

Prof. J.J. Sandra Kooij  
TIME FOR ADHD, ADHD & TIME



## *Tijd voor ADHD, ADHD & Tijd*

Rede bij de aanvaarding van het ambt van  
bijzonder hoogleraar

*ADHD bij volwassenen*

vanwege de Parnassia Groep, aan de  
Faculteit der Geneeskunde, afdeling  
Psychiatrie van

*prof. dr. Sandra Kooij*

Amsterdam UMC/Vumc

30 september 2022, 15.45 uur

Speech delivered at the acceptance of the position of professor of ADHD in adults on behalf of the Parnassia Group, at the Faculty of Medicine, Department of Psychiatry of Amsterdam University Medical Center, location VU Medical Center, on September 30, 2022.

## **Inaugural lecture 'Time for ADHD, and ADHD & Time'**

**Prof. Dr. JJ Sandra Kooij**

Dear Rector, ladies and gentlemen, and all who are attending this ceremony via the live Stream.

Today I officially accept my assignment as professor in the field of 'ADHD in adults' from the Parnassia Group, at the Department of Psychiatry of the Amsterdam University Medical Center, location VUMc.

I'll talk about Time for ADHD, and ADHD & Time. You may be wondering: Why is it time for ADHD? And what does ADHD have to do with time?

### **Back in Time**

Before you stands a psychiatrist who had no choice but to become a researcher in the field of ADHD in adults. ADHD in children does not disappear with age, and 25 years ago, almost nothing was known about it in adult psychiatry. This meant that adults with ADHD had nowhere to go for their complaints and problems after they turned 18. Today, I report on my journey and findings, of how questions from clinical practice were translated into scientific research, and how the results were implemented in daily clinical practice.

I saw my first patient with ADHD in 1994; I was still training to be a psychiatrist, and ADHD in adults did not yet exist. She was in psychotherapy for borderline personality disorder, but that diagnosis didn't quite make sense to me. Coincidentally, I attended a child psychiatric conference on ADHD, because I had missed the only lecture on this subject... There I first heard that ADHD did not disappear after the age of 18, and that due to poor knowledge of the disorder in adult psychiatry, ADHD often was wrongly classified as antisocial personality disorder, in boys. This piqued my curiosity. I asked the speaker at the conference, child psychiatrist Boudewijn Gunning, for supervision, and asked him whether ADHD could also affect girls. This turned out to be the case, and not much later I, along with my first patient and her family, made the first diagnosis of ADHD in adulthood. The family was in tears, finding that this diagnosis "fitted like a jacket" and accurately described their daughter and sister. I realized that this could be true for many more people with a cluster B personality disorder, and that they would then be trapped in an inappropriate diagnosis, resulting in years of ineffective treatment.

I was a pioneer without a supervisor in adult psychiatry, but I learned a lot from my patients. After my first publication together with Jaap Goekoop and Boudewijn Gunning, I was visited

by Arga Paternotte of the parents' association Balans for children with ADHD. She said: 'We must talk; you do what we are waiting for! As parents, they had known for a long time that ADHD was not outgrown. Her words gave me wings, and made me realize the importance of this disorder which did not yet exist in adults. Her statement helped me over the years whenever critics or the uninformed media failed to take adult ADHD seriously, or tried to ridicule it.



But it was also a bit frightening that what I was trying to invent on my own had already been noticed by an association with already 10,000 members. Balans soon referred patients from across the country. I realized that ADHD was common and that the unfamiliarity was a big problem. Colleagues and patients asked for advice, but there was no organization that could accommodate this. It was time to train colleagues and do research. Rigo van Meer, director of then St. Joris in Delft, supported my research financially. It was also time to set up a professional network, the national Network ADHD in Adults, (now ADHD Network), so that patients with ADHD could receive help throughout the Netherlands.

In 2002, the first outpatient clinic for adults with ADHD followed at Parnassia in The Hague, thanks to the support of Edsel Kwidama and Felix Olthuis. Their faith and trust in me and in the new diagnosis of ADHD in adults were of great significance. When I said I expected the team had to double every 2 months, to help the waiting list nationwide, they just believed me. They were great years of growth, with the development of the first Diagnostic Interview for ADHD, the DIVA, the development of diagnostic assessment and multidisciplinary treatment for adults with ADHD, and my PhD research with child psychiatrist Prof. Jan Buitelaar (who had specialized in pediatric ADHD). He was willing to help me with research, on the condition that I get my PhD. I said yes, but had no idea what I was getting into. He has kept faith in my project all these years, even though it took much longer than usual due to all the other activities.



First team ADHD in adults at Parnassia, 2003

The Godfather of Dutch psychiatry, Prof. Willem van Tilburg, also played a crucial role when I asked him to help put pediatric ADHD on the agenda in adult psychiatry. When I entered his room, I remember seeing a large mountain of Ritalin boxes on his desk, which I kept staring at in disbelief. He told me that this was not for himself, but for the son of a friend in France, who could not function without this medication, and neither could his father, the mayor of the village. It was the annual supply he took for them during the holidays. At that time, ADHD medication was still banned in France. I knew that I no longer had to explain anything to Willem van Tilburg. He has always championed neurobiological developmental disorders in adults, for which I am deeply grateful.

When PsyQ was founded in 2005 within the Parnassia Group, there were 10 specialist programs across the country, including the brand new Adult ADHD program. There are now 33 locations, together with MetGGz, Mondriaan and Lentis, which together treat thousands of adult patients with ADHD every year.



