Editorial: Mental Health for Everyone

One of the challenges of working in neuroscience is that, as a field, we are still miles behind other disciplines in terms of producing treatments for devastating diseases. Nowhere is this more true than in the case of mental illness and substance abuse: a place where complicated neurobiology, social and economic factors all collide. In this issue of the newsletter, we have decided to take it on.

Start off by learning what prompted us to start this conversation (page 6), or what some of the most common drugs of abuse actually do in the brain (pages 5 - 7). Find out why the study of mental health has had a long and chequered past (pages 6 and 8), and why re-thinking what we know about psychedelics and pharmacology can change everything (pages 9 and 20).

In this issue, we also take a close look as mental health in academia, starting off by a phenomenal article on page 3. Here, you can read about resources available on campus, as well as reading a touching personal account on page 19. Critically, we also delve into the best ways to care for friends and family with mental health and substance abuse issues (pages 11-13).

On the lighter side, we also have a great mix of interviews (page 27), podcast reviews (page 21), and career advice (pages 23-26). Check it out!

Finally, we have some exciting, yet sad news. Our esteemed co-editor-in-chief, Claudia Willmes will be leaving Berlin to begin an exciting new job... as an editor at Cell Press! We wish Claudia all the best, and thank her for all of her hard work, especially with our blog. Academic publishing is certainly in good hands!

Happy reading!

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Like what you see? Interested in contributing? We are always looking for new authors and submission on anything related to the topic of neuroscience. Send us an article, some beautiful shots from your microscope, poems, short stories, critiques, reviews—anything! The best contribution will be rewarded with the book The Future of the Brain edited by Gary Marcus.

Come on and write like there’s no tomorrow! Send your contribution to cns-newsletter@charite.de to win. Deadline for submission for the next issue is Nov 2nd, 2018.

This issue’s winner is Maria Lucia Pigazzini, who explored the link between mental illness and creativity (page 9). Thanks Lucia for such a though-provoking article

Congratulations, and thanks to everybody for their contributions!
Mad World: Mental Health in Academia

Many of us are encountering one or more difficulties during the PhD or the Master: trying to cope with the pressure, the work load, the lack of time, the financial situation, the unpredictable outcome of our experiments, and ultimately finishing our thesis. For some of us this road might lead to mental health problems such as depression and anxiety. Apparently this is not a lonely road.

You Are Not Alone
Recently, media has started to focus on the Mental Health (MH) crisis in academia. Personal reports of affected scientist show, in a moving way, how severe depression or anxiety can take a toll on a person, especially if they feel guilty and ashamed of their condition and foremost feel alone [1,2,3]. But they are not alone: A report from UC Berkley 2014 showed that over 40 % of bio-science students were depressed [6]. In a 2017’s nature survey among PhD students, 12 % of more than 5700 respondents reported having “sought help for anxiety and depression caused by their PhD studies” and 25 % indicated concerns about their mental health [4]. A report from the research organization RAND Europe in 2017 stated that burnout appears more often in academic staff compared to the general working population and >40 % of post-graduates were suffering from symptoms of depression and high levels of stress [5]. Another study on a small cohort in Belgium showed that PhD students, compared to other highly educated persons, are about 2.5 times more likely to develop mental health problems [6], what is in line with another study rating the likelihood for graduate students to six times higher [7]. In a workshop “Improving the Mental Health of Employees” held by the Max Planck Alumni and Early Career Researchers meeting in fall 2017, participants listed reasons for poor mental health, such as inappropriate supervision and planning of the project, financial and professional insecurity, high work load and social isolation [8].

Employers Should Care
If not for our sake, employers should care about the mental health of their employees for economy’s sake. While mental health issues repre-sent an economical burden, direct costs such as for the healthcare system to treat patients weighs less than the indirect costs: people in bad mental health take more days off [9], are present but not productive [5], and retire early (which is reflected in decreased productivity and loss of work force) [9]. Thus, mental disorders cause economical costs as much as somatic diseases. Yet, treatment is not covered to the same extent by the health care system [9].

What Is Normal?
The accomplishment of a PhD is an exciting yet challenging journey. And it demands countless sacrifices. Many of us used to be among the smartest in their class in school or university and are highly ambitious. After university, we felt smart and capable, the world was waiting for us. Then we start a PhD. Suddenly, as we are surrounded by many very smart people, we might start to feel incapable and dumb (this is often called “Imposter Syndrome”). We have to learn so many things in parallel, yet nobody tells us how. Information is not neatly organized in books anymore, but haphazardly spread within a dozen papers. The project is designed but the experiments don’t turn out as planned; we feel things getting out of control. Are we doing things right, are we doing things wrong? There is no one anymore to tell us at the end of the day if we did well.

We cannot accept failure, we want to excel again. We need to get results to publish, to get grants, to shine, to feel like we made it. We reassure ourselves that we just need to work harder, work longer hours, make more sacrifices, then everything will be fine. Besides the lab work, we juggle teaching duties, writing papers, application for grants and stipends and extracurricular activities. Pushing ourselves like this might be the reason that we lose touch with reality and the idea of what is normal. How many working hours, how many holidays are normal? Is it normal to work during the weekend without compensation? How does our salary compare to other jobs? The only thing that becomes important to us is the lab and we lose ourselves in this bubble, exploiting ourselves to exhaustion. It is dangerous, because the freedom to work independently can turn against us. Finally, we might even lose the sense of why we are doing this at all; we fear our research has no impact and the poor job perspectives in academia leave us with the impression we are running into an abyss.

What Can We Do to Help?
So what to do about it? A capable supervisor who cares, appropriate work conditions, and good career perspectives are key to improve MH for PhD students. Recognizing the purpose of the PhD seems to give a sense of meaning and thus has a positive effect on students’ stress levels [6]. Solutions proposed in the above mentioned workshop by the MPI were: (I) courses on stress relief for students, (II) courses for PIs on how to mentor PhDs, (III) proper planning of the thesis, (IV) funding periods covering the duration of the thesis, (V) career services, and (VI) free psychological help on site, just to name a few [8].

What we can do ourselves is to change our own awareness of MH disorders. We need to be aware that MH problems in academia are more common than previously thought. We need to stop stigmatizing troubles with MH, but instead recognize that affected colleagues need help. We need to support each other along the way to the PhD. We need to listen to each other and most importantly: we need to care. Work is important and we’re notoriously short on time but
For the sake of this article, let’s define unethical experiments as experiments performed on humans under duress and without proper knowledge and informed consent of the patient. Records of countries complicit in such activities such as the USA, North Korea, Germany and Japan have been well-documented [1,3]. When details about these experiments were made public, they led to many trials and hearings and paved the way for the development of ethical codes of conduct in research. The range of unethical experiments comprised everything from experimental surgery to tests with toxic substances and (psychological) torture [4].

This article is not meant to be a gruesome, step-by-step detail of human experimentation performed for the CIA in the 1950s. However, it does review some psychological experiments that involved people with mental health problems who were either coerced into the study or were not fully informed about what the study entailed.

1. Project MK Ultra
This was one of the mind-control and interrogation programs run by the CIA in the 1950s. The premise was to create “a reversible, non-toxic, aberrant mental state” in which the subject was supposed to be pliant for extracting information, or implanting suggestions in their mind for nefarious purposes [5]. Findings from the MK Ultra subprojects were distilled into one handbook and the developed torture and interrogation techniques were later used in US military-run prisons [6]. However, concerns against the program were reported as early as 1957 and the program was discontinued in 1972. Some files that were not destroyed led to public outcry and congressional investigations [7].
2. Experiments on Prison Inmates and Schizophrenia Patients
Funded by the US army, Dr. Robert Heath of Tulane University performed pharmacological experiments on 42 patients with schizophrenia and prisoners at the Louisiana State Penitentiary. He dosed the subjects with LSD and bulbocapnine, implanted electrodes in the brain and took EEG recordings to explore the effects of these drugs on the brain [8]. Allegedly, these experiments were designed to explore the pathological bases of schizophrenia, and develop treatments. Of course, neither happened successfully.

Around the second world war, Drs. Ernst Rudin and Franz Josef Kalimann promoted the theory that Schizophrenia was a Mendelian-inherited disease and could be passed on from parents to offspring. Rudin was also influential in passing laws in Germany that demanded sterilizing anyone carrying hereditary defects. Not only did this law target individuals with schizophrenia but also, among others, those with manic depressive disorder, epilepsy, Huntington’s disease, hereditary blindness and deafness and mental retardation [9].

By 1913, Germany had faced a five fold increase in patients admitted in public asylums. For example between 1924-1929, the Erlangen asylum faced a 42 to 56% increase in patients diagnosed with schizophrenia [9].

In 1920s, Karl Binding and Alfred Hoche proposed the (inhumane) idea of killing patients in psychiatric hospitals and highlighted how such patients were a significant economic burden on the German economy. In 1939, Hitler authorized the killing of mental patients and also guaranteed legal immunity for people who were taking part in it. The program was called Aktion T-4 (or Action T-4) [9].

The method chosen for mass murder was the release of carbon monoxide in a closed room and then burning the bodies in a crematorium. From 1940-41, some 70.273 patients were killed. Later in 1941, some people employed in the program were transferred from psychiatric hospitals to concentration camps and used the same techniques for mass murder of Jews and other people deemed not worthy of life.

Although the horrendous Aktion T-4 program was halted by 1941, killing of mental patients went on. Other methods used for extermination involved injection of morphone, starvation and also execution at the hands of military personnel. Mentally ill children were also not exempt from this and in Bavaria, for example, hundreds to thousands of children died because of starvation and injections. Between 1942-1945, 92% of the patients at the Hadamar asylum and 97% of the patients at Obrawaide asylum died because of these tactics [9].

Torrey and Yolken estimate that between 1939-45, there were some 25,000-300,000 schizophrenia patients in Germany. Out of these, 220,000-269,500 were sterilized or killed (between 73-100%). Postwar studies indicated that the prevalence of schizophrenia was lower in Germany than before WW2, probably due to genocide [9].

Why Have Ethical Codes of Conduct?
Delving into these details is not an easy feat. Why bother, you might ask? It must be remembered that these experiments were not carried out by extraterrestrials or monsters. The proponents behind them were highly educated doctors, psychologists and lawyers. While these and many other unethical experiments [10,11,12,13] give science a bad name, one cannot remove human subjects completely from research. The main challenge is to establish a balance between projected risk to the patient and to what extent science could truly advance from a particular study [14]. Bioethics laws and committees that exist today [15] serve to scrutinize how ethically a research is performed (check Ioana’s article on a recent German Ethics conference on page 27). This might mean experiencing some delays while designing your research project, but is this reasonable effort really a problem if it prevents any potential ethical misconduct?

The famous bioethics maxim was not always “first, do no harm”
Social Stigma Causes Dangerous Silence

How often (including in our Newsletter) have you read the phrase XYZ is a leading cause of death in developed countries...? Here, in the CNS NL, we have written about cancer, diabetes and types of neurodegeneration that are leading causes of death. What we haven’t told you yet is that the leading cause of death among our readership, primarily academics, is depression [1]. Experiencing long streaks of demanding work, paired with plenty of frustration and constant pressure to publish, win grants, and find positions indeed seems like a relatively common route into depression. Surveys in the UK, for example, have revealed that two in three people know someone affected by a mental illness [2], illustrating how common they are. However, mental health problems continue to be rarely spoken openly about. Unlike physical diseases, where you openly seek help and compassion, there is a social stigma accompanied with mental health problems causing shame and silence [3]. However, this stigmatization originates from ancient times when there was hardly any scientific understanding of the world and everything unknown was ascribed to the will of gods or demons. Things people could not explain caused fear and led to avoidance. Consequently, people suffering from mental illness were rather expelled, forced into social isolation and even killed. Remaining silent about mental illness, therefore, proved to be a survival skill.

Non-profit organizations primed slow change

Indeed, for a long time nothing changed: the mentally ill were arrested and “euthanized” in Nazi-Germany or “exorcized” around the world. Only in recent times has there been change, paralleled by an increasing understanding of the physiology underlying many mental illnesses, available treatment options, and open discussion about psychological issues. This change is driven by non-profit organizations and mental health associations, who specifically aim to inform the public (e.g. by calling out the mental health awareness months in various cities) and provide a network to enable people impacted by mental illness to reach out for help. Public figures like British Prince Harry talking about his depression following the early death of his mother, as well as supporting charity initiatives which cover issues of mental health have also been helpful. Generally, more people speaking openly about their personal mental health problems have also helped to remove the stigma. Campaigns like Time to Change, #HereForYou and The Power of Okay [4, 5] are successful: according to a YouGov survey in UK a vast majority of people regard questions of mental health just as important and serious as physical conditions [6].

