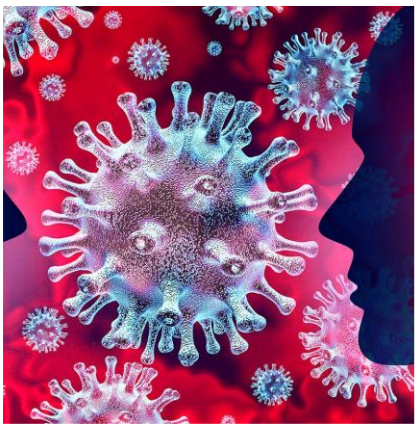
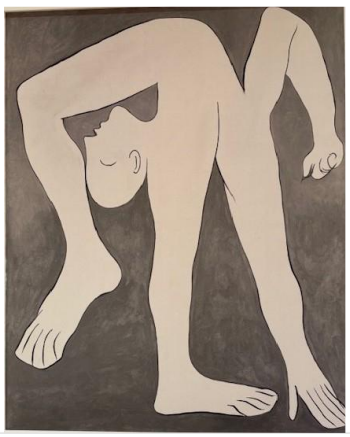
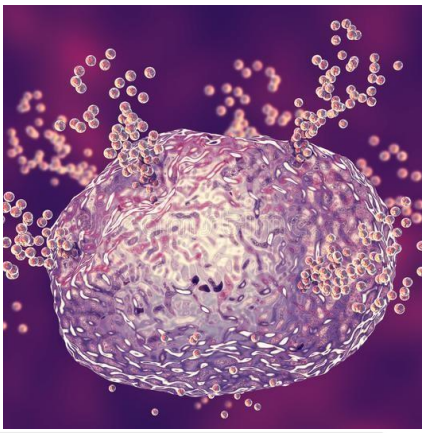
Valedictory speech delivered by Sandra Kooij at the farewell to the position of professor on ‘ADHD in adults’ on behalf of the Parnassia Group, at the Faculty of Medicine, Department of Psychiatry, Amsterdam University Medical Center, on February 12, 2026 (with most slides in Dutch)

ADHD, bindweefsel & inflammatie

Prof. dr. J.J. SandraKooij
Afscheidsrede Amsterdam UMC

12 februari 2026

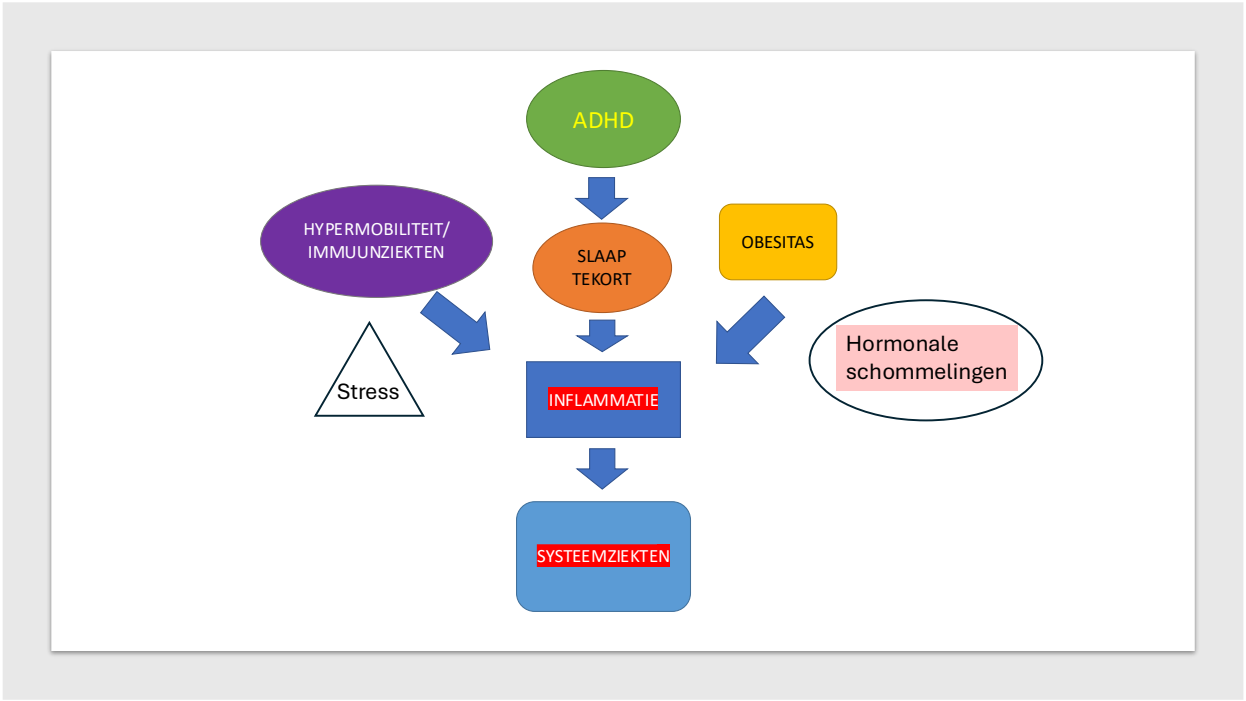
Valedictory speech ‘ADHD, connective tissue and inflammation’

prof. dr. J.J. Sandra Kooij

Honourable Rector, ladies and gentlemen, and all those attending this ceremony via the live stream.