National Annual ADHD - Day 2013

We trained the ADHD teams nationally through the Expertise Center ADHD in adults, we visited them and implemented innovations from research. In 2007, I founded The European Network Adult ADHD, to support European colleague pioneers and to share our knowledge and experience. These colleagues wanted to translate our diagnostic interview for ADHD in adults, the DIVA-5; it is now available in 29 languages, up to Cantonese! Thanks in part to the unbridled efforts of colleague Dr. Dora Wynchank.



Dr. Dora Wynchank, editor DIVA Foundation

**DIVA Foundation**  
diagnostic interview for ADHD in adults

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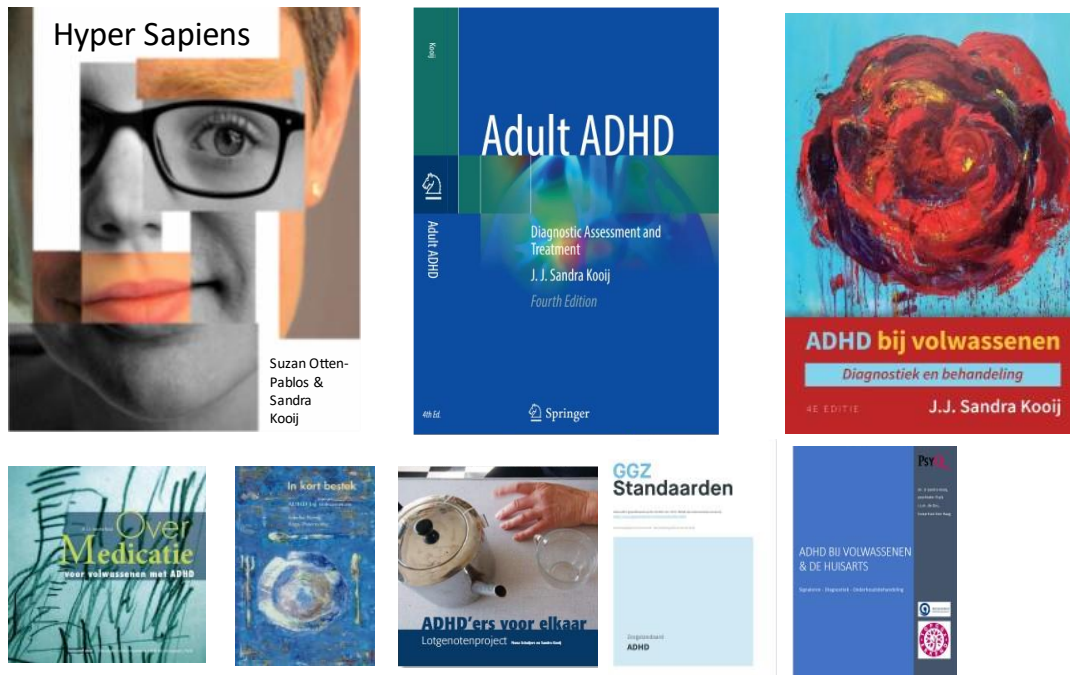
**DIVA-5** is a structured Diagnostic Interview for ADHD in adults. The DIVA Foundation aims to lower the threshold for proper diagnostic assessment of ADHD in adults. Therefore DIVA-5 is translated and distributed around the world with the help of many, at the lowest possible costs.

Available languages

Arabic	Brazilian Portuguese	Cantonese
Catalan	Chinese	Czech
Danish	Dutch	English
Farsi	French	French
German	Greek	Hebrew
Hungarian	Icelandic	Italian
Korean	Lithuanian	Norwegian
Polish	Portuguese	Romanian
Russian	Serbian	Spanish
Swedish	Turkish	

DIVA-5 NL  
 DIVA-5  
 DIVA-5 EN  
 DIVA-5  
 YOUNG DIVA-5 EN  
 Young DIVA-5

Books for professionals and patients were published, as did the first Dutch Guideline for ADHD in adults from the Dutch Association of Psychiatry, now called the Healthcare Standard.



## Time for ADHD

Contrary to popular belief, ADHD is not an easy label for lazy people, or an excuse for misbehavior. Having ADHD usually means an uphill battle, because it takes a lot more effort to get things done than usual. ADHD can be very positive if you are smart and think creatively, out of the box, and if you dare to take action. If you have enough money, you can delegate administration and organization, and ADHD can certainly have benefits. But for the people who seek help, ADHD is a burden, because the disadvantages overshadow the advantages: it means, for example: coming late, forgetting appointments, having difficulty concentrating, starting tasks but leaving them unfinished, restlessness, doubt, not having overview, impulsivity, becoming easily bored, needing variety all the time, poor focus on tasks, taking too much time to do them, getting bogged down in details, perfectionism, burnout, chronic fatigue, irritability, hypersensitivity to sensory stimuli, a head full of thoughts that keep going, can't relax, can't slow down, not being able to stop, not being able to sleep...

ADHD, it makes you tired!

ADHD starts in childhood, and is often familial, in about 3-5% of the population. ADHD often has a hereditary background, and is more or less expressed by environmental factors. ADHD rarely comes alone, almost always there are also sleeping problems and anxiety or depression. Furthermore, all other psychiatric problems occur in ADHD: addiction, autism, intellectual disabilities, but also giftedness, bipolar disorder, personality disorder, PTSD, OCD. On average, someone with ADHD has three disorders. That is why ADHD is never boring for practitioners, and the diagnostic examination is a tough challenge.