Think about yourself and your peers

Thanks to the growing public awareness and better common knowledge on mental health, people are more likely to find help and be diagnosed and treated accordingly. This leads to continuously increasing numbers of people reporting suffering from psychological problems [1,8], shedding even more light on the prevalence of mental illnesses. According to surveys and health insurance statistics [7,8], an increasing number of academics suffer from depression at least once in their lives. In particular, among graduate students, rates of general anxiety disorders and depression are six times higher than in the general population [9].

More is not enough

The intention behind the NPG initiative and similar formats, just like ours with this issue of the CNS Newsletter, is to spread awareness for mental health concerns. You may benefit yourself, because you will have read about early signs and symptoms and recognize the need to take a break. And not only yourself, keep an eye out for your friends and peers when they struggle and reach out to them with compassion and understanding to get help, when necessary.

Despite all public and private efforts to increase the general awareness for mental health problems and encouraging people to seek appropriate treatment and help, raising awareness alone is not enough. Facing mental health crisis while the health sector is heavily underfunded can be a challenge. Seeing a medical professional despite all these hurdles is no easy feat and you should always be proud of yourself or those around you for doing whatever is necessary to keep your hat of sanity.

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If you or someone you know is struggling with mental health issues, please check out “Mad World: Mental Health in Academia” on page 3 to learn how to get help!
Do you remember when you were a kid and your parents told you to stay away from drugs? However, as you started exploring yourself, your soul, and spirituality, you realized how accessible drugs are and reassured yourself that you are not the first person to try them out. You heard stories that made you wonder if drugs can help you explore other dimensions of yourself, the world around you, and the universe. For example, LSD activates parts of your brain that normally do not communicate with each other [1]. So you kept experimenting, and years later you are still enjoying them and cannot remember your life without them. Does that make you an addict? What does it all mean for your brain?

Defining Addiction
Drug addiction is a primary, chronic relapse disorder involving 3 stages: preoccupation/anticipation, binge intoxication, and withdrawal with negative effects [2]. Long term usage of a drug can result in physiological brain changes, which may lead to change in behaviour. The first stage, Preoccupation/anticipation is observed in compulsion to seek and intake drugs triggered by different cues. Binge intoxication is characterized by uncontrolled drug self-administration with brain stimulation of reward thresholds. Withdrawal is defined by elevated reward thresholds and increased motivation for self-administration, accompanied with negative social symptoms resembling anxiety and motivational withdrawal syndrome. Motivational withdrawal syndrome is defined by dysphoria, irritability, emotional distress, and sleep disturbances that persist even after a protracted withdrawal phase [2].

Anatomical and Physiological Consequences of Addiction
Each stage is characterized by pathological changes and neuroadaptation in a specific brain area. Neuroadaptation, induced by chronic drug exposure, represents a decrease in neurotransmitter’s functionality [2]. Constant compulsion for drug intake during preoccupation phase is associated with changed glutamine pathways in the prefrontal cortex and hippocampus. Most substances of abuse cause a decline in attention and cognitive flexibility, delayed reward discounting (signs of prefrontal cortical damage) and spatial, verbal as well as recognition memory deficits (signs of hippocampal damage). Withdrawal phase is associated with a decrease of mesolimbic and serotonin function in the extended amygdala, which is responsible for fear conditioning and pain processing. Thus, negative symptoms of withdrawal are fatigue, decreased motivation for non-drug related stimuli, increased in sensitivity to the abused drugs, and decrease in mood and psychomotor retardation [3]. On the other hand, binge intoxication phase affects the nucleus accumbens (NA) and the ventral tegmental area (VTA), structures of basal ganglia which are involved in reward system. Besides primary connections inside basal ganglia, the NA is connected to the hippocampus, frontal cortex and amygdala - brain structures associated with other stages of addiction. Due to the high complexity and interconnectivity of different brain regions involved in addiction, it is hard to understand the physiology, both during its beginnings and during recovery [2].

Implications for the Reward System and Basal Ganglia
Every substance of abuse affects the reward system in NA and VTA area both directly and indirectly. For example, alcohol activates the globus pallidus (GP), which is part of the reward system, too. By activating GP, the reward system will directly be activated, but also indirectly through inter-connectivity of the NA, VTA and GP. Thus, neurotransmitter release will be altered, and reward system will be turned on.

The reward system is dopamine dependent and dopamine is considered to be a crucial neurotransmitter involved in neuroadaptation and addiction. Specifically, several scientific studies showed a significant decrease in dopamine D2 receptors throughout the brain after continuous substance abuse, that they postulate subsequently leads to brain dysfunction and atrophy [4]. Unfortunately, brain regeneration is limited and brain damage is mostly permanent after years of substance abuse. In search for different dimensions and universes, you lose contact with reality by destroying neurons, and destroying who you really are. You become depressed and anxious, with your mind and brain focused only on one thing: drugs. In extreme cases, you experience psychosis and schizophrenia-like symptoms [5]. Hence, from a healthy brain you reach an impaired, damaged state, with little you can do to prevent it.

Maybe your parents were right after all, maybe it is best to stay away from drugs. Is it really worth it to lose yourself for something so damaging?

Years Later and What Now?
Life and Brain After Substance Abuse

Image source: Wikimedia Commons, adapted from the National Institute on Drug Abuse

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Common Party Drugs
How do they affect your brain?

**LSD**
- Binds to **serotonin** receptors.
- This causes a greater than normal activation of the NT.
- Leads to rapid emotional swings, altered perceptions, delusions and visual hallucinations.

**MDMA/ECSTACY**
- Enhances release and/or blocks reuptake of **serotonin** (but also: norepinephrine, dopamine).
- This leads to increased NT levels within the synaptic cleft.
- Promotes euphoria, feelings of interpersonal closeness, empathy, sexuality.

**COCAIN**
- Blocks reuptake of dopamine, serotonin, norepinephrine by binding to transporter molecules.
- This leads to an increase in these NTs at the synapse.
- Promotes alertness, euphoria, feelings of competence and sexuality.

**KETAMINE**
- Blocks glutamate receptors.
- Impairs motor function and coordination, creates out-of-body experience or loss of touch with reality.

**CANNABIS**
- THC binds to cannabinoid receptors (of the “endocannabinoid system”).
- Causes relaxation, reduced coordination and blood pressure, attention problems and impaired thinking.

**ALCOHOL**
- Suppresses release of glutamate & increases GABA by binding to both NT receptor types.
- Causes drowsiness, impaired judgement, euphoria, loss of inhibitions.
With a Little Help From My Friends
The Science on Psychedelic Microdosing

You would be surprised by how many self-guides, self-reports and non-scientific articles come up if you google “microdosing”. All these articles claim there are benefits of taking (illegal) psychedelic drugs in tiny doses and provide you with specific protocols on how microdosing should be done. Within the last 10 years or so, microdosing has become a trend spreading way beyond the folks coming straight from the Woodstock festival and is the topic of several articles and books [1,2,3,4]. Since microdosing seems to be on the way to becoming socially acceptable, let’s see what science has to say on this regard.

What Exactly Is Microdosing?
The term microdosing actually describes the testing of drugs in sub-pharmacologic doses (usually 1% of the predicted pharmacologically active dose) on humans and is often referred to as “exploratory clinical trial” or “Phase 0 clinical trial” [5]. Recently the term ‘Microdosing’ has gained a lot of attention because it is used by the media to refer to psychedelic microdosing [1,2,3].

Psychedelic microdosing means the self-administration of sub-therapeutic doses of psychedelic drugs like LSD, Psilocybin (magic mushrooms) or MDMA every 3-4 days over an extended period, e.g. one month. Importantly, when taking the psychedelic drug in microdoses, the amount of the drug must be so small - usually a tenth of a “full active dose” - that you will not experience any noticeable hallucinogenic effects or psycho-sensory changes [6]. The idea here is that such a small dose will not impair your day-to-day activities but may have beneficial effects on various aspects of your life, including increased creativity, balance of emotional states, relief of anxiety, depression or addiction.

Psychotherapy With a Psychedelic Extra
The use of psychedelic drugs to enhance mood and cognition or treat mental disorders is not new: For around 15 years, that is, from the discovery of LSD until the time when it became illegal, many thousands of patients underwent some-thing called “psychedelic psychotherapy”, where psychotherapy was combined with the administration of LSD or other psychedelics to improve therapy outcome [7]. In fact, meta-analyses performed on data in these years showed promising effects for patients with mood disorders or alcoholism [7]. With the prohibition of psychedelics and curtailment of research on these substances, all progress in this field came to a halt.

However, since the late 90s, researchers revived the idea of using psychedelics as therapy and recently, positive effects were found for several psychedelic drugs. Psilocybin showed positive effects as a treatment for obsessive compulsive disorder and alcohol /tobacco abuse as well as for major depressive disorder. LSD treatment reduces anxiety and psychological distress in palliative care patients [7]. And MDMA in combination with psychotherapy reduces PTSD symptoms in veterans and first responders [8]. See also the article in this issue on page 18. All of these studies, however, rely on data obtained by high doses and in fact, many times microdoses were administered as a placebo-like dose to the control group and did not show any effect. So even if it is true that using high doses of psychedelics in controlled settings has positive effects on mental disorders, can psychedelic microdosing enhance creativity or well-being in healthy humans?

Microdosing: Getting More Out of Your Life?
The bad news first: Besides numerous self-reports undertaken by curious minds “in the name of science” there is literally not one properly conducted scientific study on humans demonstrating the usefulness of psychedelic microdosing [9]. However, most of the self-reports claim to have found beneficial effects including improvements of mood, productivity, cognition or creativity [4]. Nevertheless, we all know the placebo effect is real - so we will have to be patient and wait for a properly conducted scientific study. The good news is: we won’t have to wait for too long. Starting this year, The Beckley Foundation will launch a double-blind, placebo-controlled study investigating the effects of microdosing on mood, cognition and brain function [9]. In this study, a small dose of LSD or placebo will be administered to the subjects twice a week for four consecutive weeks. Readouts will include brain imaging as well as validated and new tests and questionnaires [9]. The truth is, science still needs to corroborate what already seems to be folk wisdom: whether microdosing is helpful or harmful we don’t know yet, but check back in three years time and we might be able to give you an answer.

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www.medical-neurosciences.de
[1] https://ind.pn/2L23jT
[3] https://wapo.st/2v75VsJ
[7] https://go.nature.com/2zP1BP4
Even if you have never seen the film *One Flew Over The Cuckoo’s Nest*, you likely have a grim view of psychiatry before the advent of modern antipsychotics and antidepressants: institutionalization, indifferent staff, and patients strapped to beds against their will, receiving crippling shocks to the head. It’s not a pretty picture, and in many ways, treatment of severe, intractable mental disorders still fails to provide relief for many patients. However, could what was portrayed as psychiatry’s darkest moment actually provide a ray of hope to millions of people worldwide? How could a treatment once seen as so scary and barbaric send depression into remission?

**Shock therapy, now known as electroconvulsive therapy (ECT) uses pulses applied to a patient’s skull to send the brain into a seizure state.** Once the dust has settled (and after repeated sessions), patients emerge with a significant reduction in depressive symptoms, or even severe catatonia. It is simple, powerful, and has an extremely low incidence of side effects (more on this later). However, a small fact will come as no surprise to someone following development and treatment options for mental disorders: the scientific community doesn’t exactly know how it works.

**Many Theories, Few Answers**

During an ECT session, patients are administered short-term anaesthesia and muscle relaxant (to counter spasms induced by seizure activity), then electrodes are applied to one or both temples [1]. Then, a short pulsed electrical current is applied to the skull, aiming to induce a minor seizure. After recovery, the procedure is repeated roughly every second day for two weeks to a month. Patients sometimes have mild memory loss and confusion, but no major changes to cognitive function or other “peripheral” functions [1,2]. And yet, it is more effective than many other treatments. Several meta-analyses have put ECT’s effectiveness around 50%, with relapse rates in the following 12 months also around 50% [3]. For the record, pharmacological treatment of depression has about a 30% success rate (depending heavily on study population and approach, i.e. SSRIs vs. tricyclics) [4].

What is actually going on? One of the most notable (read: easily measurable) effects of ECT is a slowing of EEG waves from the frontal and temporal cortices. It is not known how this slow-wave activity can promote anti depressive or -psychotic effects, but the magnitude of slowing is highly predictive of remission rates [5]. Of course, brain activity and metabolism go hand in hand, and decreased blood flow and metabolism have also been noted after ECT. However, literature on the topic is slightly more fragmented with respect to measurement technique, brain areas studied and absolute power [5].

So ECT essentially turns brain activity down? Not so fast: an alternative theory of ECT puts emphasis on neurotrophic effects, including an increase in neurogenesis in the hippocampus and possibly cortex [5,6]. In humans, this is usually studied with MRI by looking at cortical thickening, so it is difficult to say whether neuronal birth, growth, or glial changes are responsible [6]. Yet other branches of ECT research are dedicated to studying its effects on the body’s release of stress hormones in the HPA axis, or on the balance between excitatory and inhibitory neurotransmission [5]. As with other research on treatment for mental illness, ECT’s successes (and failures) are unlikely to be tied to a single mechanism.

