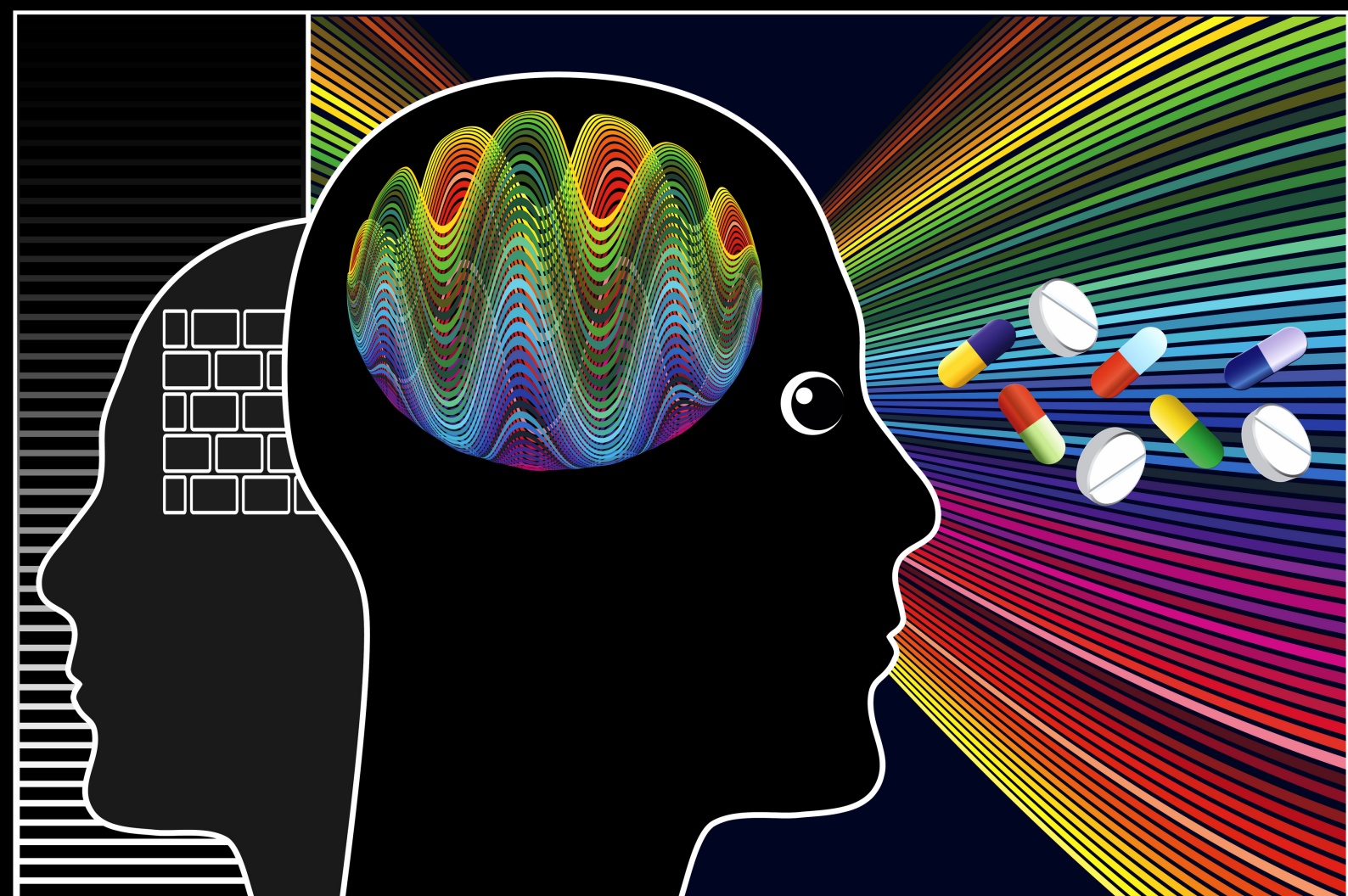




# HED Matters

ISSN: 2652-9572 (Online)



Theme: Cognitive Enhancers

# HEDN Editorial

## Hello and Welcome!

Welcome! In this edition of HED Matters we put cognitive enhancers, or ‘smart drugs’, in the spotlight. This topic is getting more attention from all corners of the enhancement world and raising questions about the role of cognitive enhancement in the workplace, education, sport, and everyday life. We have an exciting line up of contributors who consider cognitive enhancement from a variety of perspectives as well as updates on work and conference opportunities related to human enhancement.

## Current and Future Editions

This edition kicks off with a special piece highlighting a very exciting forthcoming collection on human enhancement drugs featuring the work of many HEDN members and edited by Dr Katinka van de Ven, Dr Kyle Mulrooney, and Jim McVeigh. Next, we are fortunate to have neuroethics expert Dr Cynthia Forlini from the University of Sydney offering a view on the ethics of cognitive enhancement in our expert Q&A. Following previous editions, we also have the opportunity to hear from a user who explores the longer-term experience cognitive enhancement, both positive and negative. The great work of Dr Larissa J. Maier from the University of California is featured in our ECR column. Last but not least, Dr Matthew Dunn from Deakin University shares some practical advice for healthcare providers engaging with those considering using cognitive enhancers.

Our next issue will focus on the therapeutic use of psychedelics. We welcome contributions from members and readers with insight on this topic. Please get in touch if you would like to be included!

## Thank You!

Once again, thank you to our members for your continued support and thought provoking work on human enhancement. We hope you’ll keep us up to date on all your upcoming publications, public talks, and conferences.

Yours sincerely,

The HEDN Board:  
Dr Katinka van de Ven  
Dr Kyle Mulrooney  
Anders Schmidt Vinther  
Dr April Henning



# Table of Contents

Achievements HEDN Members – 3

Book Discussion: ‘Edited Collection on Human Enhancement Drugs’ – 4

Q&A with Dr Cynthia Forlini on the ethical issues around cognitive enhancement – 6

'Let's talk smart drugs': user's voice – 9

ECR Spotlight: Dr Larissa J. Maier – 13

Practical Advice – for Healthcare Professionals by Dr Matthew Dunn – 15

Upcoming HED Events – 17

Want to become involved? – 18

# Achievements HEDN Members

## Recent publications HEDN members!

We want to congratulate the following HEDN members with their recent publications:

Andreasson, J., & Henning (in press). Global fitness doping: Policy, practice and prevention in the United States and Sweden. *Performance Enhancement & Health*.