The consequences of ADHD and additional disorders include: learning difficulties and failing at school, underachieving in study and work, unsafe driving, accidents and early death, more chance of suicide attempts and successful suicides, financial debt, domestic violence, crime, internet and sex addiction, conflicts in relationships and work, divorce, a pattern of being a Jack of all trades and a master at none, loneliness, and a lower income. In short, having ADHD is significant, and certainly not laziness. On the contrary, people with ADHD have to work harder to achieve the same things as others, resulting in exhaustion or burnout. As a result, people with ADHD constantly feel inadequate and blame themselves. People with ADHD therefore deserve respect, compassion and self-compassion. Someone once said: 'Thanks to the diagnosis I can forgive myself'...

The burden for people with ADHD is therefore very great, just imagine: you get stuck in work and relationships, but this is not understood by your environment. You do not know what is going on, your doctor recognizes your fear or depression but *not* the ADHD. If you are unlucky, you wander around until you hear from someone that it could be ADHD that you have...

And this despite the fact that knowledge about ADHD has increased enormously in the last 25 years. We now understand what constitutes good and effective treatment. Therefore, it is time for ADHD, because knowledge and help are available, but may not be available to benefit the people who need it. That is why it is Time for ADHD in all health education courses, from psychology to insurance health specialists, because everyone encounters people with ADHD. We have learned over the decades that ADHD does not only affect boys, but also girls, adolescents, adults, women, older people over 60, and it is found in all countries where it has been studied. ADHD is chronic, that's what makes it so difficult, it doesn't go away. ADHD occurs in 3-5% of the population, but in the psychiatric or addicted population, the prevalence is at least 20%: that is one in five! This high percentage shows that ADHD is a risk factor for the development of other mental disorders, firstly because ADHD usually comes first, and secondly because ADHD is chronic. But the importance of the diagnosis is especially great because of the high effectiveness of the treatment with psychoeducation, medication and cognitive behavioral therapy.

## ADHD & Time



*ADHD & Time*

It is typical of people with ADHD that time does not seem to exist: they are one hour early, or late, but rarely on time. Or, as the founder of Super Brains, Rutger den Hollander always says, there are 2 times: NOW, and NOT-NOW; and one postpones everything that is not se of time. The time required for a task is invariably underestimated. In research in children with ADHD, these problems with time perception were objectified. Medication for ADHD seems to normalize the sense of time. The question is whether the ADHD medication also influences the inner clock? ADHD & Time.

## ADHD & Time

Because what is time? It's something that invariably slips through your hands, that passes by and that you can't hold onto, that we are all subject to, every day of our lives, that structures and limits us. Actually, no one can really say what it is, except perhaps poets like Rutger Kopland:

### Time

Time it is strange, it is strangely beautiful never  
to know what it is

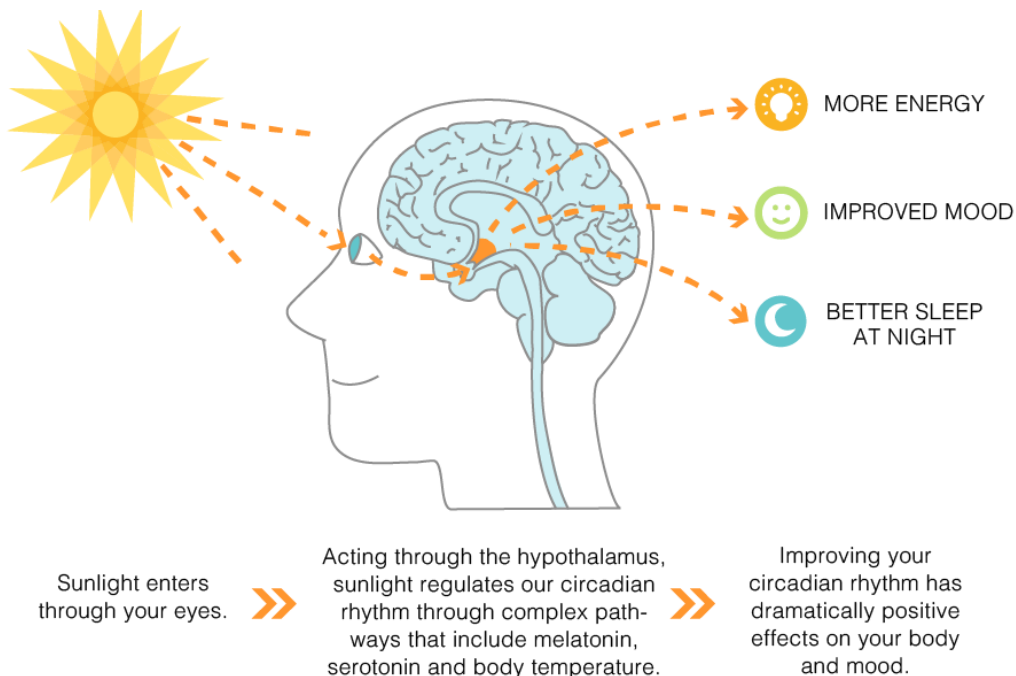
And a little further:

Time does not pass, but you, and I  
Outside our mind is no time

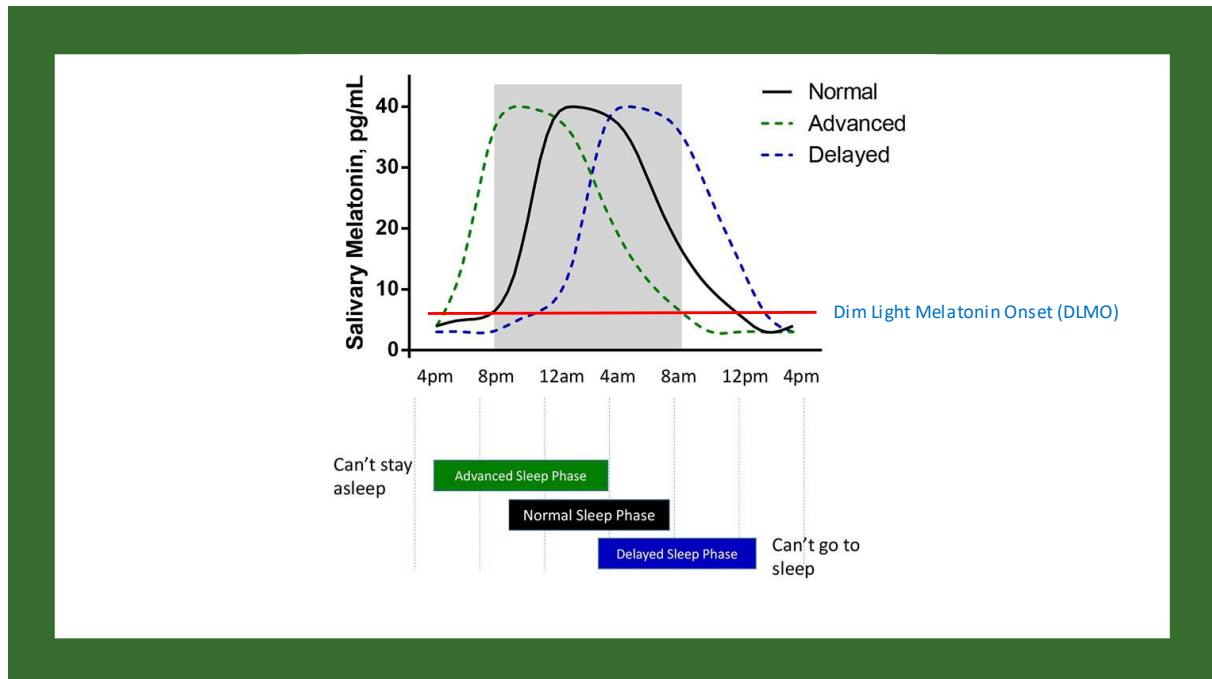


## Late sleep and health

In addition to having a poor sense of time, there is something else about time in ADHD: the biological clock is delayed in 80% of people with ADHD. They are evening people, night owls, with a so-called late chronotype. That means most of them have trouble sleeping and getting up on time. The consequence of going to bed late (between 1 and 3 a.m.) but still having to get up early for work or school, is sleep deprivation. This is also known as 'social jet lag'. You don't get your 8 hours of sleep because of your social obligations during the day. Sleep deprivation is associated with daytime symptoms that are very similar to ADHD: irritability, impulsive behavior, fatigue, poor concentration and memory, and an increase in appetite and weight. Falling asleep late seems to increase the severity of ADHD. This late sleep pattern is called a delayed sleep phase, or a circadian rhythm sleep-wake disorder, which is under the control of the biological clock. The late chronotype is often hereditary and begins in childhood. Therefore we have to speak of a chronic sleep deprivation in ADHD. The internal biological clock is out of sync with nature's clock, with the cycle of light and dark. This synchronization takes place via the eye, which transmits the light intensity to the suprachiasmatic nucleus in the brain. Our biological clock literally knows what time it is because of the light intensity.



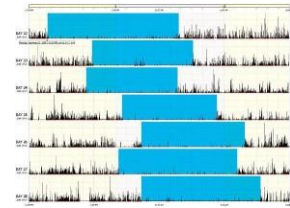
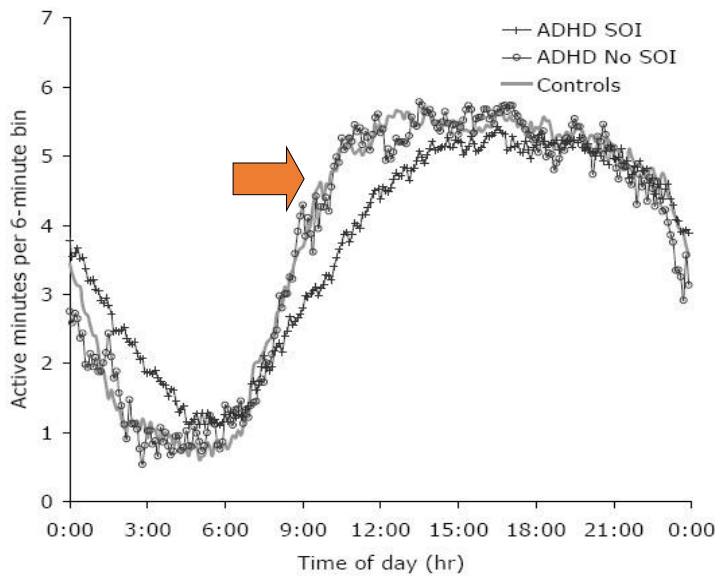
In 2010, a trainee psychiatrist, Maaïke van Veen, and our team, showed that the production of the sleep hormone melatonin is 1.5 hours later in almost all adults with ADHD and sleep problems than in control subjects. This raised the question of whether the ADHD symptoms during the day might be a manifestation of a delayed biological clock at night?



Melatonin is an antioxidant that strengthens the immune system and protects against cancer, among other things. Melatonin is produced in the brain when it gets dark, and this stops in the morning when light hits the eyes. It is known that using artificial light from a telephone or computer in the evening has similar effects, further delaying the production of melatonin. That's how we all damage our natural rhythms nowadays...