**Treatment of Last Resort**

Still, ECT appears to have a lot going for it. It can work where other treatments fail, and is widely considered as one of the safest treatments for depression in pregnant women [1, 7]. So why is it not first-line treatment for certain mental disorders? As mentioned before, a large part of ECT’s grudging acceptance in the psychiatric community is tied to public (mis)understanding about the way it is used: as per movies and television, without anaesthesia and with grave side effects on intelligence and personality. Others have qualms about “going under the knife” for psychiatric treatment. After all, ECT came from the same era as psychosurgery (such as lobotomies), insulin shock therapy (which dosed patients with insulin until they seized) or sleep therapy (where patients were deeply sedated from days to weeks at a time) [8].

Indeed, ECT used to be far more popular than it is today, and its decline is due, in large part not only to patient concerns but also the rise of pharmaceutical treatments for depression in the latter half of the 20th century [1]. Today, in most cases,
The Stranger

He was scared. She wasn’t answering the phone. It had been an anxious week. Her move-in with him was happening soon and everybody was nervous. They had already fought for months about this. She had doubts. She needed space for herself. But his apartment had a spare room they could just make it in to a room for her. Deal.

But what about him? It was his apartment after all. And then his doubts started. Didn’t he deserve to have some time for himself? Didn’t he deserve to be scared and have doubts too?

He felt manipulated. Fight.

She felt misunderstood. Fight.

She felt disconnected, helpless, tired, sad, empty... Nothing.

He felt guilty. “Sorry”.

He hugged her. Tighter.

He knew.

“Well, how should I know?”

“You are her best friend, you should know. I think she looks a bit chubby. Hmm... maybe they are moving in because she’s pregnant. Did you ask her? You should ask her. Because with all those problems she had in high school I wouldn’t be surprised if she can’t have kids. Or maybe she’s on the cuckoo-pills again. They did that to her last time. Agh, people have such stupid problems. They should just get over it”

“Hey, don’t you dare talk about her like that! That’s so disrespectful. She’s just... not really herself. Sometimes it’s hard to talk to her. She’s been a bit weird lately. I don’t know what to do. I know she is getting help, but I wish I could do more. I hope he’s taking good care of her. I like him. He’s good for her. You shouldn’t judge her so quickly, you know? You never know what a person is going through. And some people can’t help feeling like that.”

“C’mon, listen to yourself! Such excuses you are making for her. She is just crying for attention. And she always makes you feel so guilty about your lifestyle”

“It’s not a cry for attention. You think it’s so easy. It doesn’t work like that. Sure it’s not fair that she says those things to me. We had the same lifestyle not so long ago. But really, you shouldn’t judge like that. She’s not a bad friend. But things happen, situations change and we have to adapt. Sounds cliché, but wait til you actually have to do it. Don’t judge her, I’m telling you. You have no idea, you know nothing about her, you are practically strangers”

I am the tall dark stranger
Those warnings prepared you for
(poem by Yrsa Daley-Ward)

Are you prepared?
Are you ready? No, probably not. It will slowly creep up on you. Suddenly you find yourself in a dimmed-light hospital room tightly clutching the sweaty hand of your thirty-year-old daughter who has, not so long ago, swallowed a bottle of sleeping pills.

I definitely wasn’t prepared to it.

You think you had it under control, you thought she was doing better. Right? She was helping you with the groceries, running some errands, soon moving in with him... smiling. What went wrong?

Baby, my baby girl. I never tried to make sense of what was going on in your head. All those endless talks, all the ruminating. I tried to absorb it all. All the bad energy. If only I could have made you feel better, with a word, with a touch. I think I did.

I am always there for you, I am here to listen. To stay.

Baby, my baby girl. If I could trade places with you I would. If I could have it for myself, instead of you, I would.

I grew wary of the shadow that covered our home. That it might make its way through the door someday. Today I am hurt.

I am scared.

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Constance Holman
PhD Student, AG Schmitz

[10] Rose et al., Br J Psychiatry, 2005

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The Story
What you have just read is a fictional story. But it is not so fictional for some people - it’s their everyday life. I must start by saying I have never suffered from depression, so I will not pretend to know what it is to go through it, but I have come in close contact to it. I write this to set a hopeful and positive point of view for those who are trying to help their loved ones going through such struggles. I guess you could call me an optimist, so not everyone may agree with my opinions. Indeed, sadly, sometimes things don’t go as planned and you must be prepared for the worst. I do not know much about psychoanalytic therapy or about what statistics say you should do in these cases, and don’t get me wrong, ignorance is not bliss. But I think intuition, empathy, and just simple caring are pretty important tools (not a cure!). The more you know doesn’t make you a better support, and it definitely doesn’t make you a therapist. However, it can help you understand the situations you’re in, so I highly encourage learning and reading about the subject at hand. Communicative/talk therapies should be undertaken by a professional, and are strongly encouraged if you have the resources.

My Advice
Through my experience I have found that being a trustworthy friend to talk to and share thoughts can make you a source of comfort and tranquility. Listen. Talk to your loved one about what they are thinking (which might come as very irrational/nonsensical to you), give them advice, give them credibility. What is happening to them is very real, and you may not be able to see it, like a wound or a scar or a broken leg, but to them it is something very present. Having somebody who they can talk to and who they can feel connected to the rest of the world. Accept. You (most probably) won’t understand what they are going through unless you have also suffered something similar, so it might be a bit hard for you to relate, but accepting that this is happening can already make them feel more connected to the rest of the world. Be honest. Try to be open with what you are thinking and feeling. Paranoia is a common symptom of several mental illnesses, as is reduced self-confidence. When your friend or family member is not communicative, honest or clear is it very easy to get lost in confusion and misunderstandings. Don’t take it personally. You have to understand these diseases distort (to some degree) the personality of the person suffering from them. I’ve even heard and read about depression being metaphorically called a bug or a demon that infects or possesses the person who is afflicted by it. It might be beyond their reach to control what they say or do. However, do not let yourself be treated badly, neglected or manipulated. It is very easy to fall in a hole of guilt and helplessness. And this is where honesty comes in again. They don’t really want to hurt you and understanding this will not just benefit them but will benefit you and your relationship with this person. And last, but not least, don’t be afraid of giving them their space, don’t be afraid of stepping aside for some time. If they need or want your help and you are willing to give it (from far away, from nearby, from a lot to a little),

Andrea Salazar Lázaro
PhD Student, AG Rosenmund

The Beautiful & The Damned
Is Genius Predisposed in Great Scientists, and Is Psychosis the Price to Pay for It?

There is a collective stereotype that views scientists as somewhat socially awkward, introverted, or just "unusual", albeit brilliant and potentially destined to contribute greatness to posterity. Although most scientists will not single-handedly improve the human knowledge with their discoveries, some great minds have. Isaac Newton, the "discoverer" of gravity was such a great mind. He described the laws of motion, contributed breakthroughs in optics, and partially developed calculus. He was one of the most influential scientists who ever lived. Did you know that he also had likely had bipolar disorder? His many biographies recount his solitary childhood and reclusive adulthood. He was prone to rage and threatened to burn down his parents’ house with them inside it. As he disliked fame and attributing his name to published theories, he intentionally obscured his work to escape criticism by his peers. In his later life, he put all his efforts into alchemy, insisting he had been sent from god to explain all things in nature [1]. He is the epitome of the mad scientist.

Destiny in our Genes?
But are geniuses (both historical and contemporary) the way they are because they also experience mental health disorders? Is there a biological and genetic link between the etiology of mental illnesses (MI) and intellect and creativity? The connection between creativity and MI is a complicated one. Recent studies have started assessing the genetic and neurophysiological underpinnings of creativity, and their relation to mental illnesses. For example, the gene neuregulin 1 has been extensively characterised as a key regulator of neuronal development, glutaminergic transmission, synaptic plasticity and glial functioning: all key processes for a healthy brain. Interestingly, a particular variant of neuregulin 1 was found to be a great risk factor for developing psychosis. Carriers of the same genetic variation were also found to have statistically significant higher creativity than non-carriers [2].

“No great mind has ever existed without a touch of madness.
— Aristotle”

Alongside the genetic components, structure and connectivity of the brain regions are also fundamental for creativity, with specific areas of the brain notoriously more prone to imaginative and logical thinking. Signal transduction within and between areas that are not typically linked is another factor believed to promote novel and original thinking and ideas. Downregulation of inhibitory and upregulation of excitatory neurotransmitters has also been reported to occur during creative processes. Altered connectivity could allow for greater association of disparate stimuli: thinking outside the box, if you

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will [3]. The same imbalances and unusual connections that are the basis for creativity could also be responsible for MI. In fact, a further set of studies highlighted how creative people had higher risk of mood disorders and manic depression compared to the general public. Such risk manifested itself throughout families, highlighting the heritability and genetic nature of traits. Study authors hypothesized that mood shifts or manic states were indeed beneficial to the creative output [4]. A basis for a shared vulnerability model between creativity and mental disorders is starting to emerge. As more and more links are uncovered, there might be a scientific basis for the stereotype of the mad genius after all.

Great Creators

History can claim more famous scientists with mental health issues, as well as plenty of prominent figures from the arts and literature. Charles Darwin, the emblematic father of the theory of evolution, had overpowering anxiety and spent most of his adulthood either vomiting or plagued by flatulence and fatigue. The mathematician John Nash, suffered from paranoid schizophrenia. Kurt Gödel, a ground-breaking logician, developed persecutory delusions of being poisoned; Nicola Tesla, inventor and engineer, had obsessive compulsive behaviors; Albert Einstein, possibly the most popular scientist of the 20th century, allegedly had Asperger’s syndrome [5]. Many of them are today considered geniuses, but were they also mad? Posthumous diagnoses of this kind should be taken with a pinch of salt. The underlying idea, however, that a troubled brain might give rise to creativity and brilliance rings subtly true, especially if further biological basis for creativity and intelligence are uncovered. Finally, the link between madness and genius should be drawn with caution, as stereotyping and stigmatization of upcoming scientists suffering from mental health issue, is problematic [6]. At the end of the day, the question still stands: is debilitating MI too high a price to pay, even for scientific greatness?

Maria Lucia Pigazzini
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[3] Liu et al., NeuroImage, 2018

The Caregiver’s Dilemma

Why Caring For a Loved One With Mental Illness Does Not Mean You Have to Put Your Life on Hold

There is a good chance you know someone who has dealt with mental health issues at some point in their life. It is an entirely different ballgame when a person is living with chronic mental health issues. But let’s take a tangent here and focus on the caregiver around this person. Many of us do not think a lot about the conundrum experienced by caregivers. In medical and psychiatric literature, this dilemma is often called “caregiver burden” [1].

Suffice to say that this caregiving is no walk in the park. The caregiver burden is universal [2] and has been reported for diseases ranging from Schizophrenia and Bipolar Disorder [3] to Obsessive Compulsive Disorder [4], Dementia [5] and Depression [6]. As a caregiver, no matter how much you love this person, things like health, finances, depression and anxiety (caused by continuous caregiving) will eventually take a toll on you.

Gender Differences in Caregiving

Gender differences in caregiving do exist, with women experiencing more burden than men [7]; this is perhaps due to greater perceived responsibilities by women or due to underrepresentation/underestimation of men who are primary caregivers. In the US and Europe, institutional support is available for people with long term mental health problems (apart from family) but in much of the non-western world, this responsibility is undertaken solely by family members.

Coping Methods

Some people turn to positive emotions like compassion, hope for a better future, developing faith in God [8] and participating in religious practices. Others seek advice from experts and become involved in community groups that cater to voicing the challenges of the people with different mental ailments [9]. Mindfulness has been reported to increase coping skills of the caregivers (by increasing resiliency). One study reported a strong correlation between depressive symptoms of the patient and their caregiver, which suggests that increased resilience of the caregiver will likely improve the depressive symptoms of the patient [10].

Advice for Caregivers and Their Friends and Family

We don’t want you! You are: sick! dangerous! threatening! acting like a criminal!

We are not hurting the mentally ill. They are crazy!

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Focus

**Personal**
- Family intervention should focus on strengthening coping behaviors.
- Increased social support and discourage social avoidance and discrimination of the patients and their caregivers in society [11].
- Remind yourself that "support" itself is often a matter of perspective. Often, even perceiving social support is more effective in boosting outcomes for patients and families than concrete resources [12].