Boardley, I. et al. (2018). Development of moral disengagement and self-regulatory efficacy assessments relevant to doping in sport and exercise. *Psychology of Sport and Exercise*, 36, 57-70.

Brennan, R., Wells, J.S.G., & Van Hout, M.C. (2018). "Raw juicing" – an online study of the home manufacture of anabolic androgenic steroids (AAS) for injection in contemporary performance and image enhancement (PIED) culture. *Performance Enhancement & Health*, 6(1), 21-27.

Erickson, K., Patterson, L.B., & Backhouse, S.H. (in press). "The process isn't a case of report it and stop": Athletes' lived experience of whistleblowing on doping in sport. *Sport Management Review*.

Fincoeur, B., Gleaves, J., & Ohl, F. (2018). *Doping in Cycling: Interdisciplinary Perspectives*. London, UK: Routledge.

Hart, A. (2018). Making a difference? Applying Vitellone's Social Science of the Syringe to performance and image enhancing drug injecting. *International Journal of Drug Policy*, 61, 69-73.

Ritchie, I., & Henne, K. (2018). Amateurism, scientific control, and crime: historical fluctuations in anti-doping discourses in sport. *Journal of Criminological Research, Policy and Practice*, 4(1), 18-29.

Peterson M.A., et al. (2018). The uncertainties of enhancement: A mixed-methods study on the use of substances for cognitive enhancement and its unintended consequences. *Performance Enhancement & Health*.

Underwood, M. (in press). The unintended consequences of emphasising blood-borne virus in research on, and services for, people who inject performance and image enhancing drugs: a commentary based enhanced bodybuilder perspectives. *International Journal of Drug Policy*.

Van de Ven, K., Dunn, M., & Mulrooney, K. (2018). Performance and image enhancing drug (PIED) producers and suppliers: a retrospective content analysis of PIED-provider cases in Australia from 2010-2016. *Trends in Organized Crime*, 1-11.

Van de Ven, K., Maher, L., Memedovic, S., Jackson, E., & Iversen J. (2018). Health risk and health seeking behaviours among people who inject performance and image enhancing drugs (PIEDs) who access needle syringe programs in Australia. *Drug and Alcohol Review*, 31(7), 837-846.

Zahnow, R., McVeigh, J. et al. (2018). Identifying a typology of men who use anabolic androgenic steroids (AAS). *International Journal of Drug Policy*, 55 (8), 105-112.





# Book Release: Edited Collection on Human Enhancement Drugs

Editors: Dr Katinka van de Ven, Dr Kyle Mulrooney and Jim McVeigh  
 Publisher: Routledge  
 Release date: April 2019

## Q: Why this edited collection?

Despite growing public interest and, in certain cases, consumption of particular enhancement drugs, our understanding of the phenomenon, not to mention regulatory framework, has lagged well behind. As such, it was evident that multi-disciplinary research in the areas of public health, epidemiology, neuroethics, sport science, criminology, and sociology – to name a few – was needed to obtain a better understanding of this (illicit) drug market and to develop effective responses. Yet, as “traditional” and other “new” drug markets (i.e. NPS) has occupied our attention there has been a lack of scholarly focuses and attention given to human enhancement drugs. Recognizing this gap, we sought to draw on our networks to develop an edited collection that would serve as a reference for academics, practitioners, law enforcement and others working in this area to reflect on the current state of research and consider future priorities. Indeed, the initial idea to produce

an edited collection came forward from a long-standing collaboration of members of the Human Enhancement Drugs Network ([www.humanenhancementdrugs.com](http://www.humanenhancementdrugs.com)). The collection brings together a broad spectrum of scholarly insights and research expertise from leading experts in a single volume that examines key international issues in the field of human enhancement drugs. The authors come from a variety of cultural contexts, disciplines and perspectives and includes both academics and practitioners. Ultimately, this edited collection aims to serve as a valuable knowledge base for those interested in human enhancement drugs, while also intending to provoke critical discussion.

## What will be featured in the book?

In the literature, a variety of terms are often used interchangeably to describe drugs used for lifestyle and well-being purposes, and/or to enhance performance and image. Indeed, the ways in which HEDs are conceptualized and operationalized differs widely: while some use the terms “lifestyle drugs” or “human enhancement drugs”, others prefer “lifestyle medicine” or “performance and image enhancing drugs”. We adopt the term “human enhancement drugs” which includes substances that are used as functional aids –



