

# Smart living?



**Drug dealers are already within reach at the touch of a button and you don't have to search too far to find magic pills to make you stronger, faster, calmer, more alert. So what's the drug landscape of the future? Speakers at last week's conference 'Drugs – the shape of things to come?' gave some thought-provoking insights on the direction we're heading.**

▶ Hundreds of suppliers ready and waiting to take your order for every drug imaginable. No need to meet a dealer on a street corner; no effort to develop contacts for the next deal. Supplies arrive in discreet packaging, and an encryption site such as 'Hush Mail' enables you to order without leaving a paper trail. All you need is access to a computer.

Is it any wonder that the internet has become the first choice for drug trafficking?

As Dr Robert Forman of the University of Pennsylvania's Treatment Research Institute explains: 'Clandestine enterprises are particularly well suited to the internet. It's available to over a billion people at the moment, like no other media.'

With anonymity comes frenetic activity: 'information is rapidly deployed – and rapidly disappears'. The marketplace reflects the offerings of hundreds of suppliers. Some contribute to that plague of modern life, email spamming. Some pitch to chat rooms in an attempt at more targeted marketing. Others list their wares openly on the web, in the comfortable knowledge that the customer will happily seek them out.

There are of course legal protocols to skirt round. You may not find marijuana, but there are thousands of adverts for seeds. You may only find sites offering help for addiction if you search for heroin – but you can buy opium poppies with extraction instructions, complete with token warning that this should not be tried at home because it's illegal.

Such trafficking might involve a computer in Russia, a website registered in Mexico, a bank account in Tunisia, and a business run from Australia, but such is the freedom of the internet that it has become like a digitised version of Pierre Teilhard de Chardin's concept of a Noosphere – 'all interacting minds', according to Dr Forman.

The obvious concern is that anyone can visit such sites, whatever their age, whatever their physical condition – and whatever their knowledge of the likely side effects. Earth and Fire Erowid have devoted the past ten years to a practical means of countering the inevitable increased accessibility of drugs. Their website, 'The vaults of Erowid', now contains 30,000 public documents covering more than 250 psychoactive substances. Their site is entirely non-commercial, and its creators are driven by the wish to make full, honest, unbiased information freely available as part of an 'ongoing conversation to minimise harm'.

The medium has lent itself perfectly, enabling them to provide information and data that's bang up to date. 'Publishing and conversations become nearly indistinguishable' these days, they explain. What better way to promote harm reduction than offering really accessible and easy-to-understand information one click away, in a home setting?

To Earth and Fire – and to their 40,000 unique visitors each day – their reason for existing is very

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clear. The US authorities have been less comfortable with their passion for harm reduction. When Earth contacted the US Drug Enforcement Agency to point out an inaccuracy in a report, 'they informed me they were on the opposite sides of a very tall fence, and told me not to contact them again,' he says.

It can be a very strange business, this question of drug-related ethics. Talk about illegal drug taking, even in the context of 'well if you're going to do it, minimise the risks' and the condemnation from authorities can be swift.

Dr David Neil, a philosophy lecturer from Australia, describes an interesting scenario. In April 2002, a US pilot dropped a bomb on a Canadian unit, killing personnel. The defence offered was that the US airforce had given the pilot amphetamines, apparently a familiar practice for when pilots were doing long

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shifts without sleep. The drug's side effects were blamed for the error of judgement; and the verdict? The pilot was found solely responsible, fined and reprimanded, but not suspended from active service.

This has become the nature of contemporary warfare, explains Dr Neil. 'The immense increase in technological complexity means the soldier is the weakest link'. So enhancing soldiers' performance has become paramount - whatever the ethics.

Organisations such as DARPA DSO - the American Defence Sciences Office - have a brief of achieving operational dominance. Their mission is to develop a capacity to respond to military capability throughout the world - and that means developing soldiers that have an unnatural resistance to tiredness, injury, pain and stress.

Preventing sleep deprivation is sought through ampakines, which act as a neurotransmitter to boost glutamate. Transcranial magnetic stimulation and experiments on flies to examine the Shaker gene

aim to unlock the secret of the oft-quoted Maggie Thatcher style performance of needing just a few hours of sleep.