**Community**
- Establish community based mental health care institutes offering long stays for people who do not have a family.
- Increase the vocational abilities of people suffering from mental health problems. This has been reported to decrease mothers' caregiver burden (with a moderate but significant association) [13].
- If you are a friend of a caregiver, you could do a world of good by starting a conversation with this person about things that center around them—such as things they do for fun, how often they ask for help on days when they are feeling low. Basically, lend an ear every now and then.
- Another pointer for friends/family of caregivers: Avoid saying stuff like "you will get over it" (especially if it is a person dealing with depression or PTSD) or "I know how it feels" (unless you also went through the same exact thing, don't bother) to the caregiver. Instead go for "how can I help? or "I am here if you need me" and actually mean it.

**Institutional**
- Cover mental illness under health insurance. In Germany it is usually covered, but many non-European countries especially India [9] and Pakistan, mental health issues are not covered.

I hope that by penning this essay, I offer some hope and reassurance to those who take care of people with mental health. Rather than resigning yourself to quacks or controversial websites offering quick fixes for the problem, it is better to do your research at legitimate websites like NCBI and NIH among others. To the caregivers, I will reiterate: You are doing your best. Do not ever feel like feeling exhausted or overwhelmed is shameful. You are allowed to feel all these emotions; just try not to get overrun by them.

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**A Personal Story**
I am a sister of two wonderful brothers—one of whom has Autism and the other has Tourette's Syndrome. They both have no physical deformities, but my brother with Autism does have problems in social communication (talking, concentrating while listening). My younger brother is different—he is very physically active and talks normally, except for the occasional stuttering in speech. All my life I have seen my parents taking care of my brothers. While my younger brother does not really need physical assistance, my older brother did require some help with basic activities such as eating food and using the toilet. I have seen my parents go above and beyond in ensuring that my brothers are well taken care of. While this has certainly been an arduous yet inspiring journey seeing them grow up, I think much of the problem in caregiving is not actually taking care of the person, but rather coping with societal pressures. Again this factor becomes more significant depending on the region and culture you live in, it is important to remember that community acceptance can make a world of difference.

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**Can You Get High From Snorting Cocoa Powder? A Scientific Report**

When I heard that party people are snorting cocoa powder as a "natural" alternative to get through the night, I immediately thought that this must be a mess: all that brown powder in your nostrils! But... could it be effective?

**Introduction**
According to several sources on the internet, the trend originated here in Berlin, though I was not able to find out the club or party organizer who really started it. The supposed effect is an energy kick that lasts 30 minutes to an hour, triggering an endorphin rush without the side effects of a sugar crash. So, it is supposed to be a feeling like pouring down an energy-drink that leaves you motivated to get things done. Chocolate contains a number of active substances such as tryptophan (a precursor of serotonin), serotonin and dopamine, all of which fuel your pleasure system. The natural neurotransmitters produce feelings similar to a drug high. Furthermore cocoa is also rich in antioxidants which increase the blood flow to the brain, inducing a sense of euphoria. But why snort it instead of eating a delicious bar of chocolate? As with other nasally inhaled substances, the ingredients dissolve into the nasal mucus membranes, which have a good blood supply, enabling quick absorption into the blood stream. Thus, it is way quicker and more effective: When you eat chocolate a fraction is also absorbed underneath the tongue, but the cocoa kick should be faster when absorbed into the nasal mucosa (depending on how finely ground the powder is). Whilst snorting one serving of cocoa powder is unlikely to cause dangerous thinning of the nasal lining and damaging holes or perforations, the precise side effects are yet unknown. However, negative effects could be that the powder leaves harmful residues that block the nose and dries out the nasal passages, which causes burning sensations and facilitates

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(continued on page 16)
Mental Health is a Journey

by BotsAndBrainz

REALIZATION

So... you're trying to tell me you don't have trouble breathing, and your circuits feel like they're on fire and you want to drop to the floor, because you're dizzy, because it's all too much, because your processor just told you at random that a failed experiment means you're a fundamentally flawed bot, ready for the bin on a regular, daily basis?

FINDING A THERAPIST

Just suppress the behavior. Yes. That's what we'll work on, exclusively.

Oh, oh, your story is too much! So... sorry, I've already forgotten your name, what was it again?

Yeah...... None of you are right for me.

Bot, that's what it's like to be normal!

TAKING MEDICATION

I don't get it. I don't feel unusual. Just... calmer? Where are the unicorns?

Wot.

PATIENCE

Will you wait for me to get better?

Can you repeat that tomorrow, maybe?

Yes. I love you. I'm here to stay.

LEARNING TO MEDITATE

How are they so calm?

And you're not.

RECOVERY

Recovery is a constant process. You're not going to wake up one day and everything's fine. Recovery will be a part of your life for the rest of your life. But all that work is worth it.

Because recovery in its essence is not about getting better. You're already the best you can be. What you're working towards is to get to a place where you can live a happy, healthy life.

And working towards a healthy life is always worth the work of recovery.

Anne Voigt, PhD Student AG Schmitz
Hackers Have Feelings, Too: Mental Health and Substance Use in Mr. Robot

The pattern of comorbidity between mental health issues and substance abuse has recently manifested itself in a startling new demographic: fictional characters of TV series. Mr. Robot (USA Network), the third season of which is now streamable online, sets in contemporary times (but with a beautiful 80's-inspired soundtrack). Mr. Robot takes brooding, hoodie-wearing Elliot as its unlikely protagonist. Like many of today's heroes, Elliot is a bit of an anti-hero: he has a strong moral code at his core with a loose, morally flexible approach to supporting his ideals. He will hack anyone without hesitation, including neighbors, coworkers and romantic interests— even his therapist; but will alert the police when he discovers foul play in others (such as a man's involvement in running a child pornography website). While it is not clear if Elliot even likes people, he cannot stand to see regular people being abused by the rich and powerful. So, he takes to his keyboard. His moral flexibility is widened even further by an alter ego that lives through Elliot and seems to have an agenda of its own.

Dissociative Identity Disorder

Following in the footsteps of its conceptual parent film Fight Club (1999), Mr. Robot's principal character has a very literally divided sense of self: sometimes he is shy, eye-contact avoiding Elliot Alderson and sometimes he is a straight-talking version of his father, who is bent on taking down modern society. In clinical psychology, this is known as Dissociative Identity Disorder (DID), an almost made-for-TV condition characterized by two distinct personality states [1]. While its pathology and even existence are disputed, it is believed to be the result of trauma, infections. In general, intranasal administration of any powder can trigger spams of the vocal cords making it difficult to speak or breathe (laryngospasm) or tightening of the muscles that line the airways in the lungs (bronchospasm) and may also induce or exacerbate asthma.

Methods

After reading a report [1], I thought I could give it a try. Open my kitchen cabinets: I have two sorts of cocoa powder - a dark, pure powder which I use for baking, and a lighter one, which is finely ground and enriched with sugar which I use to pour into my milk. The former one looked more suitable, so I consulted the internet how to snort cocoa powder. Ideally, I would need to purchase a device specifically designed by the famous Belgian chocolatier Dominique Persoone, who initially introduced it on a birthday party of the Rolling Stones [2]. Due to time constraints and my reluctance to invest in such a device I might only use once, I turned to another method. I decided to follow “guidelines” on how to snort a line of cocaine, and prepared my tools: a little spoon, a credit card and a rolled five euro bill.

Results

First impressions: I was right, it is messy. My nostrils were itching and I looked like a child playing in the dirt. However, this experiment was not about the effects on my appearance, but whether I could get high from snorting cocoa powder. In the beginning I felt a bit drowsy. Probably that is normal if you sniff anything through your nose. I relaxed on the sofa with some music and stood up every five minutes to see if I felt any different. Let’s cut the story short: I might have felt a slight headache, a weak burning behind my forehead, but besides that no noticeable high.

Discussion

The snorting itself was so annoying that I really did not want to give it a second or third try until I would eventually feel something. Thus I can only conclude that sniffing one serving of regular cocoa powder does not get you high. Could it be true that it only works in combination with a party and that the “high” experienced after snorting lines of cocoa powder is a placebo effect? Call me a wimp, but my scientific curiosity could not win over my disgust. So, for all those interested in finding it out themselves: Do not wear white clothes while trying it out and be prepared to take several servings. Also, it might be possible to get high with commercially available snorting cocoa powder that contains other ingredients besides cocoa: The Orlando-based company Legal Lean created a snortable chocolate powder called Coco Loko that additionally contains taurine and guarana [3]. Though these two ingredients are also found in energy drinks, they have not been evaluated for intranasal administration. Also, the U.S. Food and Drug Administration has issued a warning against snorting chocolate powder and is taking measures against Legal Lean [4].

Newsletter disclaimer: Drug abuse is a serious issue, and this article is not intended to make light of it, or encourage the use of snortable chocolate to get high or as a “safe” alternative to illegal street drugs. Snorting any powder bears health risks, and seeking a high through any substance (be it cocoa, caffeine or cocaine) should be undertaken in a well-informed, safe and legal way!
possibly in childhood, which leads to the forming of dissociative states as a coping mechanism [2]. According to the Merck Manual, “about 90% of people with this disorder had been severely abused (physically, sexually, or emotionally) or neglected when they were children” [3].

A recent neurophysiological study attempted induction of another personality state in individuals with DID and in healthy controls using a memory script. They measured regional cerebral blood flow (rCBF – via PET), autonomic signals and subjective report. The authors found that high fantasy prone healthy controls who “played along” with the induction had similar rCBF patterns to those of people with DID during induction of the alter ego. They also found different patterns of neuro-physiological activation when the alter ego was induced by a traumatic or non-traumatic memory script [4]. Whatever the cause, the behavior of acting out two distinct personalities is clearly present in patients with DID, to a degree that far extends beyond the normal switching of different personality types in everyday life.

Does Elliot have DID? His symptoms seem to match up. While Elliot’s manifestation of the disorder would still be considered dramatized for the screen, it is clear the writers have done their research beyond Tyler Durden’s symptoms in Fight Club: Elliot has a traumatic memory of being pushed out of a window by his father as a young child (the details of which come under dispute), shortly before his father died of cancer. The events of the show suggest that the violent incident, created the conditions consistent with the trauma-induced or socio-cognitive theory for the development of DID.

**Autism and Social Anxiety**

Elliot may very well be on the Autism spectrum. He has trouble with eye contact, does not feel the need to follow social conventions (“I’m okay with it being awkward between us” he tells a coworker), does not like to be touched and is prone to extreme concentration on certain tasks [1]. However, if Elliot is autistic, he is very high-functioning and does not have the characteristic deficit in Theory of Mind (the ability to understand that other people have different perspectives) [6]. He frequently imagines the perspectives of others to engage in what engineers sometimes refer to as “social engineering,” the ability to “hack” information out of other people via conversation or in-person deception.

Elliot may also have Social Anxiety Disorder, which is often comorbid with ASD and almost everything else [7]. Social anxiety disorder is characterized by fear of or in social situations to a degree that impairs one’s functioning in life [8]. In classic hacker fashion, he wears unassuming clothing, shuns social interaction and muses to the viewer in brooding voiceover about how he does not like talking to people.

Is there evidence of anxiety, though? Or is it just a preference? Though Elliot has social interactions outside of the social engineering variety, they are few. In Season 1 he attends a dinner party with his boss and a few coworkers, for appearances in a phase where he is trying to “live a normal life.” In one scene in season 3, he walks into a corporate meeting in order to avoid detection by security and improvises a story until the officers outside walk away – this is something that someone with social anxiety might have great difficulty with.

Finally we come to depression. Is Elliot depressed? He spends a lot of time alone in his room with the lights low (inactivity and low mood). He seems numb to joys in life (anhedonia). He has trouble sleeping. And he is sad, primarily as a result of his loneliness. As far as we can tell, these symptoms are persistent. These are characteristic of depression [1].

**Substance Use**

It’s opiates to the rescue. “What do normal people do when they get this sad? I do morphine,” Elliot tells us in Season 3 (Episode 8). In season 1 he had convinced himself that he could use morphine without becoming an addict, yet slipped off the wagon anyway, forcing himself into a classic drug withdrawal montage à la Trainspotting (1996) or Requiem for a Dream (2000).

A recent review found that patients with chronic pain who were also depressed were slightly more likely to abuse their opioid prescriptions than non-depressed people [9]. This may suggest that depression increases the odds of opiate dependence; however, there is also some evidence that the careful application of morphine could actually help with depression [10]. A paper in 1985 by psychiatrist Edward Khantzian brought the “Self-Medication” hypothesis of drug addiction into the mainstream, positing the now cliché idea that addiction develops because a person finds that drugs temporarily (but only temporarily) ease psychological pain [11].

Elliot is a hacker, after all, with a strict moral code; so for him, sitting at home alone could be considered a normal, even “healthy” activity. The DSM definition of depression requires disruption to your life, an inability to do the things you normally do. This raises a larger question, which might be out of the scope of this article: should Elliot be considered to have a mood disorder (on top of other comorbidities) simply because he spends most of his time brooding?

