

New studies reveal extent and risks of laughing gas and stimulant abuse among young people

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The extent and risks associated with recreational abuse of laughing gas and psychostimulants by young people have today been revealed in two studies reported at the European Academy of Neurology Virtual Congress.

In one study, researchers from Turkey reported increasing stimulant use among [medical students](#) approaching their final exams, despite the substantial risks to their health. In the second study, researchers from the Netherlands detailed the neurological outcomes associated with recreational use of laughing gas (nitrous oxide), suggesting that, for some individuals, permanent neurological damage can occur.

Increasing use of psychostimulants among medical students:

The increasing and widespread use of psychostimulants among medical students as they progress through their training has been revealed by a team of researchers from Istanbul in Turkey.

The team studied 194 medical students who completed an online survey evaluating their stimulant use, side effects, and academic performance grades. First-year students (n=93; control group) were compared with fourth-, fifth-, and sixth-year students (n=101; study group).

"Non-medical use of prescription stimulants has become a growing

public health concern on university campuses over the past two decades," explained Dr. Suna Ertugrul from the Demiroglu Bilim University in Istanbul, Turkey, who presented the results of the study. "Medicine is one of the longest and most competitive degrees to study for and many students believe that using stimulants helps to enhance their academic performance and live an active life."

The Turkish researchers found that 16.1% of their study group were using psychostimulants such as methylphenidate and modafinil compared with 6.8% of the [control group](#). Three-quarters of the study group reported experiencing side effects, including insomnia, high heart rates and agitation. No differences were observed in the academic performance between the stimulant users and non-users.

"Our study confirms that stimulant use increases during the course of studying for a medical degree, but that this does not improve academic performance as these students believe," said Dr. Ertugrul.

Recreational use of laughing gas:

The recreational use of laughing gas, which is used as an anaesthetic agent in dental practices and during labour, is on the increase, resulting in growing numbers of patients with neurological problems reporting to specialist outpatient clinics and emergency rooms.

"In our neurologic practice, we are seeing more and more patients with neurological problems resulting from [recreational use](#) of laughing gas," explained Dr. Anne Bruijnes from the Zuyderland Medical Center in Heerlen, Netherlands, who presented the study findings at the meeting. "We saw our first patient in 2017, and since then the number has increased steadily, so we decided to conduct a retrospective study to describe the clinical features and outcomes of the patients we've seen."

According to the study team, 13 patients with an average age of 21 years were treated at the medical centre between 2017 and 2019. The most [common symptoms](#) reported were paresthesias (tingling and numbness in the hands, legs, arms and feet) and lower limb weakness. Eight patients (62%) were given a clinical diagnosis of axonal polyneuropathy, two (15%) showed evidence of spinal cord degeneration, and three (23%) showed clinical symptoms of both polyneuropathy and spinal cord degeneration (myelopolyneuropathy). All patients received vitamin B12 supplementation and were advised to stop using laughing gas.

Laughing gas usage is thought to be on the increase with one in 11 young people aged 16-24 using it annually. Many users are unaware of potential consequences, which can also include paranoia, breathing problems and even death.

"Most of our patients made a full recovery, however, some continued to have minor symptoms and three experienced difficulties with everyday activities and were referred to a rehabilitation physician," she said.

Dr. Bruijnes believes the true extent of the laughing gas problem may not be known, with many abusers failing to seek medical help. "This is a major cause for concern," she said. "Whilst this study is on a relatively small sample, we know that laughing gas use is on the increase. We now know that it causes a vitamin B12 deficiency, which can affect the spinal cord and lead to permanent damage if not treated promptly."

More information: References:

1. Bogle KE, Smith BH. Illicit methylphenidate use: a review of prevalence, availability, pharmacology, and consequences. *Curr Drug Abuse Rev* 2009;2(2):157-76.
2. McCabe SE, Knight JR, Teter CJ, et al. Non-medical use of

prescription stimulants among US college students: prevalence and correlates from a national survey. *Addiction* 2005;100(1):96-106.

3. Teter CJ, McCabe SE, LaGrange K, et al. Illicit use of specific prescription stimulants among college students: prevalence, motives, and routes of administration. *Pharmacotherapy* 2006;26(10):1501-10.

4. Conjaerts SHP, Bruijnes JE, Beerhorst K, Beekman R. Nitrous oxide induced polyneuropathy. *Ned Tijdschr Geneeskd* 2017;161:D204.

5. Lan SY, Kuo CY, Chou CC, et al. Recreational nitrous oxide abuse related subacute combined degeneration of the spinal cord in adolescents - A case series and literature review. *Brain Dev* 2019;41(5):428-35.

6. The Guardian, Nitrous oxide users unaware of health risks, nurses warn, 21 May 2019.

7. Choi C, Kim T, Park KD, et al. Subacute combined degeneration caused by nitrous oxide intoxication: a report of two cases. *Ann Rehabil Med* 2019;43(4):530-34.

8. De Bruin, et al. Subacute combined degeneration of the spinal cord due to recreational use of nitrous oxide. *Tijdschr Neurol Neurochir* 2019;120(2):68-72.

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