Today, after five years, I am retiring as professor with the special assignment of ‘ADHD in adults’ on behalf of the Parnassia Group, at the Department of Psychiatry of Amsterdam University Medical Center. However, I do not intend to stop yet, as there are too many new developments in scientific research that I will share with you today, and my patients and PhD students still require guidance.

My inaugural speech, postponed by the COVID-19 pandemic until September 30, 2022, was themed ‘Time for ADHD, and ADHD & Time’. Today, we will not be looking back again at my 30-year career doing research to improve the recognition of ADHD in adults, but rather forward to new questions and perspectives on the relationship between ADHD, connective tissue, and inflammation. If we start at the end of my inaugural speech, you saw this image:



On the left and right, two risk factors for inflammation have been added: stress and hormonal fluctuations in women. I would like to continue my story with you from this point.

Is ADHD a systemic disorder?

ADHD is classified under psychiatric disorders in the DSM-5, specifically under neurobiological disorders, along autism and tic disorders, among others. Neurobiological refers to the background of ADHD: ADHD is often hereditary, occurring in families and across generations. There are functional changes in the brain, and neurotransmitters that appear to be dysregulated. Medication that increases these neurotransmitters improves the symptoms.

Wat is ADHD?

There are 3 typical characteristics: chronic concentration problems, and impulsive and hyperactive behaviour. However, this description hardly captures the full picture and does not do justice to the complexity of the often comorbid emotional dysregulation, sensory hypersensitivity, sleep disorders, hormonal mood swings in women throughout their lives, and the broad psychiatric comorbidity with anxiety, depression, bipolar disorder, addiction, autism, tic disorders, personality disorders, and PTSD. This is followed by a long list of consequences of ADHD: underperformance despite good intelligence, relationship and work problems, low self-esteem, fear of failure, indecisiveness, and sometimes criminal behaviour. Everything requires more effort for someone with ADHD, and perfectionism helps particularly women for a while—until the first burnout occurs. Because ADHD is present every day, and it completely exhausts you. We now know that ADHD is also associated with an increased risk of multiple physical conditions: from allergies, asthma, migraine, irritable bowels, food intolerances, obesity, cardiovascular diseases, type I and II diabetes, psoriasis, to dementia, Parkinson's disease, and many more.

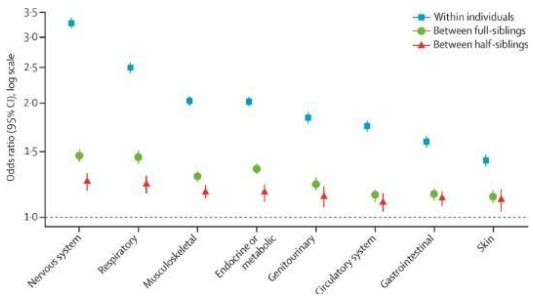
On the following slides you will see overviews of the various diseases that occur more frequently in individuals with ADHD than in control groups:

SwedishRegistry Study

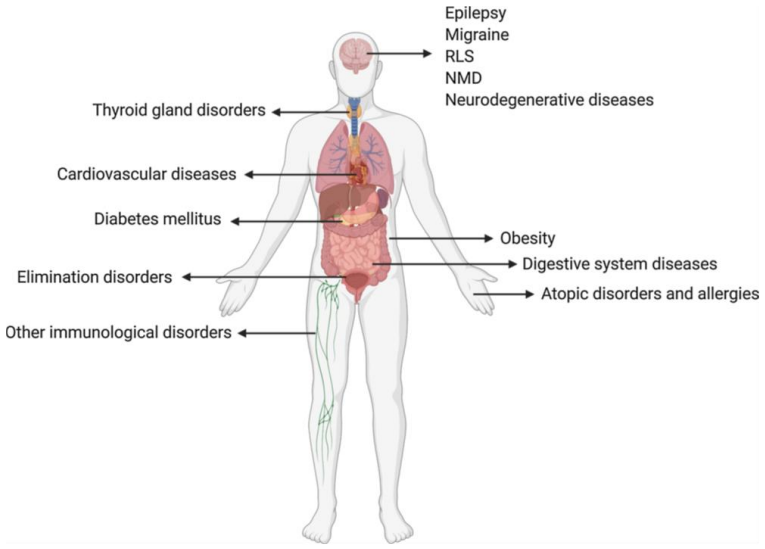
ADHD & physical conditions

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

Du Rietz 2021



Diseases potentially associated with ADHD



Kittel-Schneider 2022, narrative review

M. Garcia-Argibay et al. 2022 : **Polygenic Risk Scores and somatic health outcomes**

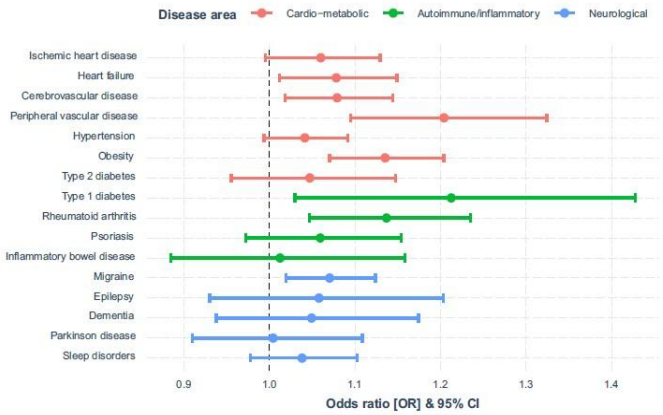
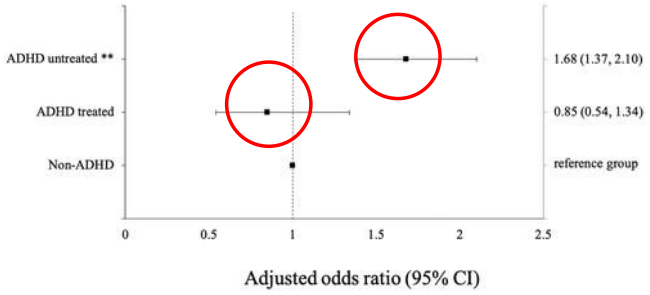


Fig. 1 Associations of ADHD-PRS and somatic health outcomes. Present associations between ADHD-PRS and somatic health outcomes defined by combined register and self-reported data. Associations by each ascertained source separately are presented in Fig. S1. PRS, polygenic risk score. OR, odds ratio. CI,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

Also the risk of COVID-19 was found to be increased in people with ADHD by 68%, but strikingly, the risk decreased to below average when ADHD was treated with medication. This raised the question of a potential anti-inflammatory effect of stimulants.

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

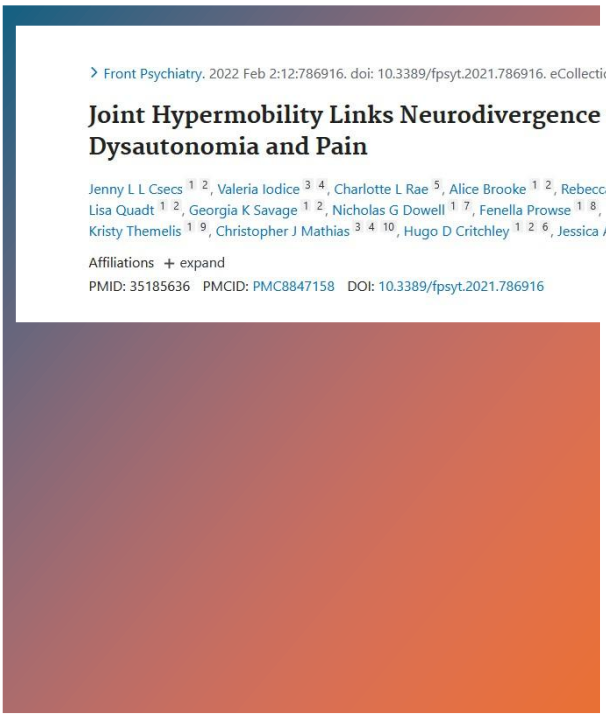
Merzon 2020



When I first learned five years ago how many diseases occur in ADHD, I was overcome with a feeling of wonder and of powerlessness: how could there be so many different diseases throughout the entire body, what was the common denominator, what could explain this? Chronic sleep deprivation and an unhealthy lifestyle, which certainly contribute, could not be the whole story behind this multitude of systemic symptoms. Some young patients were angry with me when I painted this bleak picture, yet older patients unfortunately all too often recognised it in themselves and their family members. I wanted to investigate this further, because how else can patients ever have a better life?

The beginning of a new way of thinking was introduced to me during a conference in 2022 in Tel Aviv, where the English psychiatrist James Kustow discussed recent research on the relationship between hypermobility, or weak connective tissue, dysautonomia or dysregulated blood pressure, and mast cell activation syndrome—that is, allergies, inflammation, and immune

diseases. The study showed that these phenomena occur in about 50% of neurodivergent individuals, meaning people with ADHD, tic disorders, and autism. These topics were outside my field of vision, and at first, I could not believe it. Because if it occurred that frequently, surely I would have known about it with my 30 years of clinical experience?



Front Psychiatry. 2022 Feb 2:12:786916. doi: 10.3389/fpsyt.2021.786916. eCollection 2021.

Joint Hypermobility Links Neurodivergence to Dysautonomia and Pain

Jenny L L Csecs [1 2], Valeria Iodice [3 4], Charlotte L Rae [5], Alice Brooke [1 2], Rebecca Simmons [6], Lisa Quadt [1 2], Georgia K Savage [1 2], Nicholas G Dowell [1 7], Fenella Prowse [1 8], Kristy Themelis [1 9], Christopher J Mathias [3 4 10], Hugo D Critchley [1 2 6], Jessica A Eccles [1 2 6]

Affiliations + expand

PMID: 35185636 PMCID: PMC8847158 DOI: 10.3389/fpsyt.2021.786916

Conclusie:

50% van groep volwassenen met neurobiologische ontwikkelingsstoornissen (ADHD, autisme, tics) had hypermobiele gewrichten

(OR 4.51 vergeleken met algemene bevolking UK)