And if so, should Batman?

Mr. Robot is available for streaming on Amazon Prime (amazon.de).

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**References**

[3] https://mkrlents.co/ZKkO0T
[9] Sullivan, M., Clin J Pain, 2018
Body Dysmorphic Disorder
When Does Preoccupation With Body Appearance Become Pathological?

The theory of sexual selection is concerned with the evolution of traits that enhance mating success either by attracting mates or by intimidating rivals (Darwin, 1871). It has historically been tied up with explaining various traits or behaviors that seem, somewhat, maladaptive in terms of increasing the likelihood of an individual’s survival.

From this perspective, wearing high heels or using cosmetics to enhance one’s looks may not be more bizarre than the male peacock’s extravagant but rather inconvenient plumage. So, is sexual selection what might be called the study of perception of beauty? Perhaps, but why do beauty standards of humans, in particular, seem so malleable? Recently, an online pharmacy commissioned Fractl – a marketing agency – to ask 18 designers from 18 countries spanning five continents to retouch the figure of a woman to fit the perception of their respective culture’s beauty standards [1]. Unsurprisingly, each designer portrayed the “beautiful body” quite differently. It has been proposed that, while the human brain has an innate tendency to create beauty templates, the specific characteristics of these templates are defined and influenced during one’s lifetime [2]. This could explain the seemingly large variation in what humans perceive as beautiful.

Appearance Concerns and Body Dysmorphic Disorder
Humans do not only assess the appearance of others for mating, but apply their beauty standards to themselves. Whether others are pleased with or not defines our body image. It is probably safe to say that we have all experienced periods in which we were particularly concerned with our appearance. Such concerns increase with physical changes such as adolescence, pregnancy or the gradual process of aging, but can often occur without them as well.

Worries about our appearance are so common that they are considered normative. There are instances, however, when such concerns become pathological. One such pathology is Body Dysmorphic Disorder (BDD), a psychiatric condition in which patients suffer from excessive and persistent preoccupation with alleged flaws or deficits in their physical appearance [3]. The preoccupation of patients with BDD is not related to body fat, weight or anything that would characterize an eating disorder but rather focuses on perceived defects of the skin, nose, genitalia, hair or eyes. The “flawed” features might seem trivial or even unobservable to an outsider, but patients with BDD experience severe distress while engaging in repetitive thoughts, feelings and compulsive behaviors [3]. They might repeatedly check themselves in the mirror, seek constant reassurance, pick at their skin or spend great amounts of time trying to camouflage their perceived shortcomings.

The Stigma of Vanity
BDD is a chronic condition that usually results in a severe decrease in the quality of life. It occurs in females and males to an equal extent. The prevalence in adult communities is estimated to be 1.9% [4] with striking rates of suicidal thoughts (17-77%) [5]. Despite its severity and impact, the disorder is often mis- or underdiagnosed. One reason for underdiagnosis is that patients with BDD might feel too ashamed or embarrassed to ask for health support for something that might be seen as vanity or self-obsession. They are unlikely to spontaneously disclose their appearance concerns. If they do consult a medical specialist, it is usually a dermatologist or cosmetic surgeon who may lack the insight or the motive to diagnose the disorder and provide the necessary support. Furthermore, BDD has a high comorbidity with other psychiatric conditions meaning that symptoms might be masked or even overlooked if not specifically asked about.

Could Nurturing a Positive Body Image be a Solution?
The onset of psychiatric disorders associated to a negative or distorted body image is typically in late adolescence - at around 16 years of age for BDD in particular [6], suggesting that the pathology often develops in childhood. A rather alarming meta-analysis of studies in children under 6 years old showed that 20-70% of children experience some form of body dissatisfaction [7]. This makes one wonder whether investing in prevention might not be just as important as improving current evidence-based treatments such as cognitive-behavioral therapy or the administration of anxiolytic/antidepressant medicine. Prevention would involve the fostering of a positive body image to circumvent the development of a negative body image [8]. Different steps to achieving positive body image would include increasing media literacy to protect against unrealistic media appearance ideals, nurturing body awareness and responsiveness with activities such as dance or yoga and cultivating a culture of appreciation for diverse appearances and functionalities of the body. By following such steps, our culture might finally embrace the notion that each body, as an entity with unique physical, emotional, intellectual and social qualities, is – by definition – beautiful.

Two years ago, I was sitting in the audience in one of our sessions at the PhD retreat, waiting for my turn to give a talk about my PhD project. I just felt something was truly wrong with me. The muscles in my legs literally vibrated, and then first my thighs felt numb before I lost the sense in my left arm, hand, fingers and even parts of my face. My heartbeat became accelerated and irregular followed by nausea and dizziness. Today I know I had a panic attack.

Doing a PhD – a Real Life Crisis?
Before I started my PhD, friends of mine that already went through it were quiet honest and warned me, saying that being a PhD student was the worst part of their entire life so far. By now I guess most of the PhD students all over the world would agree. I felt well-prepared knowing what was lying ahead of me. I even passed on this information to other PhD students that were desperate and scared having no valid data in their first year of working on their project.

I felt just calm and full of confidence. But I also worked insanely hour after hour, of course used the "flexible time" and freedom in the lab on weekends and didn't take days off for recovery. After work I was burning my spare energy fully in the gym or by meeting friends that expected me to socialize. Slowly I maneuvered myself into a rat race trying to fulfill a multiplex of expectations – my own ambitions to achieve something scientifically great, to stay physically fit and to fulfill my friends' need for me being available for entertainment. Thereby I slowly lost connection to my inner self.

Trapped in a Vicious Cycle of Physical and Mental Overload
Nonetheless, the distraction couldn't prevent me from a lot of ruminations before I went to sleep, which in consequence led to sleep disturbances. The ruminations didn't stop when I was in the lab. I was thinking through my worries while doing experiments which led to mistakes that I had to smooth out by working extra hours. I was literally trapped in a vicious cycle of physical and mental overload that I successfully ignored. But my body and my mind wouldn't forget. Daily I suffered from restless legs, trembling hands and dizziness. Only when those feelings of numbness in my limbs and face were added I realized something was wrong and started to consult a doctor. I was checked for a number of conceivable disorders but all of the test parameters were absolutely normal. But I was sure there must be something since the numbness was getting worse, which really scared me. So I was referred to a neurologist who was very understanding and exhausted further possibilities. In retrospect, not surprisingly, again everything was "physically" fine.

My neurologist then admitted that from the beginning on he suspected my symptoms to be psychosomatic and suggested to try an anti-epileptic drug that is being used successfully to treat generalized anxiety disorder (GAD). Simply, GAD is characterized by the persistent and excessive worry about several things. Those worries can apply to health, family, money, work... basically anything you could possibly worry about. So far, that doesn't sound too unusual. The crucial point is that individuals with GAD have difficulties controlling their worries and always expect the worst to happen - even if there is no apparent reason to be concerned. Although the exact mechanisms and underlying causes are not fully understood, it has been suggested that for example very early experiences like stress lead to maladaptation in developing brain regions responsible for anxiety and fear, like the amygdala and the prefrontal cortex. Without going too much into scientific details: stress-induced synaptic remodeling can lead to anxiety disorders [1]. In consequence, in extremely stressful phases in life, as for example doing a PhD, individuals that experienced a lot of stress and instability in early life may have difficulties in coping with worries due to abnormal changes in their neuronal morphology.

Immunity to Change
Anxiety disorders are based on neuronal dysfunctions which consequently make it an actual physical problem. This new awareness helped me to discard the feeling of shame and made me seek out further medical-psychological consultation, as well as finally confiding in my PhD supervisors. I felt extremely relieved when I realized that I had their full support and understanding when cutting down my workload for the moment. In the following weeks, I started a combination of pharmaco- and psychotherapy for nearly a year and continued with psychotherapy only. Interestingly, I experienced the greatest relief from symptoms when I finally left my lab for writing my thesis. Unfortunately, now that I started a new job I am struggling with panic attacks again. But the difference is, now that I am aware of what is going on with me, it feels easier to cope with my physical reactions. I certainly know that dealing with GAD is a long-term process – maybe even life long – but I am sure that using resources like psychiatrists and psychologists is the key to advance with my disorder. In addition from my experience it is very helpful to deal openly with my problems and to integrate your social environment. I realized that I am not alone. Indeed, there are a lot of people individually suffering from mental problems, but with numerous parallels. Consequently, I think it is just vital to change society’s view on psychiatric disorders.

Anonymous Charité PhD Student

Old Drugs, New Tricks: The Resurgence of Psychedelics for Treating Psychiatric Disorders

It’s well known that therapeutic drugs are often misused for recreational pleasure, but what’s been making news headlines is that researchers are using drugs that are often taken recreationally to treat patients with psychiatric problems from depression to autism.

During the 1950s and 1960s, Humphry Osmond pioneered the use of psychedelic drugs such as LSD to treat a multitude of psychiatric disorders with what looked like promising results [1]. Working at the at the Weyburn Mental Hospital in Saskatchewan, Canada, Osmond and colleagues began investigating the use of LSD to treat alcoholism. Though they started out with just two patients, they found that one stopped drinking straight away and that the other stopped six months later. This sparked the idea that LSD could be used alongside psychotherapy to treat psychiatric illness. Osmond and colleagues went on to test their theories on patients suffering from disorders such as psychopathy, neurosis, autism and alcoholism [2]. Unfortunately, as U.S. and other governments criminalised the drug in the 1970s, research and funding eventually dried up. However, in the last century, the mechanism of action of LSD is beginning to unfold and changes in the brain can be visualised with more sophisticated imaging techniques. Excitingly, there has been a resurgence in research into therapeutic targets for recreational drugs.

**Can LSD fight drug addiction?**

Using state-of-the-art imaging techniques, researchers led by Professor David Nutt found that LSD alters connections between brain areas, which could be responsible for hallucinations and also an altered sense of “self” or “ego”. The results offer important new insights into the consciousness altering and hallucinogenic effect of psychedelics. This information can be used to create models of certain pathological states and potentially treat others [5].

**Darkness Into Light?**

Depression is a complex and highly debilitating condition and despite much effort to try and find a cure, around one third of patients do not respond to pharmacological treatment [6]. Another psychedelic drug, ketamine, has been shown to reduce symptoms of depression with a much faster action than the traditional treatments such as serotonin reuptake inhibitors (SSRIs), which boost serotonin action at the synapse. Ketamine works by blocking NMDA receptors, which bind glutamate (the brain’s main excitatory transmitter). In areas of the brain associated with depression, there are often too-high levels of glutamate, which can upset the brain’s important excitation-inhibition balance. Researchers have found that an area of the brain associated with repressing reward circuits, the lateral habenula (LHb), fires at an increased rate in rodent models of depression. Ketamine can decrease firing in the LHb by reducing excitatory transmission and has been said to elevate mood and increase motivation within a matter of hours [7].

**The Outlook**

Though there is a long way to go towards understanding the mechanisms of action of these drugs in treating psychiatric illnesses - and this article has only been a brief overview of some of the most prominent findings - the future looks promising and the impact could be life changing for patients with such conditions.

However all of this research comes with an important caveat: researchers stress the need for prescribed medication and therapy from a qualified professional. Do not to try this at home!

Joanne Faíck
PhD Student, AG Garner


Image Source: http://feedyourhead.info/category/lsd/
Neuroscience Podcasts to Seriously Send Those Brain Cells Firing

There’s only so much time one can dedicate to surfing Netflix, listening to Spotify or watching reality TV. At some point, you are adamant looking for intellectual forms of entertainment. Enter podcasts - the audible version of blogs.

Those with a story-telling flair can keep one indulged for hours. Others that present educational or scientific content keep you intellectually engaged and listening to them are by no means a passive activity. If the podcast’s host has a dulcet tone and knows how to keep things moving, even stuff that you probably couldn’t care less about will become potentially interesting. Which brings us to the million dollar question - with a plethora of science podcasts available, which ones should you listen to? More specifically, are there podcasts that deal with Neuroscientific topics? This was the quest I took two months ago. Below are some of the Neuroscience podcasts, in no particular order, which might be the answer to your curiosity or intellectual thirst.

1.  **You Are Not So Smart**
   - **Photo courtesy:** David McRaney, https://bit.ly/2yckkno
   - **Host:** David McRaney
   - **Average length:** 50-60 min.
   - **How active?** Very. Uploads content every month, sometimes even twice a month.
   - **The good:** Compares different psychology/neuroscience topics relevant to current affairs in everyday world. His podcast episodes always leave you feeling sober or humbled by the fact that how subjective, unpredictable and sometimes fickle our human selves can be. Except for a few mins of ads in the beginning and centre, there are no distractions. He also has an excellent way of introducing his guests, in that he first gives an overview of the topic and then lets his guest take over. He also doesn’t ramble or try to chime in with his own opinions during the interviews. Plus his voice is deep and eloquent, which makes it easier to continue listening to him for extended periods of time.
   - **Start where:** Tribal Psychology; Selfie; The Dunning-Kruger effect (but really too many good episodes here)
   - **What’s missing?** The podcast is excellent overall and you are seriously missing out if you have not heard of YANSS before. Perhaps the only thing you might find lacking would be that this is not, strictly speaking, a Neuroscience specific podcast but deals with psychology, pop culture, neuroscience and behaviour [1].