**HUMAN  
ENHANCEMENT  
DRUGS**

## INFORMATION PAMPHLET

	Type of HEDs	Description	Examples	General Effects*	High-Risk Groups**
	<b>Muscle Drugs</b>	Drugs to enhance the appearance and function of skeletal muscle (e.g. increase strength or muscle mass).	Anabolic Androgenic Steroids (AAS), Human Growth Hormones (HGH), Insulin, Erythropoietin (EPO), Peptide Hormones, Non-steroidal Selective Androgen Receptor Modulators (SARMs).	<b>Intended effects:</b> Muscle growth and to decrease amount of fat. <b>Side-effects:</b> Changes in mood and behavior (e.g. depression and aggression), suppression of the Hypothalamic-pituitary-testicular axis (HPTA), liver damage, cardiovascular disease, insulin resistance and musculoskeletal disorders.***	Sports competitors (especially power sports), bodybuilders, gym members, high-school students, occupational users (e.g. security guards, police officers and actors), and ageing men.
	<b>Weight-Loss Drugs</b>	Drugs used to enhance weight loss.	Sibutramine, DMAA, Dinitrophenol (DNP), Ephedrine, Lethyroxine Sodium (T3), Levthyroxine Sodium (T4), Orlistat, Clobutrolol.	<b>Intended effects:</b> Decreases amount of fat and suppresses appetite. <b>Side-effects:</b> Changes in mood and behavior (e.g. anxiety and aggression), insomnia, cardiovascular disease, and reduces absorption of dietary fat.***	Gym members, students, overweight or obese individuals, young and middle-aged women, bodybuilders, sports competitors, and occupational users (e.g. models).
	<b>Image Enhancing Drugs</b>	Drugs used to enhance the appearance of the skin and hair.	'Cosmetics' containing Mercury compounds or Hydroquinone, Corticosteroids, Melanin, Biotin, Biotinoprost, Finasteride, Dermal Fillers (e.g. Restylane), Botulinum Toxin (e.g. Botox), Isotretinoin (e.g. Roaccutane).	<b>Intended effects:</b> Darken or lighten skin color, increase the growth of eyelashes, increases the growth of scalp hair and reduce wrinkles. <b>Side-effects:</b> Nausea, abnormal pigmentation, skin rash and chronic inflammation.***	Occupational users (e.g. erotic dancers, porn actors and celebrities), bodybuilders, ageing men and women, and tanning and beauty salon customers.
	<b>Sexual Enhancers</b>	Drugs used to enhance sexual function and behavior.	Sildenafil citrate (e.g. Viagra), Tadalafil (e.g. Cialis), Vardenafil Hydrochloride (e.g. Levitra), Yohimbe and Bremelanotide (PT-141).	<b>Intended effects:</b> Increases blood flow to penis causing erection. <b>Side-effects:</b> Headache and memory problems.***	Night clubbers (incl. women), ageing men, gay communities, and porn industry. Night clubbers (incl. women), ageing men, gay communities.
	<b>Cognitive Enhancers</b>	Cognitive enhancers, also known as 'smart drugs' or 'brain doping', are used to enhance cognitive functions including short-term memory, concentration, comprehension and alertness.	Modafinil (e.g. Provigil), Methylphenidate (e.g. Ritalin), Amphetamine tablets (Adderall), Piracetam and Atomoxetine Hydrochloride (Strattera).	<b>Intended effects:</b> Promotes wakefulness, increased concentration and focus, improves short-term memory, and suppresses physiological sensations. <b>Side-effects:</b> Skin reactions, changes in mood and behavior (e.g. anxiety and agitation), suppressed appetite, headaches, suicidal thoughts, psychosis and mania.***	Students, occupational users (e.g. surgeons, pilots and stock traders), and 'stay-at-home moms'.
	<b>Mood &amp; Social Behavior Enhancers</b>	A drug taken for the purpose of altering and/or improving one's state of mind or feeling.	Selective Serotonin Reuptake Inhibitors (SSRIs), Beta-blockers (e.g. Propranolol), Benzodiazepines (e.g. Diazepam), Opiates (e.g. Morphine and OxyContin).	<b>Intended effects:</b> Suppress physiological sensations, pain relief, relieve anxiety or depression. <b>Side-effects:</b> Dizziness, vomiting, insomnia and headache.***	Students, sports competitors, and occupational users (e.g. musicians, public speakers).

\* This table has presented HED categories as rigid and fixed; however it is important to note that many of the drugs classified as examples under specific categories may well appear in others. For instance, Clobutrolol may be used as both a weight loss drug and a muscle enhancer. For the sake of this table we have chosen to include Clobutrolol as an example under the weight loss category as this drug is most often consumed to achieve this goal.

\*\* This table serves as a general guideline and that there are numerous drugs available to meet a variety of performance enhancing goals. The effects and side effects will vary widely depending on the type, quantity, duration of use and mix of drugs consumed.

\*\*\* Studies and/or media reports have reported that the type of enhancer is frequently found within these groups.

\*\*\*\* There are also cases from which these drugs often are administered 'secretly' (labeled under or not under human consumption).

MORE INFORMATION IS AVAILABLE AT [WWW.HUMANENHANCEMENTDRUGS.COM](http://WWW.HUMANENHANCEMENTDRUGS.COM)



their predominant purposes are not necessarily immediate gratification or pleasure (in contrast to psychoactive drugs) but may be used as a “better than well” in the pursuit of excellence, the attempt to surpass one’s natural potential, and/or may be self-directed medication in an attempt to regain or recover. Categorically speaking, we follow Evans Brown and colleagues (2012) who divided HEDs into six sub-categories based on their primary reason for use: (1) muscle drugs; (2) weight-loss drugs; (3) skin and hair enhancers; (4) sexual enhancers; (5) cognitive enhancers; and (6) mood and social behaviour enhancers.

Collectively, the book examines a range of pertinent areas with the aim of providing a detailed picture of the (illicit) HED market and its issues, in different parts of the world. At the outset of this project, we asked ourselves several questions about human enhancement drugs: Who is using these drugs and why? What are the implications of use? How do markets for human enhancement drugs form and who is involved? How do we respond to the use of human enhancement drugs? With this in mind, the book consists of 22 chapters divided into four thematic parts which seeks to address these questions. *Part I: Understanding the use of human enhancement drugs in society* explores a broad range of socio-cultural issues related to the use of these drugs and, more specifically, aims to provide the readers with an understanding of some of the drivers behind the consumption of these substances. *Part II: Human enhancement drugs, harms and public health* examines what we know about the social, physical and psychological harms associated with a range of human enhancement drugs. *Part III: Illicit human enhancement drug markets and their suppliers* provides insights into supply methods, (online) marketing, dealer types and motivations to be involved in this trade. Finally, *Part IV: Responding to human enhancement drugs* unpacks various strategies for regulating this illicit market with consideration to the specific types of enhancement drugs, the types of users and the context of use.

### **What do you hope to achieve with this edited collection?**

Giving the rapidity of the emergence of this relatively new field of human enhancement drugs – itself an amalgamation of a variety of disciplinary studies and foci as well as a sub-field of a much more broad-based field of drugs research –, it would be an impossible task to map its contours within the confines of this single collection. Thus, the goal of this collection is not to provide a comprehensive overview of this field nor does it intend to synthesize the leading empirical and theoretical work within human enhancement drugs. Rather, as editors we have sought to identify some of the primary lines of inquiry through which the field has evolved and through which new research in the area continues to develop. To this end, the chapters included in this collection serve to provide a wide range of readers, whether they be users, academics, practitioners, policy makers or the wider public; with an “intensive” introduction to human enhancement drugs by highlighting and examining productive topical areas and theoretical and empirical research, pushing the boundaries of the field.

### **If you wanted readers to take away one key message from the book, what would it be?**

Enhancement drugs are plentiful, serving a variety of means (perceived or otherwise) whether it be, for example, increased muscle mass, the ability to study longer and/or sexual performance. Following history, today humans appear readily interested in the use of these drugs and in human enhancement more generally. Yet, we lack the necessary framework for understanding this phenomenon, let alone engaging with it. This may sound cliché but we hope this book will provide more questions than answers as the field is in need of significant debate and inquiry into how we engage with the future of human enhancement drugs. However, as outlined above, we are confident this book provides one of the starting points for engaging with a number of important questions and in doing so provides novel insights into the field of human enhancement. We of course owe this to our contributing authors and we would like to thank them for submitting their amazing chapters!