62% had ADHD

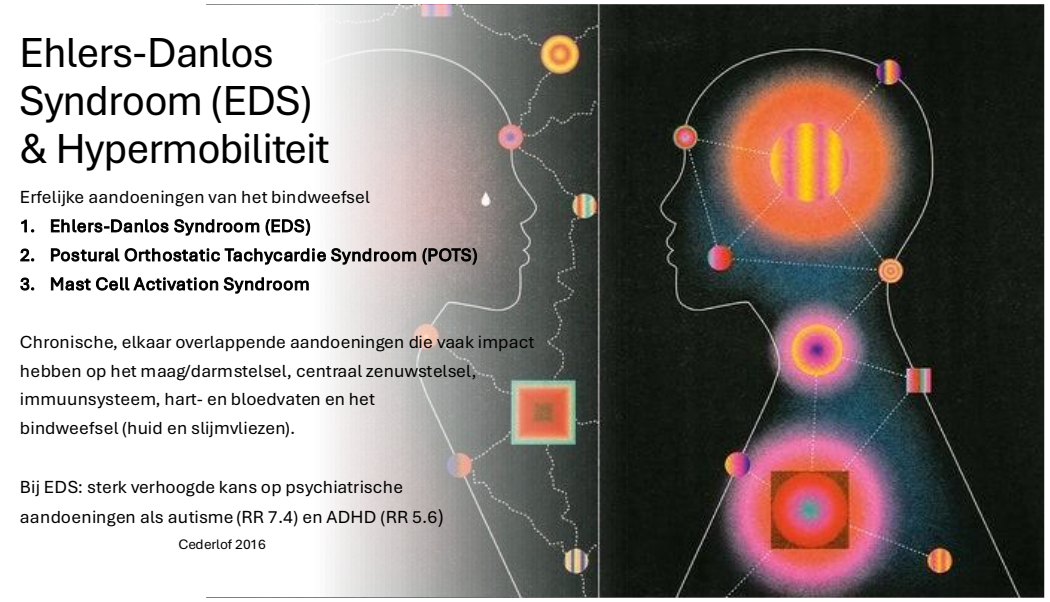
To learn more, I screened every new ADHD patient for a while using a questionnaire on hypermobility, dysautonomia, and mast cell activation syndrome. What emerged was that well over 50% of my patients recognized themselves and also family members in the symptoms, and they were profoundly moved that I asked about this. They had already seen so many different specialists, and no one had ever made these connections. They felt seen and acknowledged.

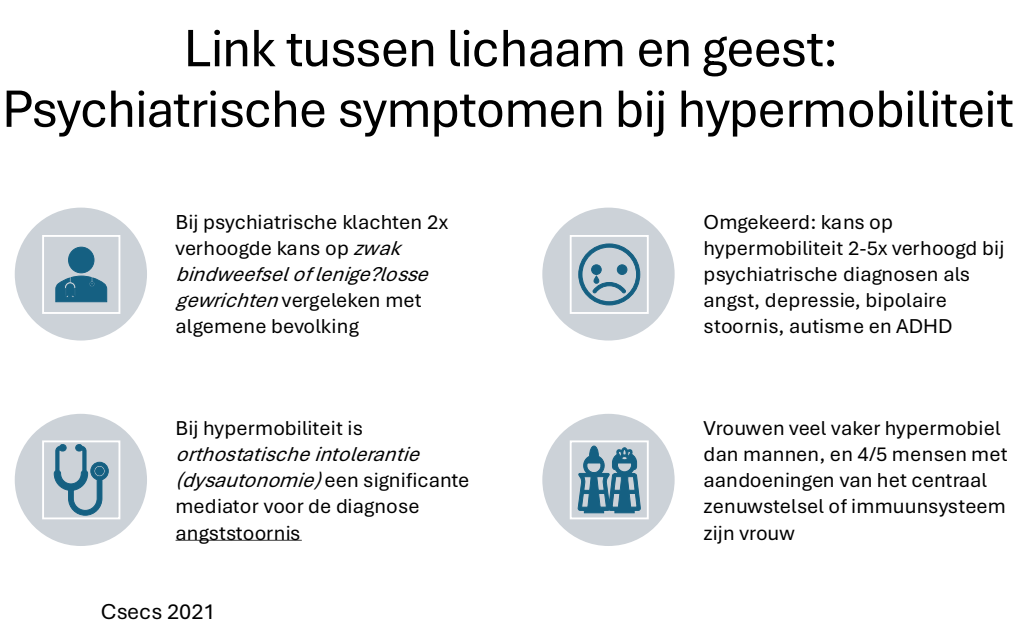
Later, I understood why I had not seen the connection: I did not ask about it, because I was unaware of the connection. The separation between body and mind still dominates medicine since Descartes; the body is not the psychiatrist's domain, but that of the general practitioner and internist. Patients did not tell me about their physical complaints because, as a psychiatrist, I probably was less knowledgeable. This way, a dominant problem for my patients could remain unnoticed by me for years. In my opinion, it is time to abolish the division between body and mind, and I suspect that the consequences of the COVID pandemic will accelerate this process.

I received more questions from my patients than I could answer, especially about what could be done about all those complaints, injuries, and inflammations. For that, I first had to study. I would like to take you with me on my journey of discovery: what exactly is this all about?