2.  **Brain Science Podcast**
   - **Photo courtesy:** Virginia Campbell, https://bit.ly/1BtSxxs
   - **Host:** Ginger Campbell, M.D
   - **Average length:** 60 min
   - **How active?** Very. Technical and less technical content uploaded regularly since 2008
   - **The good:** This one is for hard-core Neuroscience enthusiasts. If you are a grad student and are looking for something other than the oft-repeated topics such as reproducibility crisis or women/diversity in STEM than this IS the place for you. There are 100+ episodes available as Dr. Campbell’s podcast has been one of the longest running Neuroscience podcasts to date. She discusses really thought-provoking books that are related to different subdivisions of Neuroscience and has interviewed many leading experts in the field including Drs. Michael Gazzaniga, Christof Koch, Temple Grandin and György Buzsáki to name a few. Listening to Dr. Campbell is like having your extremely well-educated grandma let you in on the intellectual discussions she has with all of her guests.
   - **Start where:** Counting Neurons with Dr. Suzana Herculano-Houzel; John Medina on Aging Well
   - **What’s missing?** Some of the older episodes require premium subscription (but full access is possible at 5 bucks a month) so listening to Dr. Koch or Dr. Gazzaniga comes at a small cost. However, you can listen to the more recent episodes uploaded after 2013 for free. All podcasts come with transcripts as well as links to discussed books and papers. Beware though as some of the links may not work due to website revamping [2].

3.  **Shrink Rap Radio**
   - **Photo courtesy:** David Van Nuys, https://bit.ly/2Ilyx6M
   - **Host:** Daniel Glaser, Ph.D
   - **Average length:** 30-40 mins
   - **How active?** Intermittent. Has two seasons out (1st season: 8 episodes, 2nd season: 7 episodes); one in 2017
   - **The good:** Dr. Van Nuy also has a talent of making his guests feel at ease and asks thought-provoking questions. There’s also a decent amount of content related to mind-body-soul science if you are into that stuff. Together with the Brain Science Podcast, this is one of the oldest running podcast I could find with quality content.
   - **Start where:** Quieting Your Inner Critic and Rising Above Social Anxiety with Ellen Hendriksen; The Body of Sex with Sarah Byrden; The Silent Epidemic of REM Sleep Loss with Rubin Naiman
   - **What’s missing?** This is more of a psychology podcast but has close overlap with cognitive neuroscience because of the topics covered. Some episodes are longer than 60 mins so reserve this one for weekend [3].

4.  **A Neuroscientist Explains**
   - **Photo courtesy:** Max Sanderson, https://bit.ly/2llyx6M
   - **Host:** Daniel Glaser, Ph.D
   - **Average length:** 30-40 mins
   - **How active?** Intermittent. Has two seasons out (1st season: 8 episodes, 2nd season: 7 episodes); one in 2017
   - **The good:** This is one of the oldest running Neuroscience podcasts. It is regularly updated with quality content and has interviewed some of the most well-known neuroscientists in the field including Drs. Michael Gazzaniga, Christof Koch, Temple Grandin and György Buzsáki to name a few. Listening to Dr. Campbell is like having your extremely well-educated grandma let you in on the intellectual discussions she has with all of her guests.
   - **Start where:** Counting Neurons with Dr. Suzana Herculano-Houzel; John Medina on Aging Well
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5.  **Silent Epidemic of REM Sleep Loss**
   - **Photo courtesy:** David Van Nuys, https://bit.ly/2Ilyx6M
   - **Host:** Daniel Glaser, Ph.D
   - **Average length:** 30-40 mins
   - **How active?** Intermittent. Has two seasons out (1st season: 8 episodes, 2nd season: 7 episodes); one in 2017
   - **The good:** Dr. Van Nuy also has a talent of making his guests feel at ease and asks thought-provoking questions. There’s also a decent amount of content related to mind-body-soul science if you are into that stuff. Together with the Brain Science Podcast, this is one of the oldest running podcast I could find with quality content.
   - **Start where:** Quieting Your Inner Critic and Rising Above Social Anxiety with Ellen Hendriksen; The Body of Sex with Sarah Byrden; The Silent Epidemic of REM Sleep Loss with Rubin Naiman
   - **What’s missing?** This is more of a psychology podcast but has close overlap with cognitive neuroscience because of the topics covered. Some episodes are longer than 60 mins so reserve this one for weekend [3].

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For more information, visit [www.medical-neurosciences.de](http://www.medical-neurosciences.de)
and the other in 2018. **The good:** This one’s for all the British accent lovers. The episodes have a very soothing background music so that it literally calmed my anxiety during stressful morning commutes. Quite accessible, user-friendly and the topics are quite relevant if you are interested in neurosci but don’t know where to start. **Start where:** Sunposium 2017: Part 1, The Neuroscientist Explains: How the Brain Stores Memories **What’s missing?** The podcast is not very active so if you are looking for interviews and bringing yourself up-to-date with current trends, this isn’t the one [4].

5. **Smart drug smarts**

**Host:** Jesse Lawler  
**Average length:** 40-60 min  
**How active?** very. Content updated religiously

**The good:** This podcast has one of the most amusing introductions of all science podcasts. The episodes are quite fast paced so if you cannot stand slow discussions, go for this one. Lawler is a self-proclaimed science fan boy and is an excellent host. The voice quality is excellent and all the podcast episodes come with detailed transcripts as well as summary notes. The website overall is very decently designed which makes spending time here more fun.

**Start where:** Brain Implants – Medical and Beyond with Dr. Brett Wingeier; Head in the Game with Dr. John Sullivan; Cognitive Fallacies with Dr. Richard E. Nisbett; What are “Fast-Spiking Interneurons”?; Placebic: the Power of the Mind to Heal  
**What’s missing?** Lawler is quite enthusiastic and throws in a lot of slang and casual phrases so those looking for more serious style discussions may not agree with his hosting style (not that I’m complaining) [5].

6. **Neurotransmissions**

**Photo courtesy:** Joe Schumacher, https://bit.ly/2KJ0jh  
**Host:** Ben Scholl, Ph.D., Joe Schumacher, Ph.D., and Misha Smirnov, Ph.D.  
**Average length:** 30-40 mins  
**How active?** posts content every other month. Haven’t been very active for the last few months, though.

**The good:** started by post-docs at Max Planck, Florida, this podcast discusses latest topics in Neuroscience in an almost jargon-free manner. Quite accessible for the general audience in terms of content. Voice quality decent and all of the hosts are quite adept at making things moving and not chiming in too often. The general mood of the podcast is academic style and formal. Go for it if you are into interviews or seeking some inspiration.

**Start where:** Science Writing and Life Living with Dr. Brett Mennis; Symposium 2017: Part 2, Technological Innovation with Drs. Ed Boyden & Viviana Gradinaru; Live from Sunposium 2017: Part 1, The Value of Scientific Knowledge with Dr. Thomas Südhof

**What’s missing?** Sometimes voice quality not as crisp as you’d like it to be. Could be a bit dry and information-heavy as the time duration is only 40 mins [7].

7. **Neuroscientists Talk Shop**

**Photo courtesy:** Neuroscientists Talk Shop, https://bit.ly/2IDc5cJ  
**Host:** various including Salma Quraishi, Ph.D., Alfonso Apicella, Ph.D., Charles Wilson, Ph.D  
**Average length:** 40 min  
**How active?** usually post 2-3 episodes every month but have not been very active recently.

**The good:** started by a group of professors and graduate students at UT San Antonio, this podcast is more on the technical side. Guest scientists are invited in each episode and talk about their research. The questions are more symposium-style and the atmosphere is quite academic and scholarly. If you are looking for some inspiration on someone who is working on a similar topic to yours, maybe look here for some inspiration. Although the podcast has many moderators, the questions never get jumbled up so that everything is easy to follow. Also the podcast has no ads which means no distractions.

**Start where:** (Interviews with) Rusty Gage, PhD ; Ann Graybiel PhD ; Dwight Bergles PhD

**What’s missing?** Sometimes voice quality not as crisp as you’d like it to be. Could be a bit dry and information-heavy as the time duration is only 40 mins [7].

8. **Honourable mentions**

These include Neuroscience podcasts that are no longer active. Neuropod (Nature podcasts on Neuroscience) which ran till late 2015 [8]. The Naked Scientists (Naked Neuroscience) which stopped updating after 2014 [9].

Note that the Naked Scientists podcast on other science disciplines such as Genetics, Astronomy and so on are still regularly updated.

**Photo courtesy:** Chris Smith (Naked Neuroscience), https://bit.ly/2IDMkw

**A word to the wise:** avoiding mindless media consumption does not mean that your ears have to be glued to scientific podcasts. Cut your poor brain cells some slack and have some time off to digest all the information. Also remember that since this article was written sometime ago, there are probably many new and potentially interesting episodes uploaded on at least half of these channels. Did we miss any cool podcasts that talk about science and especially all-things-brain? Give us a shout out at cns-newsletter@charite.de about any potential hidden gems that you know.

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[8] https://go.nature.com/2z1yG9  
PhDnet – Connecting Students Around the Charité

Wouldn’t life and work be much easier if there was a regular PhD meet-up? A place where we could connect and help each other out, be it in troubleshooting a particular protocol, sharing advice on navigating the German bureaucratic jungle, or talk about our favorite coffee spots in Berlin? That was our idea when we founded the PhDnet in February 2018. Originally, there were six of us—Diana, Joana, Stephen, Andrea, Laura and Pina—who realized that there was no organized setting at the CCO, or even at the Charité, where we could meet up with fellow graduate students and discuss the topics that are relevant to us. We decided to change that.

As our network began to take shape, initial discussions about the issues we all face led to a growing awareness of the difficult working conditions that many graduate students at the Charité experience. In addition to our laboratory responsibilities, is it acceptable that we constantly worry about grants and finances? To be forced to apply for short-term funding to finish our projects, often requiring us to accept drastic pay cuts and a loss of social benefits, when we are already heavily invested in completing our degree? Are our contracts and/or stipends fair, and how do they compare to other institutions? And, most importantly, how can we do something to improve this, or raise awareness of our situation, despite being “just” PhD students, only here for a couple of years? In these matters, the Max Planck PhD Net [1], whose efforts ended the practice of paying graduate students through stipends at all Max Planck Institutes [2], was an inspiration and a model. We were also encouraged by the Helmholtz Juniors [3] and Leibniz PhD Network [4]. All of these organizations aim to improve the situations of PhD students, promote scientific and social exchange, and encourage an open conversation between employers and employees— the PIs and the PhDs.

It quickly became clear to us that to effect positive change we need to gather the students and listen to them. The PhDnet is here to promote exchange between students and everyone interested at the Charité, both social and scientific, to foster connections, build a community, and ultimately to improve our situation. We also want to provide a hub for PhD students, to disseminate information from the Charité which is relevant but which might not be easily accessible. The Charité provides many valuable services and resources, but they are often hidden in the depths of the intranet, or students simply don’t know what to look for—particularly those of us who are not native German speakers.

Where We Are at the Moment

Since February we have gained two new committee members, Raquel and Karina, and secured support from the Medical Neurosciences Graduate Program and the Charité International Welcome Center [5]. We also connected with different initiatives around the Charité: the Career Development Initiative and the Studentische Initiative für offene Wissenschaft. We met with Dr. Daniel Gruschke, the Vice Director of the Department of Central Academic Affairs, who was very supportive of our project and advised us to collaborate with the Fachschaftsinitiative Medizin der Charité (FSI) [6]. Several weeks ago, we were successfully incorporated as a subgroup of the FSI. Even though the FSI is primarily focused on issues concerning medical students, they have a seat on almost every board at the university. Being a part of the FSI will allow us to have a voice in the Promotionskommission* and to be involved in decisions relevant for our graduation.

For now, we organize a monthly meeting on a Friday evening, starting with a short talk, followed by socializing around beer and snacks on the terrace or Fenster der Wissenschaft. Until now we have had 3 of such meetings. The most recent one featured our first speaker Dr. Mateusz Ambrozkiewicz from the AG Tarabykin. During his talk, Mateusz shared his experience as an active member of the Max Planck PhDnet in Göttingen and gave advice in both PhDNet organization and life as a graduate student. We are currently arranging our speaker’s schedule for Fall 2018. On October 27th, Dr. Ulf Tölich from the BfH QUEST Center will talk about quality assurance in research. We will also have talks on general subjects such as mental health in academia and more focused topics like the role of the Charité Ombudsperson. We announce the meetings through our mailing list (write us at charite.phdnet@gmail.com to be added), via twitter @CharitePhDnet, and distribute flyers throughout the CCO. However, our goal is to promote exchange between PhD students. Therefore, we need input from you and encourage you to connect with us. Is there an issue that interests, confuses, and/or bothers you? Do you have an interesting project, an exciting conference to recommend, or a paper/book/article you would like to present? Shoot us an email! We would be more than happy to have you give a talk.