For more information contact Dr Katinka van de Ven ([k.vandeven@unsw.edu.au](mailto:k.vandeven@unsw.edu.au))

# Q&A with Dr Cynthia Forlini on the ethical issues around cognitive enhancement



*I: In general, ethics is about what we ought to do as individuals and as a society. Common ethical issues that have been debated for decades include euthanasia, abortion, genetic engineering and other forms of human enhancement technologies. Your research primarily focuses on the ethical issues related to cognitive enhancement.*

**Q: Could you first explain what cognitive enhancement is and then describe what characterises neuroethics, the specific branch of ethics that your research deals with?**

CF: Let me start with the second part of your question to situate my approach. Neuroethics is an established field of research within contemporary bioethics that ensures the ethical and responsible translation of advances in neuroscience research into clinical practice as well as social and public policy. It also addresses the neural underpinnings of human behaviour such as decision-making and philosophical concepts such as free will. The scope of neuroethics scholarship is broad! For example, I have examined topics such as biological models of addiction, novel uses of technology and resulting media coverage, women's health, professional ethics, harm reduction in the regulation of e-cigarettes, and uses of complementary and alternative medicine by vulnerable populations.

A major area of interest in my research activities is 'cognitive enhancement'. It is a catch-all term for the improvement of cognitive function (i.e. attention, alertness, memory). It denotes the use of an intervention to: (1) compensate for dysfunction that could be caused by illness or disease; (2) help a healthy individual perform beyond their typical capabilities or (3) strive to surpass what is humanly possible. Most recently, the term has been adopted by the neuroscience and neuroethics literatures in the study of current and potential uses of neurotechnologies such as pharmaceuticals (prescription or over-the-counter) or brain stimulation in healthy individuals. My work addresses the ethical issues that arise in this context. However, we mustn't forget that sleep, exercise and diet can also be 'enhancers' yet they do not appear to be as ethically fraught.

*I: In some cases, ethical disagreement reflects a more fundamental disagreement about ethical principles and values. For instance, the same act (e.g. using drugs for enhancement purposes) can be morally wrong according to some ethical theories on the one hand and permissible, or even desirable, according to competing theories on the other.*

**Q: What is your ethical position?**

CF: Ethical dilemmas are often characterised as binary. In this case: 'to enhance or not to enhance'. We expect a conclusion that is universally valid. It is true that different ethical theories are based on different sets of values and principles. However, they do not always conflict outright in the way you describe to yield an answer that could allow us to say that cognitive enhancement is 'good' or 'bad' all the time. My work has shown that the expectation for a firm conclusion has led to a polarized and stagnant academic debate over the ethics of cognitive enhancement. Ethical acceptability appears to be a matter of degree that depends on a host of contextual factors that refer both to the substance used (e.g. coffee or prescription stimulant) and circumstances (e.g. to catch up with colleagues or gain an advantage) associated with an act of cognitive enhancement. In my research, I've found little evidence to suggest that there is resounding support or demand for cognitive enhancement among different groups (i.e. general public, students, and healthcare professionals). They do, however, have diverging priorities that draw upon different ethical principles and



theories to justify when cognitive enhancement is acceptable and when it is not. We need to be paying more attention to these variations in acceptability.

**Q: Which ethical issues do you consider the most important ones in relation to cognitive enhancement?**

CF: More so than any individual ethics issue(s), one of the biggest challenges in the ethics of cognitive enhancement has been the (so far) irreconcilable tension between the value of individual choice and social benefits or pressures. It first emerged in a focus group study that I conducted. The stakeholders that participated, which included university students, viewed cognitive enhancement as a matter of personal choice while being the result of tremendous social pressures to perform and succeed. Our society values the autonomy that individuals have. Autonomy is protected by laws and prioritized by some ethical frameworks. Yet, the social pressures present in competitive environments appear to constrain this autonomy in ways that compromise the honesty and integrity of individuals. Part of what might be fuelling these social pressures is the perception that cognitive enhancement is common in certain academic and professional circles, notably the use of prescription stimulants. In reality, international prevalence rates among students vary widely, but recent figures indicate that only a minority use stimulants for enhancement. That, in itself, poses a new question of whether these prevalence rates are indicative of a public health problem.

*I: A popular argument against the use of cognitive enhancers such as Modafinil and Adderall is that the purpose of these drugs is to treat certain medical conditions, and that such drugs should therefore not be used for non-medical purposes.*

**Q: Do you believe there is a morally relevant difference between treatment and enhancement?**

CF: Yes, I do think there is a moral difference between treatment and enhancement. Beliefs values, interests, and duties of those involved in providing and receiving treatment will be distinct from those seeking and using enhancement. However, I'm not sure the distinction is always helpful in determining whether we should engage in cognitive enhancement or not. Let me illustrate with two examples. 'Treatment' is an inescapable concept when discussing the use of stimulants: these are regulated substances that have an indicated and approved use. I have argued that in a medical context, physicians should not prescribe stimulants to healthy individuals because it is inconsistent with their professional duties. It is often determined by default that because enhancement uses of stimulants are outside medical indications and often occur without medical oversight they are inappropriate. Here, the treatment/enhancement distinction operates as a mutually exclusive criterion for determining whether an action is ethical. It does not entertain reasons why using a stimulant for enhancement purposes could be ethical. A contrasting example is the use of transcranial direct current stimulation (tDCS) for cognitive enhancement. tDCS devices are commercially available in some jurisdictions. Similar to stimulants there is only emerging evidence to support their enhancement effects in healthy individuals. Without 'treatment' to use an ethical benchmark, we must engage in a different type of ethical reasoning which raises the question of whether it was a necessary parameter at all.

"Yes, I do think there is a moral difference between treatment and enhancement. Beliefs values, interests, and duties of those involved in providing and receiving treatment will be distinct from those seeking and using enhancement. However, I'm not sure the distinction is always helpful in determining whether we should engage in cognitive enhancement or not".