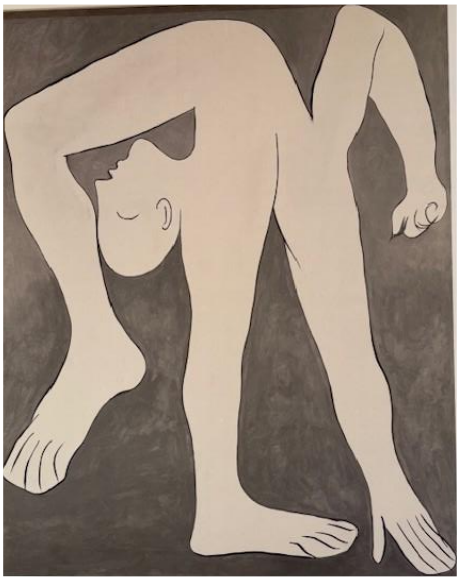
'The mind is embodied' says Sharp, which sounds somewhat strange if you are used to Descartes' thinking; there it is rather 'mind over matter'. But is the mind really in control? What if this is not always true, and the body envelops the mind? Phenomena such as hypermobile

connective tissue, affecting the heart and blood vessels, gastrointestinal tract, and central nervous system, are associated with hypermobility and Ehlers-Danlos syndrome, which represents the most severe form of hypermobility:





There is clearly a higher risk of psychological complaints in Ehlers-Danlos syndrome and hypermobility. But what exactly is it, and how is it diagnosed?



Picasso

Cirque du Soleil 2025

In its most extreme form, hypermobility can be seen with the naked eye in art and in the circus. Hypermobility can easily be assessed using the validated following five questions:

Beighton score

1. Rug, heupen: de handpalmen kunnen plat op de grond worden geplaatst, wanneer het bovenlichaam voorovergebogen wordt en de knieën hierbij gestrekt blijven.
2. Elleboog: > 10° hyperextensie.
3. Knie: > 10° hyperextensie
4. Duim: de duimtop kan de onderarm raken bij maximale passieve ventraalflexie in de pols en oppositie van de duim.
5. Pink: met de handpalm plat op tafel > 90° passieve extensie in MCP5.

Hypermobiliteit vanaf 2/5 positieve criteria

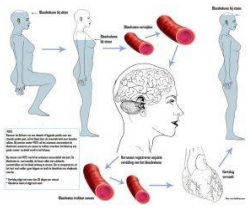
Illustratie van de Beighton criteria:

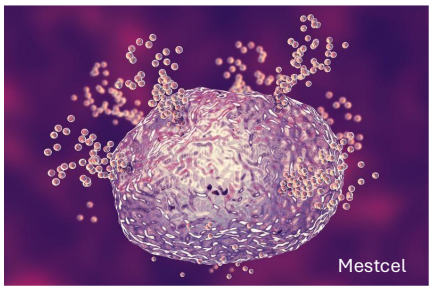
Hypermobility is accompanied by dislocations, frequent injuries, recurrent hernias, chronic pain, a velvety smooth skin, prolapses, inguinal hernias, premature birth, sleep apnoea, and much more. Hypermobility often co-occurs with dysautonomia and mast cell activation syndrome. I will briefly explain both.

Hypermobiliteit – Ehlers-Danlos

Dysautonomie &

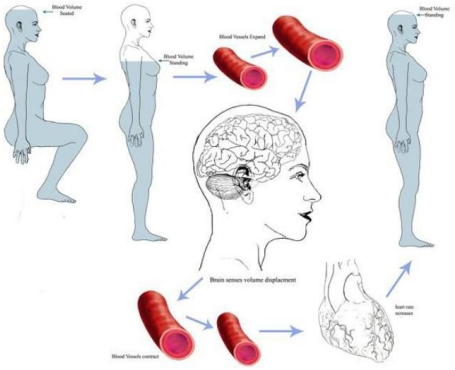
Mestcel Activatie syndroom





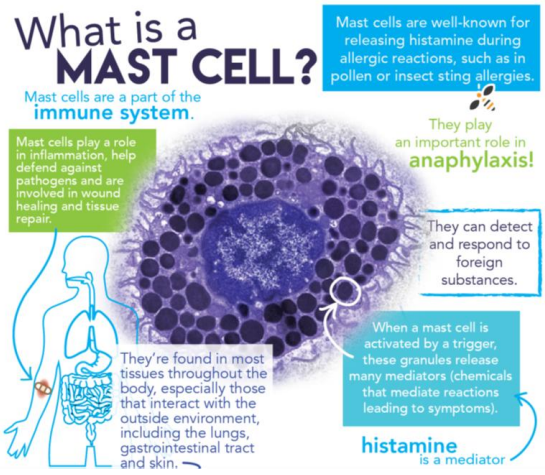
Orthostatische hypotensie/ dysautonomie /POTS

- Lage bloeddruk, duizelig bij opstaan/zitten (neiging tot) flauwvallen
- Met hartkloppingen door cardiale compensatie wisselende/lage bloeddruk: POTS
- Dysautonomie: ontregelde functie bloedvaten
- Veneuze pooling bloed in benen
- Te weinig bloed terug naar brein: cognitieve klachten, moeheid & angst/paniek
- Verhoogde gevoeligheid voor lichamelijke sensaties (interoceptie)



Hypermobiliteit en Mestcel Activatie Syndroom

- **Immuunsysteem:** huid, slijmvliezen, immuuncellen, & brein nauw verbonden
- **Bloed-hersenbarriere**: bestaat uit bindweefsel (bloedvaten, endotheel). Zwak endotheel is *doorlaatbaarder* voor allergenen, virussen en bacteriën bij hypermobiliteit
- **Mestcellen *overactief***: geven histamine en cytokines af: allergie, urticaria, droge huid/jeuk, eczeem, voedselintolerantie, overgevoelig bijwerkingen medicatie, licht en geluid, tinnitus, gehoorproblemen, prikkelbare darm, migraine, astma, artritis, cystitis, endometriose, …



