A new way to detect consumers of illicit drugs

Knowing how the body reacts to drugs helps identify substances to look for in urine samples

**Cheryl Tan**

Forensic scientist have long been on the alert to keep pace with new psychoactive substances entering the market, and tracking those who regularly consume them.

Scientists at the National University of Singapore (NUS), these days, are looking beyond drugs such as cocaine, ecstasy and methamphetamine.

In fact, the NPS are made from chemical compounds resembling the parent compounds, which is an active ingredient in many that users bring to the market.

One such class of drugs common on the market would be synthetic cannabinoids, which are designed to exploit the effects of cannabis.

Scientists have now shown that synthetic cannabinoids can be detected by analysing urine samples from people, and can identify the exact type of drugs from a young age.

Prof Chan and his collaborators from the Health Sciences Authority (HSA) have been investigating the effects of two trending synthetic cannabinoids – 1F-MDMB-4F- pinacolone (1F-MDPV) and 4F-MDMB-4F- pinacolone (4F-MDPV) – known as 5F-MDMB-PINACA and 5F-MDMB-PINACA.

When both types of drugs are consumed, they are immediately broken down by an enzyme in the liver known as esterase, which alters the chemical structures of the drug. Forensic scientists have found that these enzymes are present in the urine samples from people.

Researchers have published their findings in the *Journal of Forensic Sciences*.

**Myths & misconceptions**

**Myopia**

1. **Childhood problem.** The risk of vision loss increases with age. In the early stages, it doesn’t cause loss of sight, hence it is important to take preventive measures to stop it from progressing further.

2. **Myopia will not cause blindness.** Myopia, particularly high myopia, is a complex condition, and is associated with major eye diseases like cataracts and glaucoma, which require early intervention as they can cause visual impairment or blindness.

3. **Myopia can be treated easily with a pair of glasses or contact lenses.** Although your child may be able to function as per normal with good vision while wearing glasses or contact lenses, the refractive error of the eye is still there, and your child is at risk.

4. **Categorizing glasses does not mean you can treat myopia.** Myopia cannot be reversed and can be managed only by slowing down its progression.

**Blindness**

1. **A 99 per cent cure.** Using unproven methods may put the child at risk.

2. **Eye surgery only puts the child at risk.** After refractive surgery such as Lasik, it is important to rely on only credible sources of information and clinical evidence to prevent eyes from progressing.

3. **Myopia in children is not vision loss.** There is no conclusive evidence whether or not glasses improve visual function.

4. **Taking supplements such as vitamin A will prevent vision loss.** Myopia is not caused by a vitamin A deficiency. Some studies suggest that high vitamin A intake may be associated with a reduced risk of myopia. However, some studies have found that too high a vitamin A level can promote the development of myopia.

5. **Defective eyesight is normal.** Your type of myopia is the same as your parents, it does not indicate that your child is at risk.

6. **Myopia in children is not vision loss.** Taking unproven medications may put your child at risk, or even worse.

7. **Evaluating methods may help your child get confused or stressed.** From a young age, one needs to understand what actually works for your child and what doesn’t.

8. **Early intervention is key with myopia.** Prevention of myopia is only by slowing down its progression and not by controlling it.

9. **Early care practitioners**

   When seeking information on myopia, it is important to rely on only credible sources of information and clinical evidence.

   The SNEC Myopia Centre is collaborating with the eye-care community to detect and treat myopia in children to prevent their vision from progressing.

   Together, we can fight the condition and slowly reverse the trend that our city’s rate in the ‘myopia capital of the world’

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