*I: Another common objection to the non-medical use of prescription or over-the-counter medication is that it is unfair because it creates an unlevel playing field. For instance, students preparing for an exam may benefit from using cognitive enhancers which gives them an advantage over students who do not use such drugs.*



**Q: Do you believe there is a fairness issue with students' use of cognitive enhancement drugs?**

CF: There is, but not only for the reason you mention. Here, we need to distinguish between two components of fairness (or justice): one that refers to honesty and conditions of the performance, and the other refers to equality of opportunity. In the first instance, we consider whether cognitive enhancement would constitute cheating in competitive environments. Limited evidence on the efficacy of stimulants in healthy individuals makes it difficult to say definitively whether they confer any advantage. Whether that advantage is dishonest appears to hinge on if an 'enhanced' performance is authentic meaning that it was produced by a sufficient amount of effort (not using a shortcut). In the second instance, there are contrasting arguments about cost of stimulants being a limiting factor but the acceptance of many other socio-economic inequalities in society that lead to uneven playing fields in competitive situations. In order to further tease apart these points, one of my studies asked participants to compare the non-medical use of stimulants with two other performance enhancing practices: (1) consumption of caffeine (not cheating) and (2) steroid use in sports (cheating). Participants concluded that they were unsure whether the use of steroids in sports competitions and stimulants for cognitive enhancement are both cheating to the same extent. Again here, there is a nuanced perspective on where the ethics of cognitive enhancement fits into our existing notions of right and wrong.

**Q: What do you think the major benefits of cognitive enhancement are? And what are the drawbacks?**

CF: Improving cognitive performance has both individual and collective benefits. It can help people achieve creative and career goals, which in turn contribute to developments in science, art, and the economy, to name a few areas. That premise is generally uncontroversial, and perhaps even laudable. The drawbacks and ethical issues arise when we consider the 'how' cognitive enhancement is being achieved and 'why' it might be necessary. At the moment, the pharmaceuticals and devices used for cognitive enhancement are not supported by robust neuroscientific evidence. While there are some indications of modest benefit for modafinil in particular, the evidence is nowhere near as exhaustive as the standard that would be required to gain regulatory approval as a new medical treatment. As a result, people might be accessing and using interventions that don't work in order to respond to unrealistic demands for performance and productivity. The potential harm is more than a physical adverse reaction. It extends to the potential to undermine personal values but also those that uphold social institutions such as education.

**Q: Is there anything you would like to add, or do you have other important perspectives that we have not shed light on during this interview?**

CF: Much of the research and reflections I have shared in this interview address a sliver of the ethics of cognitive enhancement as they relate to the non-medical use of stimulants. I've alluded to how ethical issues might change with different substances and devices. My current work focuses on determining whether the issues change as we intervene in cognitive ageing to stave off age-related decline and dementia. Some initial work considers the ethical implications of a moral responsibility to care for cognitive health that is being communicated to the ageing population.

A final note: A recurrent theme in my research is the promise that novel technologies will be beneficial. In neuroscience, this promise is growing rapidly as we develop interventions such as brain stimulation and neural prostheses that help us intervene in brain function, but also neuroimaging that allows us to visualise how the brain works. We must not, however, take for granted that just because they exist, they should be used. Whether and how novel technologies are implemented is a matter of choice. The responsibility for debating and making this choice falls not only on scientists and ethicists but on society as a whole.



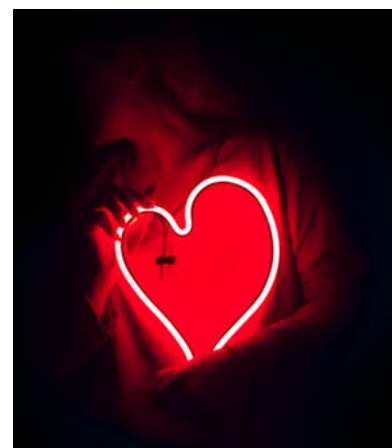
# 'Let's talk smart drugs': user's voice

## Modafinil: a love affair

By Bianca

### How it all began...

I remember very clearly my first experimentation with smart drugs. A friend had given me a couple of prescription Ritalin pills suggesting I might find them useful in coping with the demands of my high-pressured professional role as an academic. I'd had them lying around for ages but hadn't been tempted, feeling that I should save them for some kind of specific job-related emergency. That moment came when I was moderating essays and I realised that one of the markers – a Teaching Assistant who was over-worked and under-paid, facing a mountain of marking and a strict turnaround time – had not completed the work to a satisfactory standard, and a considerable number of scripts would need to be revisited within a very short timeframe. I took half of one of the Ritalin pills and whizzed through the scripts in record time, rigidly focused on the task at hand, leaving more effusive and useful comments than I ever had before and, crucially, rather enjoying this usually rather boring and unstimulating task. I didn't know at the time, but a love affair had begun.



"I took half of one of the Ritalin pills and whizzed through the scripts in record time, rigidly focused on the task at hand, leaving more effusive and useful comments than I ever had before and, crucially, rather enjoying this usually rather boring and unstimulating task. I didn't know at the time, but a love affair had begun".

### The pros and cons of using smart drugs

As Professor Howard Becker suggested in his work on marijuana users, it is common for the drug user to have to learn to recognise the effects of a substance and to enjoy the sensations she perceives. On this initial occasion, I had taken the Ritalin at 14.00 and endured a sleepless night with my mind racing all over the place. I started the next day feeling strung out and over-tired, and resolved that there was a heavy price to pay for the benefits I had experienced. I recognised the functional use of the Ritalin – to have focused my mind, kept me awake, and removed the pain of a usually routine and mundane job. I remember feeling slightly sorry, however, for young people today if their drug of choice was one which allowed them to work harder rather than enjoy the pleasures of a psychoactive substance for its own sake.

Nevertheless, I found that when next faced with a pile of marking, I was pleased to have a reason to experiment again and soon realised that I could resolve the sleeplessness by taking the pill as soon as I woke up in the morning. I found a pleasant Clearnet site, decorated in pastel colours and presenting as an entirely legitimate, customer-focused service which provided me with a constant source of Modafinil, which I have found to be very similar in its effects to Ritalin. Initially I continued to think of Modafinil as a useful aid for dealing with the routine aspects of my work and slowly graduated from only using it for marking, to using it once a week to blitz my admin tasks. As time has gone by, however, I have increased the frequency with which I use Modafinil and the number of situations in which I have found it to be beneficial.