When inflammation occurs in response to a wound or infection, the immune system helps resolve it by sending inflammatory cells and mast cells to that site. In medicine, we learn that

inflammation causes redness, fever, swelling, pain, and loss of function. This is clearly visible on the outside with an insect bite or a wound. Similar phenomena can occur internally in the intestines, bladder, ears, or lungs, but also in the brain if the inflammation manages to penetrate there. And this happens more easily in hypermobility and mast cell activation syndrome. The blood-brain barrier, which is supposed to prevent this, becomes more permeable to viruses, bacteria, and allergens. And if the brain becomes infected, resulting in swelling and inflammatory cells, psychiatric symptoms can arise: anxiety, depression, ADHD, autism, bipolar disorder, and more. Immunologist Prof. Hemmo Drexhage describes this connection in his book 'Immuno-psychiatry'.

Verhoogde permeabiliteit bloed-hersen barriere

Kan optreden door uiteenlopende factoren:

- Slaaptekort
- Verstoorde balans darmbacteriën
- Allergie/infecties
- Mestcel activatie
- Stresshormonen (CRH)
- Psychologische stress /trauma

Theodarides 2004,2012; Wang 2020; Zierau 2012; Weinstock 2025

When you look at these factors, people with ADHD tick almost all of the boxes…

It is actually quite unsettling that the brain, that 'little box, that you must not open, only gently, gently touch', as Leo Vroman says in the poem 'Mens' ('Human'), can be more accessible and unprotected in people with weak connective tissue, with all the consequences that entails. So are these indications present? Below you can see which manifestations are associated with hypermobility:

Hypermobiliteit/ afwijkend collageen

- **Huid**: blauwe plekken, striae, dermatografie, droge slijmvliezen, glaucoom, myopie, convergentie zwakte
- **Maag/darm**: prikkelbare darm, colitis ulcerosa, coeliakie, aambeien, prolaps, diverticulitis, hernia diafragmatica, snurken, slaapapneu
- **Spieren/gewrichten**: te lenig, luxaties, spierzwakte, blessures, hernia's, chronische pijn

Mestcel Activatie Syndroom

Triggers: virus, bacteriën, parasieten, schimmel, stress, fysieke druk, wonden, insecten, zonlicht …

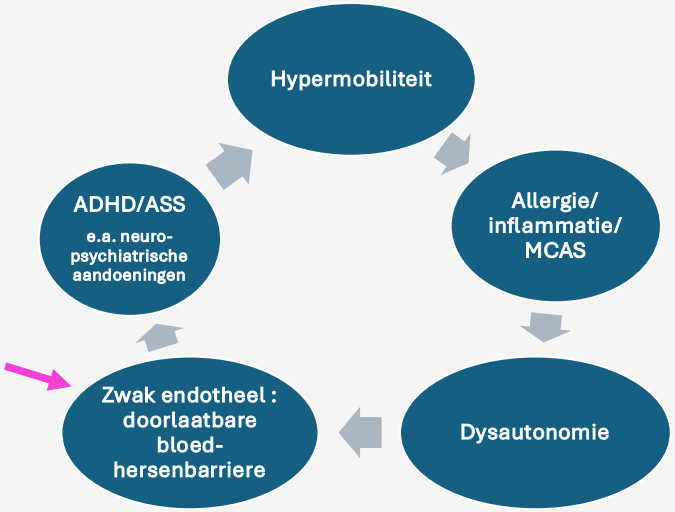
Dysautonomie

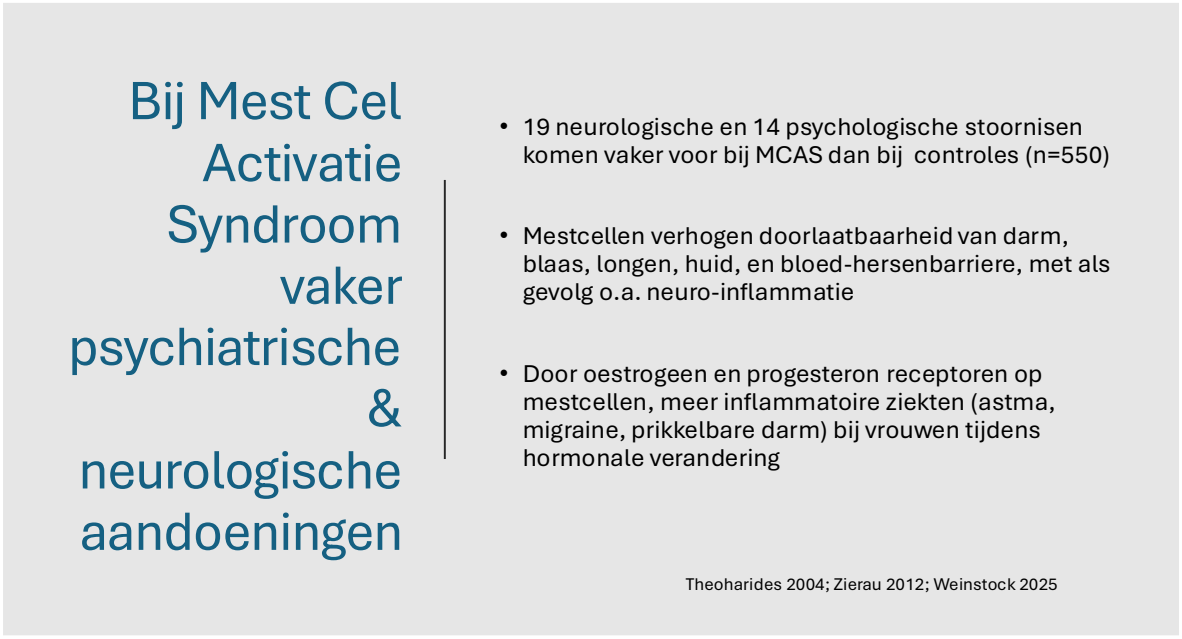
Dysfunctie bloedvaten:

- Orthostatische hypotensie
- Labiele bloeddruk, POTS, collaps, duizeligheid, hartkloppingen
- 'Brainfog': afwijkend collageen bloedvaten, incl. bloed-hersenbarriere)
- Raynaud
- Migraine
- Misselijk

- Allergie, astma, voedselintolerantie, IBS
- Jeuk, uitslag, eczeem, urticaria
- Temperatuur intolerantie, zweten
- Slikproblemen
- Oedeem, zwelling slijmvliezen
- Overgevoeligheid voor licht en geluid, medicatie, insectenbeten
- Gehoorverlies, tinnitus
- Sinusitis, bloedneuzen
- Blaasontsteking
- Endometriose
- Artritis
- Herhaaldelijk infecties, w.o. EBV, COVID-19, Lyme, Immuno-deficientie, Auto-immuun ziekten
- **(Neuro)inflammatie**: angst, depressie, 'brainfog', concentratieproblemen, prikkelbaarheid, onrust, geheugen problemen, hoofdpijn …

Connecting the dots …





The answer is yes, the psychiatric symptoms that can arise from neuroinflammation in this syndrome, closely resemble ADHD, with restlessness, concentration and memory problems, irritability, and accompanying anxiety and depression. Now the question is: can an ADHD-like picture also arise from viral inflammation in the brain? Wasn't ADHD primarily genetically determined? Yes, ADHD remains genetically determined, just like hypermobility and susceptibility to infections, as a matter of fact. It seems that the predisposition for ADHD can be exacerbated by hypermobility and infections. Perhaps this may also explain why some people escape the condition in families where ADHD is common.

ADHD in women

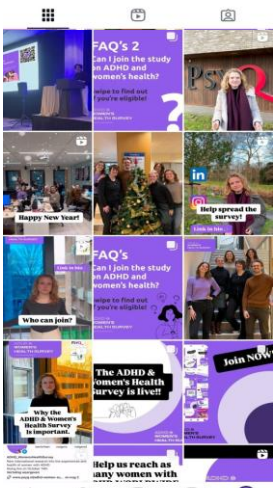
Women with ADHD are still underdiagnosed, recognised late, and consequently suffer unnecessarily from their many complaints. And this is the recent ADHD Barbie: I must say she looks very accurate... and the phrase 'She was not difficult, she was undiagnosed' hits the nail on the head.

ADHD bij vrouwen

Na Autisme Barbie
volgt ADHD Barbie …

- **Wat:** internationale online survey (NL/ENG)
- **Wanneer:** 07-2024 t/m 06-2025
- **Wie:** vrouwen met ADHD > 18 jaar
- **Hoe:** social media, netwerken

Geïncludeerd	Nº huidige data
5892	4111



Maxime de Jong, Emma van Andel, i.s.m. patiëntenorganisatie ADHD Europe

PhD candidate Maxime de Jong and dr. Emma van Andel conducted the international ADHD & Women's Health Survey, surveying over 4,000 women about their mental and physical health, experiences with healthcare, and much more. The study also investigated whether it is true that women with ADHD are much more likely to have hypermobility, dysautonomia, and infections/inflammations/allergies than average.

Bindweefsel & Inflammatie

4111

Huidige studie

Hypermobiliteit – 48%
- **21% diagnose** bindweefselproblematiek
  - Hypermobiele gewrichten – 13%
  - Hypermobiele Spectrum Stoornis – 10%
  - Ehlers-Danlos syndroom – 2%
  - Bindweefsel ziekte – 1%
- **44%** positieve score Beighton screener (≥ 2 *van 5*)

Beighton score

1. Rug, heupen: de handpalmen kunnen plat op de grond worden geplaatst, wanneer het bovenlichaam voorovergebogen wordt en de knieën hierbij gestrekt blijven.
2. Elleboog: > 10° hyperextensie.
3. Knie: > 10° hyperextensie
4. Duim: de duimtop kan de onderarm raken bij maximale passieve ventraalflexie in de pols en oppositie van de duim.
5. Pink: met de handpalm plat op tafel> 90° passieve extensie in MCPS.