For our next meeting on September 14th, we will enjoy the last days of this crazily hot summer with a BBQ on the Campus. We hope to see you there!

Email: charite.phdnet@gmail.com | Twitter: @CharitePhDnet


*Promotionskommission

The Promotionskommission is the administrative body that decides and manages everything relating to PhDs, at least for those of us who are enrolled at the Charité. Its duties include establishing PhD regulations, organizing defenses, and determining standards of good scientific practice.

*The FSI (German: Fachschaftsinitiative) is the official representation of all students at the Charité. However, the vast majority of their social and political activities are targeted at the medical students, not PhDs.
Discovering one’s aptitudes and building a career out of them is a long and tough road for everyone. It is paved with difficult questions (e.g. “But what if I love science and art?”), challenging decisions (“Neither art nor science have secure job prospects – should I just learn JavaScript and hope for the best?”) and many unforeseen obstacles.

For many of us, entering graduate school was part of a lifelong dream of becoming a scientist, exploring nature’s secrets and/or developing the next cure for a devastating disease. For this, the good old academic path seemed like an appropriate option. We powered through long nights of studying to get those grades and endured long days in the lab to obtain those skills only to find out that the likelihood of reaching the ultimate goal - the professorship - is rather bleak.

Around the world, faculty appointments remain stably few, while the number of life science doctoral recipients is constantly increasing. For example, in the U.S., faculty appointments correspond to only about a fifth of PhDs in the life sciences [1] and the Royal Society (UK) has estimated that only 0.45% of people trained as scientists actually move on to become professors [2]. So, what is the competitive advantage of the few that make it in academia after all?

The lack of available university positions is not the only reason for one to search for career options beyond academia. A demanding and competitive career with strong workplace hierarchies, few rewards and a rather unusual work-life (im)balance just might not be everyone’s cup of tea! If only a small portion of invested early-career researchers go on to occupy academic posts, one wonders if a career beyond academia really is the “alternative” for a life scientist. And if not, what are the other options? Why don’t we know more about them and why are transferable skills that we could use beyond academia not emphasized in our education?

Members of the CDI got together in December 2017 in an attempt to explore these questions. We hope to set up structures for mentoring, education, and networking for all graduates with the aim to provide a stepping stone for our peers to define and take control of their futures.

Who Are We?
The Career Development Initiative (CDI) envisions a change in the culture of career development in the Berlin neuroscience/life science community. We work closely with various Berlin-based partners to provide students and academics with resources for individual, scientific, and career advancement. There are about 25 members of the CDI that include current students, postdocs, professors, administrative staff and alumni that have moved out of academia. We work in small groups to achieve each of our goals and meet once a month to share and discuss our progress.

Our Mission
- **Individual development**: We are adapting Stanford’s Individual Development Plan (IDP) questionnaires that aim to get you thinking about your career options and whether you are making the right steps to achieve your goals. These will be available on our website for everyone to download in October!
- **MedNeuro curriculum**: We surveyed students and alumni of the Medical Neurosciences Program to find out what they felt was missing from their education. We gained a lot of valuable input and are launching new courses starting this fall! For example, many of you expressed a need for more training in experimental design, so we paired up with QUEST Berlin to design a course called “Improving [Your] Science” that will be offered yearly to all incoming MedNeuro PhD students. Stay tuned for exciting new courses!
- **Career events**: We are designing a very exciting Young Talent Day! In the morning, participants will receive career training from experienced professionals. The afternoon will focus on learning about diverse career paths from honest and open talks by people with life science backgrounds, including MedNeuro alumni, that have followed diverse career paths. The first CDI Young Talent Day will be this November - don’t forget to sign up!
- **Internship program**: Exploring career paths means trying different things to see what one is suited for. Getting access to different job settings is not always easy, so we plan to establish an internship program with our partner companies to assist you in this process of exploration.
- **Communication within the community and with the industry**: By the end of the year we plan to have an online portal for members of our community so that we can connect, introduce ourselves, chat, share, advice, mentor each other and post jobs! In the meantime, we will make announcements by email and on our website and Facebook pages.

Our partners
- Charité, NeuroCure, ECN, SPARK Berlin, QUEST, MDC, MedNeuro, Stiftung Charité


Make a move - get in touch!

Website: https://www.ecn-berlin.de/CDI.html
Email: career-development@charite.de
Facebook: @careerdevelopmentcharite
I, Scientist 2018-Conference on Gender, Career Pathways and Networking

From 25th to 26th of May I attended the I, Scientist conference in Adlershof, Berlin, hoping, as the website advertised to “be inspired by personal stories of female researchers - [and] learn more about your career options - network with your peers” [1].

I found this and much, much more at I, Scientist. This meeting, taking place on the technology campus Berlin-Adlershof, comprised lectures, satellite symposia as well as workshops accompanied by plenty of networking opportunities. It was the second time the annual conference was organized by student and scientist volunteers of different universities and Leibniz- Helmholtz- and Max-Planck Institutes under the auspices of the Lise-Meitner Gesellschaft e.V. (LMG). The LMG, founded in 2016, has the principal goal of organizing the I, Scientist conference, as well as more generally promoting gender equality and visibility of women in STEM (Science, Technology, Engineering, and Mathematics) [2,3].

The lectures were held by inspiring women working in STEM areas all over the world. Nobel Prize winner Prof. Ada Yonath explained how polar and ionic models should be an inspiration for everyone. From the conference being open for all genders [4], men were underrepresented. Although female role models should be an inspiration for everyone, it seems men did not feel addressed as much by the themes of the conference. However, we could still hear men’s point of view in the panel discussion “Equal Rites – Why Do We Still Talk About The Gender (In) equality in 2018?”. In addition to the talks, events were offered such as the Career Speed Dating to get in touch with potential employers in a casual atmosphere. During the networking breakfast, you could also engage in conversations with individual female job representatives about their career pathways, obstacles and requirements or balancing family and career. Many participants brought their young children along and advocated for gender equality when it comes to competing demands of family and career. I experienced the conversations in the networking events as much more personal and cooperative than on a conference with scientific focus. The personal atmosphere allowed it to connect with others and network easily. Everyone seemed to be working toward the same goal: improving (gender) equality, and helping each other on the way.

Interaction was also promoted in the discussion sessions. Inspired by Sheryl Sandberg’s book Lean in, specific topics were discussed in smaller groups and then presented to the rest of the crowd. Is it personality or gender that determines your way to success? Are some things really a gender-based problem or a burden put on all of us by society? Do you sometimes feel like an impostor? Did you ever cry at work?

Discussions were especially fruitful when men were around to state their opinion. In the end, it does not help if we limit our actions to complaining if a big part of the population that could change the system is not there to take part in the conversation. We need everyone to participate in the discussion and carry the efforts. We need you men, as gender equality is relevant for everyone! Let’s design our future together and maybe start by signing up for next years I, Scientist Conference!

This conference comes with a strong recommendation for everyone interested in gender equality, social justice, personal life stories, personal development, career planning and in need for a motivational boost.

Pina Knauff
PhD Student, AG Wulczyn

References:
[1] https://www.iscientist.de/

Photos courtesy of I, Scientist organizers: Lise-Meitner-Gesellschaft für die Gleichstellung von Frauen in den Naturwissenschaften und der Mathematik inner- und außerhalb der akademischen Laufbahn e.V.
There are several ways to finance your PhD such as a scholarship, a contract, a Minijob ("marginal" part-time job), or even self-funding. In fact, it is quite common to have mixed finances during your PhD, for example a contract for the first two years and a scholarship to finish your thesis.

These financing models are not well known outside of academia and if you consider to have a baby during your PhD, you may find that it is quite hard to find a reliable source of information. In fact, even experts at government institutions, e.g. at the "Elterngeldstelle" are many times confused by the peculiarities that come along with combined financing models and the PhD itself. Since you are not regarded as either an employee or a student, your situation may be hard to grasp for government officials that usually advice on topics like parental money, or maternity leave and you may end up not understanding your rights and duties.

As women’s representatives of the Humboldt Graduate School, we thought it is about time to provide a reliable source of information that covers your rights, duties and entitlement to financial aids as a parent and takes into account the peculiarities of a PhD. We created an information booklet that covers all possible options of financing your PhD to help you make an informed decision. From scholarship or contract to unemployment money or being support by your partner, you will find all the necessary information for young families.

The information booklet includes best-practice examples, work place security, a chapter on “How to tell your boss” and a checklist for parents-to-be (where to go, which forms to fill out, who to contact). In addition, we included offers at the Humboldt University, like sports classes for parents with children or KiTas available for Humboldt University employees. Though some information is specific for Humboldt University, most information is valid for all Germans and foreigners staying in Germany throughout their PhD. The booklet entitled ‘Vereinbarkeit von Promotion und Familie’ is already available in German [1] and will be published in English in September 2018. We know that combining a PhD and family may not always be easy, but we hope that the right set of tools will help you to make the best out of it!

Juliane Schiweck  
PhD Student AG Eickholt


New Series: What Have We Learned, Dr. Brown?

Academics are becoming increasingly aware that only a fraction of all those doctoral candidates can have an academic career. The majority need to face the question of what other options are available. At some point, most PhD graduates are confronted with questions of what they want and what they are actually capable of. For some, this comes as an abrupt (and negative) surprise since they hadn’t even considered leaving academia until shortly before graduation. Furthermore, they might not be prepared to even think about life outside academia simply because they already invested so much time into it.

As scientists, we spend years to become ultimate experts on a very narrow and specific topic – that’s what the PhD is about. This knowledge, however, is quite unlikely to earn you money when you leave academia.

The good news is: this particular knowledge is far from being the only thing you learn during your PhD and PostDoc. You actually acquire lots of competences on your way! But… could you name them? This new series aims to move your attention to all the useful skills you have that may seem trivial to you and solely as prerequisites to perform your research, yet are incredibly precious outside the lab!

Part #1 – Presentation Skills

During your PhD you may have hated them: Lab Meetings and Progress Reports. You have to sit down and spend your precious time fiddling away at a PowerPoint presentation instead of doing this one experiment that you prepared for so long and ache to see the results of. During the meeting you stand in front of all your colleagues with everyone staring at you (and probably their watches) because you are stealing their precious time, or so you may think.
The truth is that right there you are training and improving valuable skills: How to gather information, how to focus on what is important and leave out the fluff, how to arrange all the pieces of information in a way that invites your audience to follow your thoughts, how to stand the feelings of exposure and of being questioned by everyone! By preparing and attending numerous talks yourself, you realize what makes a clear (!) and immersive presentation. Ideally, you gain a sense of how much information you can dump on your audience without losing anybody. Trying to prepare your own slides and checking whether you indeed reach your audience is what these meetings are about. This and the personal exposure to new trains of thought was inspiring and helped me get to where I am today.

Outside academia you probably won’t attend talks that are as intense and data-heavy as those during your PhD. Nonetheless, people always need to exchange information and there will be plenty of circumstances to use the skills you developed. You have learned to have a sense of how much information and in which way you will have to communicate it to others in a confident and understandable way. While future presentations might take place with an audience less devoted to you than your current peers, you can already profit from the training opportunity you are given routinely during your PhD.

You see, your PhD teaches you a great skill set, which is highly relevant outside academia. You just need to take a new and different look at your tasks and your skills!

Let us know which abilities you learned during your PhD that prepare(d) you for a non-academic job if you are PhD Alumnus and/or recently reflect-ed on yourself: cns-newsletter@charite.de

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An Interview With Prof. Stefan Gold, PhD

Depression and treatment of this mental illness has become a hot topic in Western societies recently, due to more and more celebrities either grappling with suicide or speaking up to end stigma. Unfortunately, this disorder can affect people who have comorbid neurological diseases. To learn more about new research in this field and treatment options, I made contact with Prof. Dr. Stefan Gold at the Department of Psychiatry at the Charité- Universitätsmedizin and Institute of Neuroimmunology and Multiple Sclerosis at the Universitätsklinikum Hamburg-Eppendorf.

In the last 10 years or so, you have worked in different labs around the world, which ultimately led you to becoming a Professor of Neuropsychiatry. Can you tell us how your travels helped you in this topic of research?