As already stated, I have found it useful for mundane tasks, and this is no longer limited to my professional life. Parents coming to visit, arriving tonight, and the house a complete state? Agreed to help your brother

repaint his entire flat in one weekend? No longer a problem. Modafinil provides the motivation for me to take on these tasks and to stick at them until long after I would usually have given up to collapse on the sofa exhausted. But I soon also came to enjoy it in other scenarios. On one occasion I had to get up at 5.00 to fly to a conference. Never having been much of a morning person, I decided to see if a Modafinil would wake me up and clear my head. Networking at conferences has never been a strength of mine, but suddenly I found myself acting as I always wished I could – smiling at people, approaching them in a friendly and open way, asking them about their work without it feeling forced or unnatural, never at a loss for what to say. It was a revelation! I was myself, but as I would wish to be, rather than as I so often am. And as for my own presentation, I felt I was articulate, reflective, succinct and empowered: my abilities were enhanced here too.

For a long time I shied away from using Modafinil for the creative aspects of my job. I imagined it would force me to over-focus on a problem, to be unable to relax and let a solution pop into my mind. I had an early bad experience where I tried to write on Modafinil, knowing that my structure was all wrong, but feeling compelled to just keep going. The next day I deleted everything I had done. Slowly, however, I came to appreciate its benefits in this aspect of my life too. I have learnt to be able to relax my focus when necessary and to listen to myself when I know that something isn't right. The Modafinil has helped me to be organised in my approach to writing, paying attention to structure and the all-important narrative thread. Now, when afforded a day to work on my own research, I always use a Modafinil, and I am constantly impressed by its ability to motivate me to get started, to fill my head with relevant ideas, to allow me to distil those ideas into a clear and rational framework.

### Experiencing the pleasure of using Modafinil

But perhaps the biggest surprise of all has been the overwhelming pleasure with which I now anticipate and experience the use of Modafinil. As the effects slowly creep up on me, I feel like I'm experiencing a low-key high. An echo of the sensations I've experienced on illegal substances such as MDMA or speed in my past, no longer frequent sources of pleasure due to the significance of their effects and impact on the rest of my week. Everything becomes more pleasurable on Modafinil: smoking, sex, communicating with friends and family, exercising.

Wanting to present a balanced picture, I tried to think about the negative sides of using Modafinil – what concerns or worries do I have about my use? Probably the biggest concern is smoking – I smoke at least twice as much on Modafinil and I worry about the effects of that. I also worry, not really about becoming overly dependent on it, but more about it just not working anymore. Over the 3 years that I've been using it, my use has crept up from once every month or two, to every week day during term time. And whereas half a pill used to blow my head off, I now frequently take a whole one. Sometimes the effects aren't as strong as I would like. What if I use it so much I become immune to it and can no longer experience the benefits, no longer find it pleasurable, as has happened to some of my friends?



When colleagues compliment me on my efficiency or the skill with which I have completed a task I feel guilty, knowing that they are possibly comparing themselves unfavourably (a common occurrence in the competitive world of academia). If I trust them, I feel compelled to tell them that I couldn't have done it without Modafinil. I don't really fear legal consequences of my use. There was once the anxiety of my 'package' from China being held at the local post office, and I sometimes worry about how it would be perceived if it showed up in a roadside drug swab when driving. None of these factors provide a strong impulse to stop or cut down.

"But perhaps the biggest surprise of all has been the overwhelming pleasure with which I now anticipate and experience the use of Modafinil. As the effects slowly creep up on me, I feel like I'm experiencing a low-key high".

### Is it all in my head?

Since using Modafinil I have been overwhelmed by the number of friends and colleagues I have found to be either already users or very interested in trying it themselves. I find that it is a constant topic of conversation – when do people use it, in what situations does it work best for them, do they or don't they experience the pleasure that is so central to my own use, how does their experience change over time, do they always experience the same effects? As an academic working in a field related to illegal substances, I have read some research about Modafinil and other smart drug use. I have found much of it very interesting. For instance, many psychology based studies claim to have found no measurable cognitive benefits associated with the use of smart drugs, while the majority of users experience overwhelming benefits. How can this be? Is it all placebo? I have certainly noticed a great variability in my own use of Modafinil with a pill from the same batch sometimes producing overwhelming effects and sometimes proving to be barely noticeable in its effects

I feel fairly sure that my Modafinil journey is far from over, and I'm curious about experimenting with other methods of cognitive enhancement, for example the micro-dosing of LSD. Having once rather reluctantly concluded that my experimentation with psychoactive substances was largely behind me, I'm pleased to find that I have much to look forward to.





# ECR Spotlight: Dr Larissa J. Maier



## Connecting people

Early in life, I learned that music connects people. And that drugs can do the same. After exploring the European nightlife for many years and spending summer 2011 in Berlin, the capital of electronic music, I was keener than ever to help people reflect their substance use to increase well-being. My internship in forensic psychiatry at the Charité Berlin confirmed my passion for studying people and their very own stories to understand WHY they acted in a certain way. Soon I realized that there is not enough crime in Switzerland, so I decided to keep on profiling people who use drugs instead.

In collaboration with a national working group coordinated by Infodrog, I developed a survey on recreational drug use in nightlife settings. This survey is still used today to monitor recreational substance use behavior of people who visit an information booth or a drug checking service at clubs, at festivals, at a dedicated office, or online at one of the partner websites. My master thesis focused specifically on how to prevent harm from recreational drug use in Zurich, when drugs were used to enhance experiences and social contacts in nightlife settings. The most recent version of the survey is more inclusive and equally investigates substance use at home or at work and in school.

This extension was inspired by my work as a PhD candidate at the Swiss Research Institute for Public Health and Addiction at the University of Zurich back in 2012. At that time, there were lots of rumors around students' nonmedical use of stimulant drugs to enhance cognitive performance. Ultimately, we conducted the first study among 6,275 students at three Swiss universities to find that 1 in 7 had used prescription drugs, alcohol, and/or illegal drugs to enhance their performance while studying. Notably, use was most prevalent during exam periods.

## Start making sense

While everyone was excited about prevalence rates, my research aimed to enable a more thorough understanding of the complex patterns of and motives for substance use. Yet, lifetime prevalence was widely used for group comparisons. Nowadays, consensus exists that we cannot predict health behavior in the future based on a single occurrence of a risky behavior. Nevertheless, 12-month and 30-days use rates are still used to explain trends in substance use behavior, for example increases in cannabis use following legalization in the United States or Canada. These numbers alone, however, tell us nothing about the health risks related to use. Having used a drug once or twice in the last 12 months or last 30 days is not necessarily a cause for concern and some people may even benefit from use. We need to start making sense of these numbers by adding context such as frequency of use, amount of use, concurrent use of other substances, and main motives for use. And that's what I did.