Besides studying the time of melatonin release, we also investigated the timing of body temperature and the movement pattern in ADHD: both were delayed, and to the same extent: 1.5 hours.

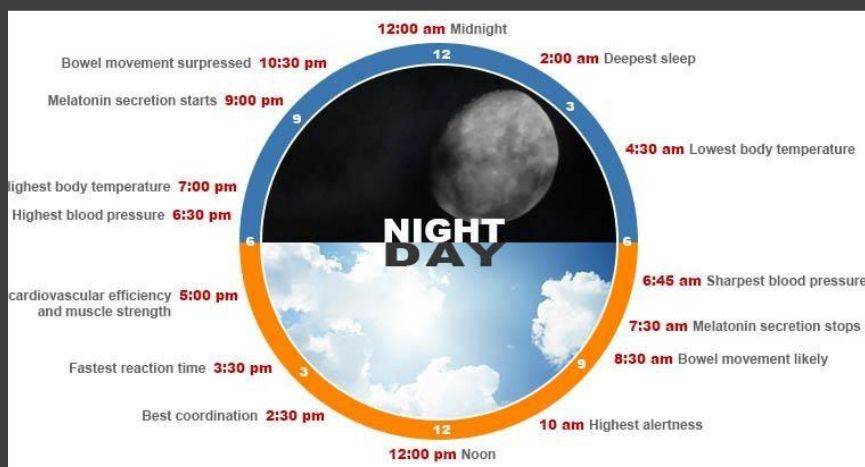
**24 hour movement patterns in ADHD + and - Sleep onset insomnia, compared to controls (actigraphy)**



Van Veen et al 2010

These processes are all directed and timed by the biological clock. The clock determines the rhythm of many more physical processes, such as blood pressure, hormones, appetite, bowel movements, muscle strength, heart rate, etc. All these processes are attuned to each other in time and run synchronously thanks to the biological clock. What happens if those processes are not synchronized, but are 'out of phase' with nature's time?

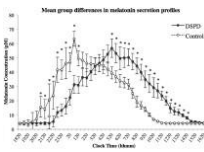
**Everything is timed - Timing is everything**  
**Living out of phase means: Jetlag!**



# ADHD → Jetlag

24 hrs problem:

ADHD symptoms during  
daytime & late sleep at night

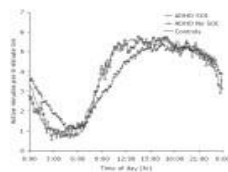


Late sleep



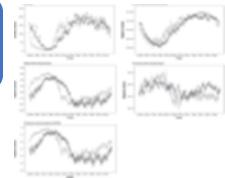
Late  
appetite

Late  
melatonin  
onset



Late  
movement  
pattern

Late  
temperature  
profile



Van Veen 2010; Bijlenga 2013; Bijlenga, Kooijse 2019; Micic 2015

Probably something like jet lag develops in all those organs. In addition, compensatory behavior for fatigue in people with ADHD leads to varying bed times, which makes the chaos for the organs even greater. It is known that in general evening types have more mental disorders, more sleeping problems, more seasonal depression and are more likely to be burned out, than morning types. We know that night shift workers get more diseases, including cancer, and live shorter than average. The impact of a long-term, disturbed day-night rhythm on health is therefore considerable. Since I realized that evening people with ADHD don't even have to work night shifts to develop similar health risks, I stopped sleeping. This damage had to be prevented.

NRC  
2 okt 2017

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## Nobelprijs gaat naar de biologische klok

De Nobelprijs voor medicijnen gaat naar de ontrafeling van moleculaire mechanisme van het dag-nachtritme bij dieren door drie Amerikaanse genetici. Zij vestigden het vakgebied van de 'circadiane biologie'.

✎ Sander Voormolen | 2 oktober 2017



Jeffrey C. Hall | Michael Rosbash | Michael W. Young

It is no coincidence that the geneticists who unraveled the molecular mechanism of the day-night rhythm were awarded the Nobel Prize for Medicine in 2017. Knowledge about the biological clock is therefore considered to be of great importance for health and medicine.

### Is ADHD a Sleep Disorder?

In addition to the delayed sleep phase, other sleep disorders occur in ADHD, in particular Insomnia, Restless Legs, Periodic Limb Movement Disorder and Sleep Apnea. All sleep disorders have one common result: sleep deprivation. We started to wonder if ADHD isn't actually a sleep disorder, and if treatment for sleep problems can reduce the severity of ADHD? Emma van Andel has shown in her research in people with ADHD and delayed sleep that chronotherapy, i.e. melatonin in the evening and/or light therapy in the morning, advances the production of melatonin by 1.5-2 hours, and that melatonin does indeed reduce the severity of ADHD. In the ongoing study 'Sleep 4 Attention by Attention to Sleep', this research question has been expanded to include all common sleep disorders.

