal*: 1 August 1992, p.310.
5. Rittoo D. *et al.* [Letter]. *British Medical Journal*: 1 August 1992, p.309-310.
6. Sawyer J. *et al.* [Letter]. *British Medical Journal*: 1 August 1992, p.310.
7. Henry J.A. "Ecstasy and the dance of death." *British Medical Journal*: 4 July 1992, p.5-6.

# Ethnic minorities 'not under-represented' says report

Data from the North West Thames Regional Drug Misuse Database suggests that more drug users from ethnic minorities present to drug services than is generally assumed. The region includes parts of London with high ethnic minority populations. When the percentages attending drug services were compared with district population breakdowns there was no evidence "that ethnic minorities as a group are under-represented in drug services".[1]

From April 1991 to March 1992, nearly 2000 users were reported to the database. Eighty per cent were classified as white UK, 10 per cent were black, 8 per cent European and 2 per cent Asian. In one district the percentage of attenders from ethnic minorities was actually higher than that estimated for the overall population, though in others the Asian community in particular was heavily under-represented.

Most drug users (72 per cent) were seen by NHS specialist services, but clients of Asian origin were more likely to be seen by a GP (24 per cent) than any other group. Remarkably there was not a single case of drug users of Asian descent contacting a voluntary drug agency.

This apparent preference for anonymity by seeking help from non-specialist primary health care services is born out by a survey conducted among Asian youth by Project Pehchan, a detached Asian youth agency in Nottingham. A questionnaire established that there was little cultural provision in their local drug agencies for drug users from the ethnic communites.

The project's survey went on to reveal that most young people would prefer the relative anonymity of drug counselling within an Asian health centre rather than having to approach a drug-specific agency, even if it was run by members of their own community.

Cannabis use appears quite widespread among Asian youth in Nottingham. Informal contacts from across the whole East Midlands region also suggest to Project Pehchan that more Asians over twenty years of age are becoming involved with drugs such as heroin and cocaine. The project welcomes any moves to make drug services more attractive to ethnic minorities. However, their survey and the findings from North West Thames indicate that adapting specialist drug services may not be the best way of encouraging at least Asian drug users to seek help.

1. *Drug Agencies, Ethnic Monitoring and Problem Drug Users*, the report on the North West Thames region, was prepared by Trish Daniel and published by the Centre for Research on Drugs and Health Behaviour in their Executive Summary series – phone 081 846 6565 for details.