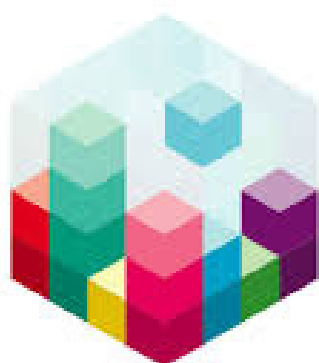
"While everyone was excited about prevalence rates, my research aimed to enable a more thorough understanding of the complex patterns of and motives for substance use."

We found that among Swiss employees, substance use for mood enhancement turned out to be more common than for cognitive enhancement and that only chronic stress and mental health issues were the best predictors for nonmedical substance use for enhancement purposes. In addition, only few people with a very specific personality profile were regularly using stimulants for enhancement and attitudes were mostly positive among those experienced. Despite a lot of research, it remains unclear in how far substance use for self-medication vs. enhancement-only purposes is justified when we try to become the best version of ourselves.

"Back from my around-the-world trip in 2016, I was just about to become the best version of myself when all these projects came to an end and no further research funding was secured."

Back from my around-the-world trip in 2016, I was just about to become the best version of myself when all these projects came to an end and no further research funding was secured. My initial application for a Swiss National Science Foundation (SNSF) Early Postdoc Mobility Fellowship failed which enabled me to seek a new challenge as a consultant in drug use epidemiology at the United Nations Office on Drugs and Crime (UNODC) in Vienna. For the first time ever, I had to wear two different hats maintaining neutrality under UNODC and aiming to make drug use safer regardless of the legal status of the drugs

as part of the Global Drug Survey (GDS) Core Research Team that I joined following a research stay with the founder Adam Winstock at Kings College in 2014. By then, I had a paper on substance use for cognitive enhancement in 15 countries based on GDS2015 data under review but decided to let go. When the journal followed up again almost a year later, I revised the paper thoroughly and added GDS2017 data to compare the relative increases in substance use for cognitive enhancement across countries. When the study finally got published, I had already moved on to my postdoc at the University of California, San Francisco (UCSF) as my second SNSF application was successful. The findings were picked up by renowned news outlets such as Nature News and Salon that discussed why substance use for cognitive enhancement is on the rise.



GLOBAL DRUG SURVEY

### More courage!

It didn't take me long to discover that consciousness hacking is a big thing in Silicon Valley, San Francisco, and beyond. In fact, microdosing with psychedelic drugs is popular to increase creativity. GDS2019 will explore who benefits from use. While social media use decreases the attention span, AI will likely develop tools to compensate for that and facilitate learning in the future. Even though technology will change the way we encode and remember things, sleep, exercise, and mindfulness training are to date still considered the most sustainable ways of improving cognitive performance.

Finally, I criticize openly that it is widely accepted that wealthy people in the Bay Area invest a lot in self-improvement when, at the same time, people with trauma and other mental health issues who try to decrease their suffering with opioid and other drug use continue to be criminalized. Responses to drug use should be a matter of public health rather than criminal justice. I hope that effective science communication can contribute to changing the negative narrative about drugs and that politicians will show more courage to implement compassionate solutions that help to reduce stigma by focusing on the many resources of people who use drugs. It's all about connecting people and systems, a pretty complex task. Yet, I am optimistic after I got inspired by a quote on a necklace I received at Burning Man this summer which states: While difficult takes time, the impossible just takes a little longer.



### References

- Maier, L.J., Ferris, J.A., & Winstock, A.R. (2018). Pharmacological cognitive enhancement among non-ADHD individuals-A cross-sectional study in 15 countries. *International Journal of Drug Policy*, 11 (58), 104-112.
- Maier, L.J., Liakoni, E., Schildmann, J., Schaub, M.P., & Liechti, M.E. (2015). Swiss University Students' Attitudes toward Pharmacological Cognitive Enhancement. *PLoS One*, 10(12).
- Liakoni, E., Schaub, M.P., Maier, L.J., Glauser, G.V., & Liechti, M.E. (2015). The Use of Prescription Drugs, Recreational Drugs, and "Soft Enhancers" for Cognitive Enhancement among Swiss Secondary School Students. *PLoS One*, 10(10).

# UCSF

# Practical Advice- For Healthcare Providers

By Dr Matthew Dunn

*Dr Matthew Dunn is a Senior Lecturer in Public Health at Deakin University and a Conjoint Senior Lecturer at the National Drug and Alcohol Research Centre. He is the Victorian representative for the Australasian Professional Society on Alcohol and other Drugs (APSAD).*

## Do they work?

One of the most frequent questions I get asked when I tell people that I research steroid use is, “do they work?”. My response generally depends on who is asking me the question. Often, it’s someone who works with young people, who may be at that stage of their life where they are thinking about starting a steroid cycle, and who is looking to me to provide some advice on what they should do. Fairly often it’s someone who is thinking about starting a course themselves, because they’ve hit a plateau in their training. The obvious next step to smash through that ceiling might be to consider a cycle or two. My advice usually consists of a few questions: Do you think it’s only going to be that cycle or two? If you put on some mass, but lose it when you stop using the steroids, will you go back on? And before you think about starting, have you looked at your training program? Are you still doing the same exercises, using the same reps and sets, eating the same things? Have you given your body enough rest to repair and grow?

"One of the most frequent questions I get asked when I tell people that I research steroid use is, “do they work?”. My response generally depends on who is asking me the question".

I’m giving this anecdote because I get asked the same question when I tell people I research study drugs. While I consider a substance to be a ‘study drug’ if students use it to help them study or to get through a study period, in almost every case people assume I am talking about prescription substances, such as Ritalin or modafinil. I get surprised at the amount of interest people have in these substances, but I guess I shouldn’t be; ask anyone how they’re doing, and the answer tends to be ‘busy’. We all lead busy lives with multiple, competing demands on our time. The idea of being able to take a pill that will let us do more during the day is quite enticing. In recent times we’ve seen movies like ‘Lucy’ and ‘Limitless’ portray the idea of a novel compound unlocking the untapped parts of our mind. Nootropics are the new compound on the block, sold as substances which will improve cognitive function, memory, creativity, and motivation. This idea isn’t new. Prescription stimulants have a long history in and out of the academic setting as substances used precisely for these purposes. Sometimes we just need them to help us stay awake.