# ADHD & sleep disorders

ADHD symptoms are associated with:

1. Extreme evening chronotype/Delayed sleep 78%
2. Obstructive sleep apnea syndrome (OSAS) 30%
3. Restless legs syndrome (RLS) & Periodic limb movement disorder (PLMD)– 30-40%
4. Insomnia disorder (ID) with difficulties initiating sleep (DIS) and maintaining sleep (DMS) 43%
5. Narcolepsy– 7%
6. Enuresis: more often in ADHD
7. Bruxism more often in ADHD
8. Nightmares: 3fold increased



(1) Van Veen, Biol Psych, 2010; (2) Bijlenga, J Att Dis, 2013; (3) Rogers, Br J Clin Psychol, 2016; (4) Snitselaar, Behav Sleep Med, 2016; (5) Cortese, Sleep, 2005; (6) Schredl, Eur Arch Psych Clin Neurosci 2017; Vogel 2017; Wynchank 2018

PSYQ

## Looking into the eye of ADHD

Remarkably, people with ADHD often entered the doctor's office wearing sunglasses, even in winter, we asked them about sensitivity to light: about 70% reported hypersensitivity to light, versus 25% of the controls. This indeed led to them wearing sunglasses significantly more often and for longer, in all seasons. It is clear that wearing sunglasses can disrupt the sleep rhythm: you decrease the contrast between light and dark for your brain, which disrupts the day-night rhythm. Light during the day is supposed to wake us up and keep us alert, and prolonged use of sunglasses prevents this. Farangis Dorani is now investigating the functioning of the eye, including the pupillary response to light in people with ADHD, in the study Looking into the eye of ADHD, in collaboration with Prof. Eus van Someren and Prof. Aartjan Beekman.



## Is ADHD a Systemic Disease?

Our next question was whether the consequences of long-term disturbance of the sleep rhythm are reflected in an increased percentage of physical disorders in ADHD. In our research into the health of people with ADHD compared to controls in 2013, the ADHD group indeed had significantly more physical complaints in a striking number of areas.

### Selfreported Morbidities in ADHD versus controls

(showing only significant differences)

	% ADHD, n=202	% Controls, n=198	<i>p</i>
<b>Depressed mood</b>	18	6	<b>&lt;.001</b>
<b>Stress/ burnout/ fatigue</b>	5	1	<b>&lt;.001</b>
<b>Pulmonary problems</b>	31	16	<b>&lt;.001</b>
<b>Cardiovascular problems</b>	43	18	<b>&lt;.001</b>
<b>Gastro-intestinal problems</b>	33	19	<b>.001</b>
<b>Metabolic problems</b>	12	6	<b>.042</b>
<b>Immune system problems</b>	7	3	<b>.049</b>
<b>Skeletal problems</b>	50	36	<b>.005</b>

Bijlengaea, 2013

We were already familiar with a number of domains: depression, burnout, being overweight and therefore also heart disease and diabetes. But the relationship with gastrointestinal complaints such as ulcerative colitis, irritable bowel syndrome and celiac disease, asthma, allergies, autoimmune diseases, muscle and joint disorders such as hypermobility, we did not immediately understand.

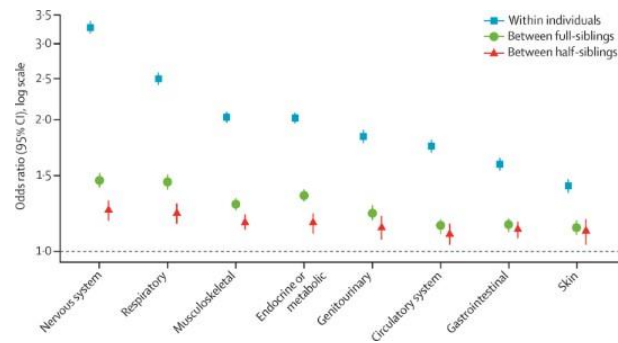
This broad pattern of physical complaints was recently confirmed in 4 large studies. In a Swedish Register study, 34 of the 35 physical diseases examined were significantly more common in ADHD, such as obesity, diabetes, asthma, hypertension, cardiovascular disease, but also sleep disorders, epilepsy, chronic pain, and dementia.

## SwedishRegistry Study

### ADHD & physical conditions

- Adults with ADHD increased risk for most physical conditions (34/35) compared to controls

Du Rietz 2021



This raises questions about possible systemic pathophysiological factors behind this multiplicity of different diseases. Could this be related to the adverse effects of a delayed rhythm and chronic sleep deprivation in ADHD? With insufficient exposure to the protective effect of melatonin due to the short sleep duration? With a failing defense against inflammatory processes, with inflammation itself? The recent evidence of ADHD as a systemic disease is impressive:

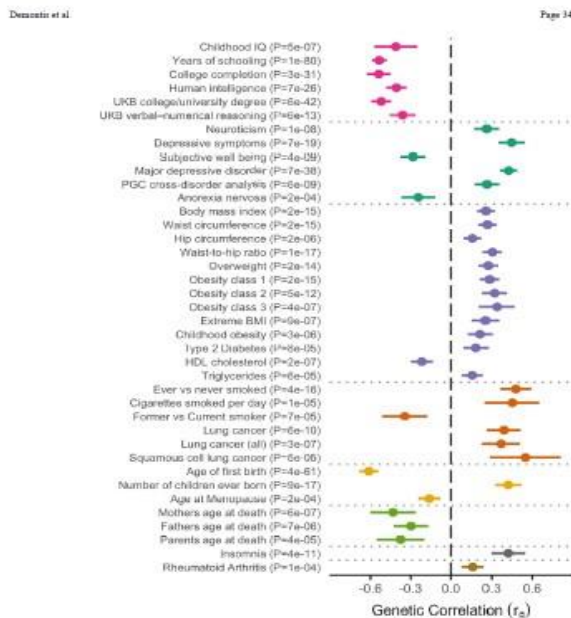


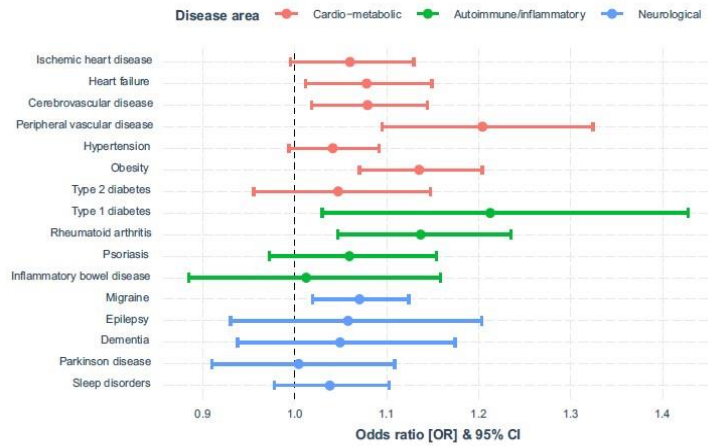
Figure 3. Genetic correlations of ADHD with other phenotypes