Once out on the battlefield, the soldier is being equipped with superpowers to enable him to continue fighting, even when wounded, according to Dr Neil. A self-care project is developing a pain vaccine 'so the war fighter is not distracted by performance degrading pain', and there will be accelerated wound healing with five times the healing power for flesh wounds. Forget the inconvenience of gushing wounds: an innate magnetic tourniquet will be injected into the bloodstream, controlling haemorrhaging by the magnetic field causing particles to gel.

Metabolic dominance will complete the picture of super soldier. He will be able to control energy metabolism on demand, operating 24 hours a day for three to five days, with any need for food.

It all sounds very futuristic. But when swimmers at the 1976 Montreal Olympics were beaten by the East German women's swimming team, who won 11 out of 13 events despite never having won a gold medal before, they must have wondered at the new breed of super athlete. The team was soon engulfed in scandal as it was revealed that coaches and trainers were deceiving the athletes into taking anabolic steroids.

Doping has dogged sport for many years. From beefed up weightlifters to amphetamine stoked cyclists, it's been more a case of catching them with drugs in their system than speculating whether it goes on, and the scale of the problem has provoked evangelical campaigning by athletes who compete under 'honest' conditions.

The question according to Michele Verroken, who designed drug testing standards during 18 years as director of ethics and anti-doping at UK Sport, is how do we untangle the confusion between substances permissible in normal life (just think of the recent controversy over caffeine) and substances that are judged to be out-of-bounds performance enhancers? 'We can't go on criminalising things when they're accepted in normal life,' she says.

Performance enhancement has turned into a long-term ethical debate, according to Verroken. 'Training regimes have become eat, sleep, train. Coaching consists of a manager, psychological counsellor, lifestyle advisor...' Athletes are nurtured for one purpose only: to win. Medical interventions such as 'spinning' can accelerate their recovery from injury. And this is the accepted and expected side of sport.

The line is crossed with drugs for designer traits: Human Growth Hormone (HGH) to make them stronger; erythropoietin (EPO) to make them run faster. But the problem is there's no guarantee that your body parts will grow in proportion to each other, so you'll never be sure how you'll turn out.

'We know that genomics can make some drugs

operate more effectively and efficiently, says Verroken. 'But are the side effects worthwhile? We know that specific genes are linked to athletic performance... But do athletes know when to stop?'

Human beings will probably never know when to stop. As Dr John Marsden of King's College London's Institute of Psychiatry points out, performance-enhancing drugs have shared their evolution with mammals, and we've enjoyed experimenting since we discovered them.

Many outlawed drugs had respectable beginnings, he points out. Alphetamethylphenylethylamine, better known as amphetamine, was advertised as a nasal decongestant in 1931. It was sold in three types, inhaler, tablet and powder - but how quickly we learnt to break open the inhaler and soak it in coffee or alcohol.

Drugs such as dexamphetamines, promoted as 'restoring mental alertness, cheerfulness and optimism' were commonplace after the Second World War, together with new appetite suppressants such as Syndrox 'for the patient who is all flesh and no willpower'.

The parade of artists, writers and musicians who have relied on drugs through the ages bears testament to the commonplace attitude towards drug taking in bygone eras.

So where does this take us for the future? For some, the vast array of drugs available on the internet has opened up a sweet shop of options: Dr Marsden refers to a documentary he made for the BBC on 'smart drugs' in which he interviewed an American couple who spent \$600 a month on taking hundreds of pills of all kinds. The case was extreme, but it illustrated the modern obsession with enhancing memory and learning, and preventing physical and cognitive decline.

While commenting that chronic dosing is 'probably a waste of money as there is probably rapid tolerance', Dr Marsden says that in our ageing society, interest in improving mental life will become increasingly valued. Options are likely to become more sophisticated, with an expanding landscape of synthetic drugs being 'gene coded' for effects: forget the experimentation, you would be able to gauge how you would react to a drug by its suitability for your gene type.

If all this sounds quite logical, take a moment to consider how far we should go: 'suppose CVs of the future included smart drug testing to see if you have the right personality traits for a job,' suggests Dr Marsden. Or maybe your fiancée could check your traits for suitability?' Maybe there are some boxes better left unopened. **DDN**

*The DTL conference 'Drugs - the shape of things to come?' took place in London on 17 June and was chaired by Wrye Sententia, director of the Center for Cognitive Liberty and Ethics.*