Switching labs allowed me to switch trains of thought. In New York, I was working in oncology and psychology; in Los Angeles, I got into neurology. These experiences allowed me to learn, by example, a diverse set of skills; which I put into a big toolbox for my own research. I was able to learn from others who had already “made it”, meaning I was gaining insight into how successful labs organize their day-to-day work, how they plan from grant to project to paper, and how to develop early scientists. This and the personal exposure to new trains of thought was inspiring and helped me get to where I am today.

Could you summarize why you are interested in depression in conjunction with Multiple Sclerosis (MS) in particular?

This was really the first original idea I had as a researcher, that wasn’t part of a project with another work group. I was fascinated with the brain and how it interacts with and modulates with the immune and endocrine systems. MS was the ultimate paradigm for brain malfunction 18 years ago, because we knew something was wrong there. After finding patients that had depression as a comorbidity and researching ways to detect it, I started getting more interested in the patients and helping them rather than just the biology. I started combining methods that I learned in the past, with new technologies to try to figure out how we can help patients. This led to the somewhat unexpected international phase III clinical trial for treatment of depression with the University of Hamburg using online cognitive behavioral therapy (CBT) [1].

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Image courtesy Dr. Stefan Gold

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Your research is mainly based on the intertwined effects of MS disease and depression. Do you think that depression is linked to disease-states in general, and that treatment of disease symptoms could alleviate depression? Or is depression a disease of its own and requires extra treatment?

There are a million ways to look at this. One way is that inflammation destroys regulation of emotions in patients. In MS, depression is fairly dependent on biology, where pathology affects circuitry in the brain. But there are many psycho-social problems to be taken into account for each patient as well, so there are many factors that can lead to depression. Overall, the hypothesis is that treatment of neurodegeneration should help alleviate depression symptoms. And on the flip-side, we have hope that treatment with a behavioural approach could also have the possibility to affect the underlying biology. This is what we are pursuing in our stage III clinical trial at the moment (see next section).

With emerging technology, do you get new ideas everyday on how to better treat patients with depression?

Technology is evolving on all fronts in my research topics. Since all aspects in psychology are very subtle, the benefit from new technology usually comes from the fine-tuning of already existing methods. On the other hand, I believe digital medicine is the future, but at the moment there is an implementation problem. However, with our clinical trial, we are trying exactly to implement technology to treat patients that normally have many barriers preventing them from getting to a hospital or doctor. Using technology, such as special computer software, we have been able to reasonably and effectively treat these patients that often get left behind. We are working on this tool to help give behavioural treatment that is easy, scalable, and can work as an interim option until patients are able to get to a clinic.

Where do you see imaging in this field of mental health research?

Mental disorders are extremely complex and not heterogenous. Thus, there are still no imaging biomarkers for diagnosis. There are some consistent, but very small neuroimaging signatures and these are prone to huge overlaps. This is the same for genetics and psychology. However, I do think that in vivo imaging is very important to continue to research, where perhaps there is a way to identify subgroups of patients based on the manifestations they have in the CNS. There was a recent publication in Nature Medicine, which used resting-state fMRI and the researchers could find differences between groups of patients with different treatment responses [2]. Thus, imaging is useful, but it is just one method that is helping us understand the biology, one piece at a time.

What advice would you give graduate students wanting to study mental health issues in the future?

I would recommend that you travel as much as possible, to groups that are diverse, well-funded, and challenge your own dogma. Train your intellect with, possibly, contradicting views. You need at least one year of immersion somewhere else to figure out how to conduct good science. In the end though, it really doesn’t matter as long as you are curious, talented, and hardworking.

Where do you see this field going in the next 10 years?

In terms of the future of psychology research, I would say new drug developments are a bit dead, and there is nothing new in the pipeline. It has become too difficult for pharmaceutical companies to develop new drugs that are not necessarily helping. So, at the moment, it seems there are more researchers looking at repurposing drugs, such as statins for depression. The field will change a lot once people gain more and more access to technology. Almost all people have personal cell phones now, which could make a huge impact globally! Also, this could be scary since telecommunication companies could track everything about you… but that is a discussion for another day!

Thank you Prof. Gold for your insights! This interview has been edited for length and clarity.

Claudia Chien
PhD Student, AG Paul

Conference Report: Ethics in Science
Brain Interventions in the Spotlight at the Annual Meeting of the German Ethics Council

Just a cursory look at the social media waves generated by the court rulings in the case of Charlie Gard shows that laypersons care about the effects of science in their everyday lives, and that there is constant concern about potential scientific mishaps. Charlie was an infant who died of a mitochondrial condition that may have been treatable by gene therapy, which British courts of justice opposed. Laypersons obviously care so much about the ethics of healthcare that these topics are ardently debated and conclusions reached quickly, compared to other controversial topics. But do we, as (neuro)scientists, know how ethics relate to our work?

We most likely do not consider the subject of ethics frequently, aside from filling out the documentation for animal experiment applications (and that is considering if you even with work with animals in the first place). A certain disdain for the topic of ethics abounds in our ranks: non-specialists addressing ethics in relation to medical bioscience are often regarded as an unnecessary impediment to our work. After all, one does occasionally overhear scientists talking about the animal ethics committee as “narrow-minded vegans”. In reality, the issues of ethics span a much wider horizon than just animal experimentation. This complexity is exactly why I noticed the poster announcing the conference “Human Dignity in our Hands: Challenges from New Technologies”. I quickly found out that the advertised conference was the annual meeting of the German Ethics Council (Deutscher Ethikrat), and that I needed neither an invitation nor to strain my meager PhD budget in order to attend.

My interest was immediately sparked by what the poster illustration was suggesting: artificial intelligence, brain implants and human genomic editing. All these may sound like science fiction that does not require extensive discourse today, but, in fact, is very much on non-scientists’ minds. These three topics were precisely the main topics of the one-and-a-half-day conference, which boasted distinguished speakers, such as the well-known world historian Yuval Noah Harari. Prof. Harari gave the inaugural talk about his cornerstone question, “where is humanity headed as a race?”, which neatly introduced the spectrum of issues that are up for ethical debate these days.

Do We, The Scientists, Have a Say in Ethical Debates?

Some of the disdain of scientists towards ethical debates may stem from a feeling of not being given enough possibilities to participate in ethics discussions that apply to their work. This was decidedly not the case at the German Ethics Council conference. Each of the three thematic blocks (AI, interventions into the brain, and genome editing) commenced with an introductory presentation of the newest advancements in the respective fields, given by established professors in that research area.

One such established and highly publicly-engaged professor is Prof. Dr. Katrin Amunts. Prof. Amunts holds the chair for brain research at the Heinrich Heine University in Düsseldorf and is also the scientific research director of the Human Brain Project, a European Commission-funded attempt to understand the human brain by simulating it computationally. She spoke about a few brain intervention strategies, ranking them based on degree of novelty and potential ethical dangers, from personalized pharmacological treatments over deep brain stimulation and, finally, big data based approaches for illness monitoring. If the term „brain intervention“ does not evoke images of intrusive data collection in your mind, think again. Recently, researchers developed algorithms that analyze the speech of a patient suffering from schizophrenia in order to detect their likelihood to experience a psychotic episode. Insidiously, the very same algorithms can easily be set on everybody’s social media postings or blog posts in order to determine whether somebody is suffering from mental illness. It is chilling to know that it can be this easy to uncover sensitive information which, if made public, can severely alter the course of a human life. “Drawing the line between casual life quality improvement and the potential for problematic, intrusive enhancement is no easy task”, warned Prof. Amunts, foreshadowing the ethics discussions in the latter part of the session. Particularly data science approaches open new roads with consequences that are far from our grasp.

Predicting Which Technologies Could Generate Injustice

These blurred lines were the focus of Prof. Dr. Birgit Schöne-Seifert’s talk. She is a medical doctor who has been involved in research, retrained in ethics and now holds the chair for Ethics in Medicine at the medical faculty of the Westphalian Wilhelms University of Münster. Prof. Schöne-Seifert’s talk echoed that of Prof. Amunts by showing how the different categories of brain interventions sit on a graded scale of concern from an ethical standpoint. She divided brain interventions into the following...
The content of science is the concern of scientists, the effects are the concern of every human being. [1]

Further Reading
The opinions (analyses) published by the German Ethics Council can all be ordered for free at this address, and span highly interesting topics, from preimplantation diagnostics to big data in healthcare. https://www.ethikrat.org/en/publications/Kategorie/opinions/

Yuval Noah Harari · Homo Deus. An unsettling view of a renowned historian on humanity’s soon-to-be omnipotent technology-based reign over the world, and the destructive potential it harbors.

What is the German Ethics Council?
The German Ethics Council (Deutscher Ethikrat) consists of 26 members, appointed partly by the Bundestag (parliament) and partly by the Bundesrat (Federal Council), forming an expert commission that analyzes ethical questions, particularly those that pertain to applications of life science and technology. Its work has a strong focus on biomedical science advancements. One of its main tasks is publishing freely available analyses of current ethically challenging situations that result or may result from the newest developments in science and technology. These analyses can be ordered free of cost (see box “Further Reading”). Akin to the German Academy of the Sciences (Leopoldina), it is independent, but can be tasked by the government with analyzing specific ethical questions. The other main activity of the German Ethics Council is to spur public dialogue in order to reach democratic decisions on ethically delicate matters.

The Council announces its yearly meetings well in advance on its website, https://www.ethikrat.org/jahrestagungen/ (click on “English” at the top of the page).
**News in Brief**

**Master's Students' Graduation**

On October 5th at 2:30 PM Senior MedNeuro students will present their master’s theses projects in the form of talks and posters (venue: Humboldt Graduate School, room 144). Presentations will be followed by the handover of the diplomas, a keynote speech, a reception and welcome party for the new students and our graduates at 6 PM (venue: Hörnsaalruine, Campus Charité Mitte, internal address: Virchowweg 16). The evening will be a bittersweet mix of letting go and looking into the future.

**A Warm Welcome to New Students!**

19 new first-year students (six of them as part of Neurasmus and one of Erasmus) and seven second-year Neurasmus students from all around the world will join our MedNeuro family this year. This year, the obligatory campus walk will be given by the Berlin Museum of Medical History at the Charité and will include a tour of the museum. As usual, the office will give an introduction to the program and hassle with administrative issues. After yet another tour through Berlin and taking a breather, everyone will meet at the graduation ceremony on October 5th at 2:30 PM to hear the exciting work of our master’s graduates and wind down at the welcome party at 6 PM (see above).

A warm welcome to the latest PhD applicants: Daniel Berchtold (Meisel), Kiara Freitag (Hegpper), Janis Kerkering (Siffrin), Urs Kindler (Kettenmann), Tobias Leva (Poulet) and Leonardo Serdani (Schwab). Kiara and Daniel graduated from our partner MSc program Molecular Medicine and Tobias is a NeuroCure fellow.

**Berlin Neuroscience Meeting 2018**

As members and friends of the Einstein Center for Neurosciences (ECN) Berlin, we invite you to join us at the Berlin Neuroscience Meeting on October 10th. The ECN organizes an annual Neuroscience Meeting to provide a platform for scientific interaction among Berlin neuroscientists and to give the new ECN PhD students an overview of the diversity of the neuroscience landscape in Berlin. This meeting will offer an excellent venue for presenting and discussing recent work during at an interactive poster session. Program: 5:7 PM poster session, 7 PM get-together. For details on how to register and join with a poster please check the website: www.ecn-berlin.de (venue: CharitéCrossOver (CCO), Atrium, Campus Charité Mitte, internal address: Virchowweg 6).

**New PhD course: Improving [Your] Science**

This September, we are launching a new course to help MedNeuro PhDs make the most of their science. Developed with the QUEST Center Berlin, the new yearly course will prepare all incoming students for their upcoming research projects by covering topics such as experimental planning, smart analysis strategies, open science and how to establish one's profile on the international neuroscientific stage. We will pilot the course with the PhD student intakes of 2017-18 this fall, but will make course Toolbox available on the MedNeuro website for everyone to access.

**Autumn Alumni Meeting**

We are trying to have at least two alumni events per year. We all really enjoyed the meeting in July and we plan to use the graduation and welcome party as an occasion to invite and gather all our alumni. Join in, meet each other (again), and celebrate with MedNeuro family on Friday October 5th, 6 PM (venue: Hörnsaalruine, Campus Charité Mitte, internal address: Virchowweg 16). Please help us to plan by signing up here: https://bit.ly/2MNTekI

**New Member on the Program Coordination Committee**

Prof. Dr. Benjamin Judkewitz and Dr. Oliver Mai have been confirmed as new members of the Program Coordination Committee (Studienkoordinationsausschuss, StuKoA) for the open positions of Prof. Dr. Heinemann and Dr. Brackmann. This committee is dedicated to improve the curricula and to layout new structures of both, the MSc and PhD program.

**Imprint**

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Wenn „verpennt“ zu „gescannt“ wird.

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