Demontis et al 2019

GWAS study in 20,183 diagnosed ADHD cases & 35,191 controls

Genetic correlations of ADHD with other phenotypes



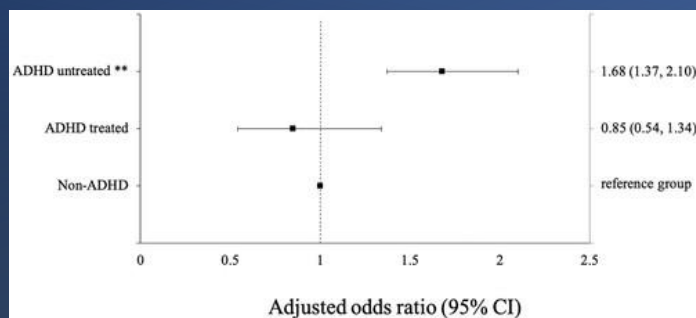


**Fig. 1 Associations of ADHD-PRS and somatic health outcomes.** Present associations between ADHD-PRS and somatic health outcomes defined by combined register and self-reported data. Associations by each ascertained source separately are presented in Fig. S1. PRS, polygenic risk score. OR, odds ratio. CI, confidence interval.

Since the COVID-19 epidemic, ADHD has shown an increased risk of infection with COVID-19, of more severe forms of COVID, of repeated COVID infections and also of long COVID. This points to immune failure in ADHD. Treatment with stimulants for ADHD also appears to reduce the risk of COVID. Do stimulants work on the immune system? We will learn a lot from the COVID epidemic.

### Adjusted odds ratios for being Covid-19 positive in ADHD treated and untreated patients

Merzon2020



## **Elderly people with ADHD**

What would happen if today's adults with ADHD are over 60 and need help for their symptoms? Just like the children who have grown up 25 years ago, they would have nowhere to go in geriatric psychiatry. We could not accept this bleak scenario for our current patients. That is why I was allowed to do screening and diagnosis of ADHD in people over 60 within the LASA population screening at the VU. ADHD was found to occur in 3% of the elderly, and to be associated with similar comorbidity as in younger adults. Marieke Michielsen and Evert Semeijn obtained their doctorates in this field in 2016, and the doctors of the department at PsyQ studied the safety and effectiveness of stimulants in the elderly. This is the start of a new route for the elderly with ADHD, which will hopefully be implemented by geriatric psychiatrists.

## **ADHD & hormonal mood swings in women throughout the life course**

Women with ADHD have more frequent and more severe complaints of premenstrual, postnatal and perimenopausal depression, according to research by PhD student Farangis Dorani. The hypothesis about the pathophysiology is that the drop in estrogen levels in all three periods enhances the relatively low dopamine level in the brain in ADHD, making the symptoms more severe. We are now investigating whether we indeed find ADHD more often in women with premenstrual, postnatal and perimenopausal mood complaints in gynecology outpatient clinics.

## **ADHD and the woman's heart**

When cardiologist Janneke Wittekoek told me at a conference about ADHD in women that she consulted, we decided to screen her patients for ADHD. The screening showed that as many as 35% of the women scored lifelong ADHD symptoms. We will now investigate this very high number further. What is the relationship between ADHD, stress, hormones and cardiovascular disease?

## **H3 Network**

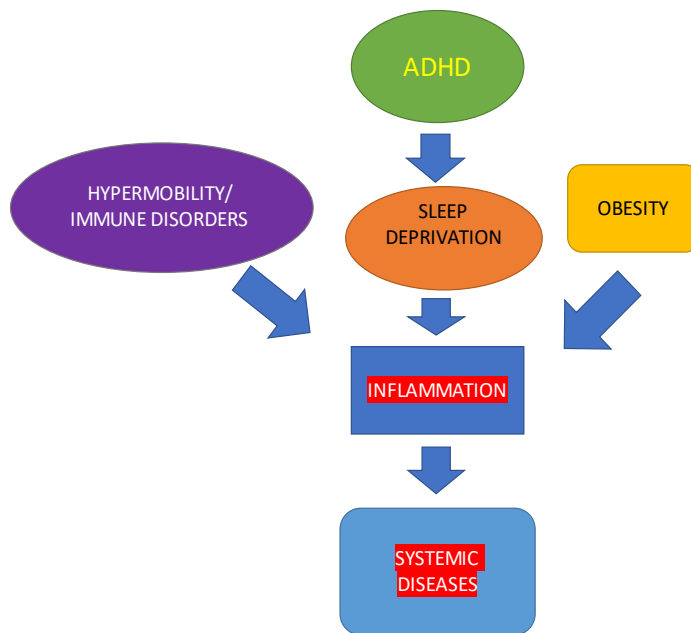
Due to the connection in ADHD between hormonal mood swings and cardiovascular disorders, Dorenda van Dijken, gynecologist at the Onze Lieve Vrouwen Gasthuis, Janneke Wittekoek of the Heartlife Clinics and I, recently set up the Head Heart Hormones (H3) Network, which aims to gain knowledge from all three domains together, conduct research and train colleagues. The aim is to develop an integrated treatment offer for these women, and to save them a tour with long waiting lists along 3 different medical specialities.