When I’m asked, “Do they work?”, I tend to put my academic hat on. What substance are you talking about – a can of Redbull, some nootropics you bought online, or your friend’s methylphenidate? Why are you taking it – to sit in the library and cram for 12 hours the week before your final exams, to be able to work at your job for eight hours and then do another five hours of study, or to just get through your to-do list at work and be more productive? Whether the studies say these substances can help with these objectives is, I think, irrelevant. If a person uses something and thinks it worked, then they’ll use it again. I was once on an episode of an Australian TV show discussing ‘smart drugs’, and it featured a young woman who had faked a diagnosis of ADHD to get a prescription for Ritalin. In that time she had secured two promotions at work and believed she was a much more productive member of her team and just in her life in general. I don’t think it matters whether a randomised control trial looking at the effect of methylphenidate versus placebo finds a significant difference in, say, word recall – if this young lady believes she’s working harder and being more productive, then she’s going to keep using what she is using.



## University is tough, but life outside university is even tougher

My recent work in Australia has looked at study drug use from the institutional perspective. We know students use a variety of substances for a variety of academic and non-academic reasons, but have we created an environment in our universities where students feel they have to take something in order to succeed? I conducted interviews with a range of stakeholders from the higher education sector to ascertain their views. What was interesting was that only one of fourteen participants had encountered outright study drug use; this participant was in a student support role, where they had to deal with a student experiencing a severe anxiety attack due to the excessive use of caffeine pills. The student was trying to stay awake longer to work on his assignments, and having not slept properly, they suffered both physically and psychologically. This stood out to me because it wasn't a prescription substance that he had bought online from the dark web, but something he could legally purchase from a convenience store. As a teaching academic, I see the stress that my students are under. They are postgraduate students returning to study for their Masters to get a better job or change careers. They may work full-time, with full- or part-time caring duties. They may be studying in their second, third, or fourth language, away from their home country. With deadlines looming, I can see why a student may decide to engage in a number of behaviours: plagiarise, pay someone to do their assignment, or take a pill and stay up all night. What further concerns me is that, from interviews collected as part of a large study with students who were taking prescription stimulants, many indicated that they will just be taking these substances now while they're at university, but that they'll stop when they get out into the "real world". University is tough, but life outside university is even tougher, and there is the concern that what may be a fall-back solution now might become a permanent solution once facing the challenges outside university.

### Asking a set of questions...

It's not my place to say yes or no to the guy asking me if he should take steroids because he's hit a wall with his bench press. I take an unashamed harm reduction approach to substance use: know what you're taking as best you can, do your research, make an informed choice, and if you don't want to experience harm, then don't use the substance. Likewise, I won't tell someone to not take the modafinil they bought from a website because they think it is necessary to study better. I will, however, ask a number of questions to get them to think about whether it's the right decision:

- How's your diet at the moment?
- How much sleep do you get?
- Do you exercise?
- Do you have strong time management skills?
- Do you give yourself time to do the things you enjoy doing, besides studying or working?

These are the questions that a group of university counsellors came up with when I spoke with them recently about my research. There are a number of ways we can enhance our performance. If you have been doing 10 reps for 3 sets on the barbell bench-press for the past 10 weeks and can't increase the weight you're lifting, you should look at a number of things before taking steroids. Likewise, if you're not able to fit in as much as you would like in your day, and you struggle to find the time to write your essay, there are a number of things you can look at before deciding to take nootropics. They might be right for you, but are they right for you right now?



# Upcoming HED Events

## **ICABRT 2019: 21st International Conference on Addiction Behavior and Rehabilitation Therapies**

Zurich, Switzerland: January 14-15, 2019

<https://waset.org/conference/2019/01/Zurich/ICABRT>

## **2019 Alcohol, Other Drug, and Campus Violence Prevention Conference: A NASPA Strategies Conference**

Washington, DC: January 17-19, 2019

<https://www.naspa.org/events/2019scaod>

## **Partnership for Clean Competition**

London, UK: April 16-18, 2019

<https://cleancompetition.org/conference/>

## **ISSA—World Congress of Sociology of Sport**

Dunedin, New Zealand: 24-27 April, 2019

<https://www.otago.ac.nz/issa-2019/index.html>

## **Harm Reduction International Conference**

Porto, Portugal: April 28-May 1, 2019

<https://www.hri.global/hr19>

## **The International Society For The Study Of Drug Policy**

Paris, France: May 22-24, 2019

<http://www.issdp.org/conferences-and-events/>

## **10th International Conference on Sport and Society**

Toronto, Canada: June 20-21 2019

<http://sportandsociety.com/2019-conference>

## **22nd International Council on Alcohol, Drugs and Traffic Safety Conference**

Edmonton, Alberta, Canada: August 18-21, 2019

<https://t2019.org/>

## **International Network for Doping Research (INDR) conference**

Aarhus, Denmark: 22-23 August, 2019

<http://ph.au.dk/en/research/research-areas/humanistic-sport-research/research-unit-for-sport-and-body-culture/international-network-of-doping-research/conference-section/>

## **Lisbon Addictions 2019**

Lisbon, Portugal: 23-25 October, 2019

<http://www.lisbonaddictions.eu/lisbon-addictions-2019>

## **WADA's 5th World Conference on Doping in Sport**

Katowice, Poland: November 5-7, 2019

<https://www.wada-ama.org/en/events/2019-11/world-conference-on-doping-in-sport>

## Want to become involved?

### Membership?

HEDN is an international group of multi-disciplinary researchers with an interest in human enhancement drugs from various universities. We seek to strengthen working relationships between academic sectors, governmental agencies, NGOs, users groups and others interested in human enhancement drugs, performance and image enhancing drugs, and doping substances. You can find the entire Human Enhancement Drugs Network on our website: <http://humanenhancementdrugs.com/hednetwork/>

Please contact Dr Katinka van de Ven ([k.vandeven@unsw.edu.au](mailto:k.vandeven@unsw.edu.au)) if you would like to join the Human Enhancement Drugs Network! It's free!

### Want to write something for the next HED Matters?

The next HED Matters will focus on therapeutic psychedelics. Feel free to contact us if you would like to be in the spotlight for the next edition!

### Follow us on social media to stay up-to-date!

Follow us via social media to stay up-to-date about the latest developments in the field of human enhancement drugs. You can follow us via:

Twitter: [@EnhancementDrug](https://twitter.com/EnhancementDrug)

Facebook: [@humanenhancementdrugs](https://www.facebook.com/humanenhancementdrugs)



# HUMAN ENHANCEMENT DRUGS

[www.humanenhancementdrugs.com](http://www.humanenhancementdrugs.com)