The H3 Network Board, Head Heart - Hormones

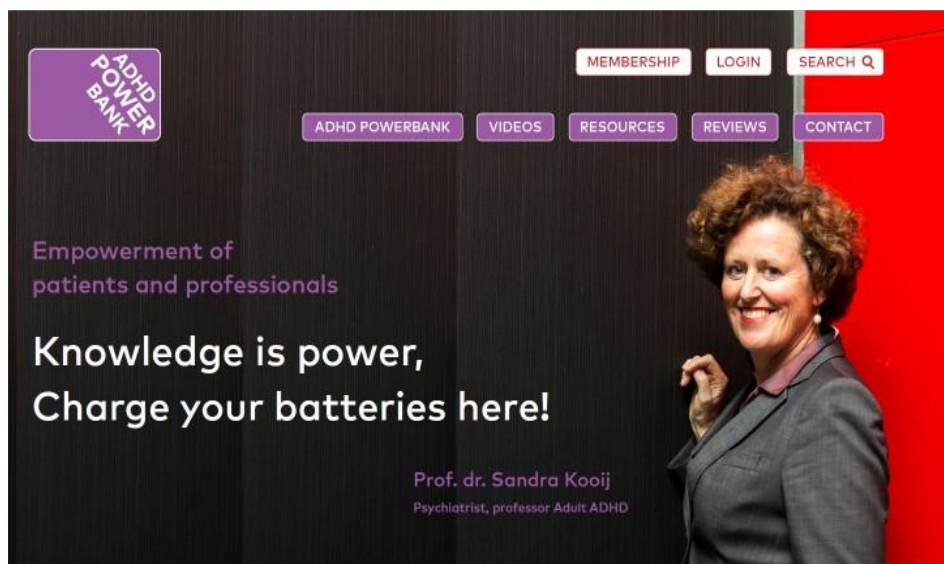
## Finally

At the beginning of my story, I looked back on the still young history of ADHD in adults in the Netherlands, and emphasized the importance of the diagnosis of ADHD for an effective treatment. I have shown that ADHD has many consequences for mental and physical health and that it is Time for ADHD in all health education courses. I have shared new hypotheses and insights about ADHD as a disorder of the 24-hour cycle of the biological clock, where the ADHD behavior represents the daytime manifestation, and the late sleep represents the night time symptoms. We have to ask ourselves whether ADHD should be considered a sleep disorder because of the increased comorbidity with almost any sleep disorder. And how do we explain the association with just about every physical illness in ADHD? It is a fact that synchronization of our inner biorhythm with solar time is of crucial importance for the rhythm of all our organs and therefore for our health. Improving sleep in ADHD could mean prevention of chronic disease, and possibly a better immune response to infection and inflammation. The factors below play a role in ADHD and all lead to inflammation and disease. In the coming years, I will continue to work with my research team to unravel these connections.



I will also be committed to international online education through the recently established ADHDPowerbank: sharing knowledge and experience for the empowerment of patients and professionals.

### EXPECTED: ADHDPOWERBANK



## What's next in mental health care?

And yes, how should Mental Health Care proceed? Diagnostics and treatment are under pressure, costs are skyrocketing and waiting lists are still increasing, while good professionals are increasingly difficult to find. Everyone understands that this is not a sustainable situation. Is the solution then to do no diagnostics and only treat 1 complaint? Cut back on knowledge and innovation? But where should complex patients go if mental health care exists only for primary care patients, because it yields more?

**Super Brains**

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# The e-Health Platform where you are the boss!

**Before Superbrains:** No control, no progress and above all a lot of arguing with your own thoughts.

**After Superbrains:** The boss in your own brains, in charge of your treatment and you have the feeling that you can take on the whole world!

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[What is Superbrains?](#)

My vision is that digitalisation is better than cutting services to the point of extinction, and it is now a necessary new way of treatment. The Covid-19 pandemic accelerated digital treatments. At PsyQ, we work with the Super Brains app, made by developer Rutger den Hollander, who himself lives with ADHD, and our team. Here, the patient is in control. The app provides information with videos, webinars & podcasts, and support from patient groups prior to assessment. There is no longer a waiting list, upon registration at the clinic, the Starter program in the app starts immediately. Thanks to the patient's own control and these digital interventions, the treatment will be more efficient, which means that the waiting list will decrease. Another way to achieve this is more intensive consultation and collaboration with general practitioners.

## Acknowledgments

Without the support of and collaboration with others, none of this story would have been accomplished. I would first like to express my gratitude to all patients who have placed their trust in me during treatment and research, who have inspired me and asked critical questions. This leads to new research ideas to this day. You have taught me what ADHD is, you have inspired and motivated me to never give up on a good idea, and you showed me what the art of living is.

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**Thanks to the Specialist Leaders at PsyQ**

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Marieke Michiels en Evette van der Meij



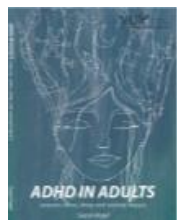
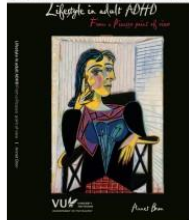
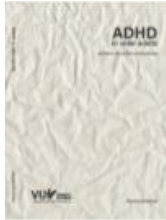
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