Hypermobiliteit vanaf 2/5 positieve criteria

Dysautonomie – 82% (vanaf 2 kenmerken:)
- Hartkloppingen – 31%
- Duizeligheid – 36%
- (Bijna) flauwvallen 16% ⇨ Gem. 1.9 kenmerken per persoon
- POTS – 4%
- Labiele bloeddruk en pols 5%
- Temperatuur schommelingen – 62%
- Verminderde inspanningstolerantie 35%

Inflammatie – 97% énige diagnose of symptoom:
- 95% enige diagnose
- 76% enig symptoom ⇨ Gem. 5.5 diagnoses of symptomen per persoon

Simpson MAJ. Benign Joint Hypermobility Syndrome: Evaluation, Diagnosis, and Management, 2006;106:531-6.

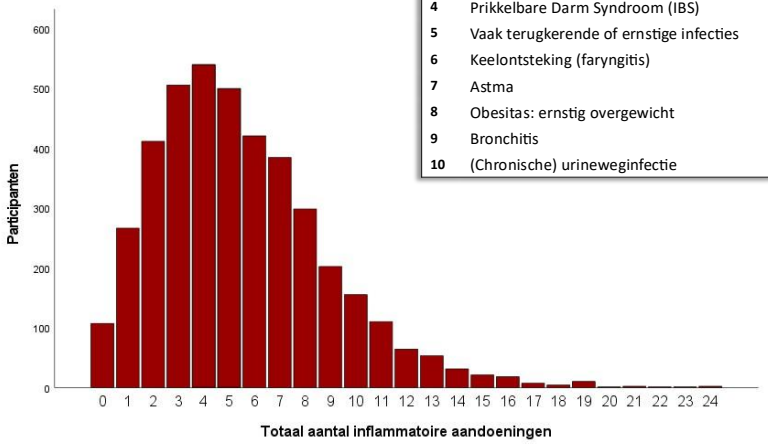
Gem. 41,5 jaar
Cis-vrouw 97%
Wit/kaukasisch 87%
Werkend 82%
Hoger opgeleid 78%

Gem. 1,7 comorbide psych. aandoening

ADHD & WOMEN'S HEALTH SURVEY

The initial results confirm the hypothesis: of the 4,111 women, 48% report hypermobility, 82% dysautonomia, and 97% even inflammatory symptoms or diagnoses, with an average of 5.5 per person. The specific inflammatory conditions involved are listed here:

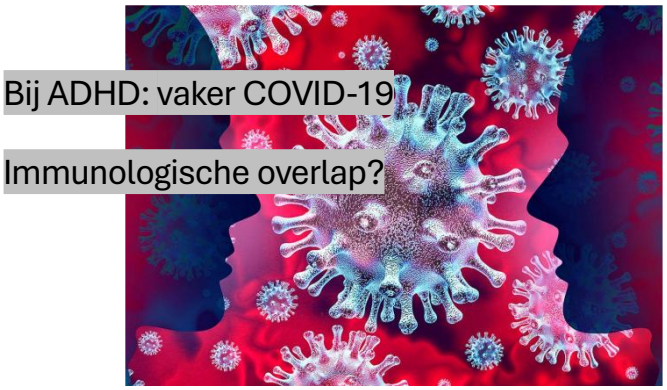
ADHD & WOMEN'S HEALTH SURVEY



	Top 10 – Inflammatoire aandoeningen	
1	Eczeem / dermatitis / dyshidrose	38%
2	Blaasontsteking	35%
3	Migraine	34%
4	Prikkelbare Darm Syndroom (IBS)	28%
5	Vaak terugkerende of ernstige infecties	24%
6	Keelontsteking (faryngitis)	23%
7	Astma	22%
8	Obesitas: ernstig overgewicht	22%
9	Bronchitis	21%
10	(Chronische) urineweginfectie	14%

Further research will explore the interrelationships and risk factors in more detail.

ADHD and COVID



In line with the increased susceptibility to infections, people with ADHD also contract COVID and long COVID more frequently. Long COVID, by the way, is not related to the lungs, but to the *prolonged* symptoms following a COVID infection. The relationship between COVID and ADHD was already evident in the first year of the pandemic from a large Israeli cohort study:

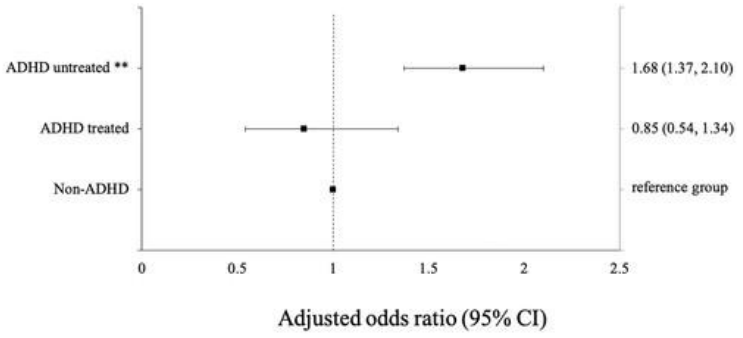
J Atten Disord. 2020 Jul 22;1087054720943271. doi: 10.1177/1087054720943271.
Online ahead of print.

ADHD as a Risk Factor for Infection With Covid-19

Eugene Merzon [1 2], Iris Manor [2 3], Ann Rotem [3], Tzipporah Schneider [4], Shlomo Vinker [1 2], Avivit Golan Cohen [1 2], Ari Lauden [1], Abraham Weizman [2 3 5], Ilan Green [1 2]

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

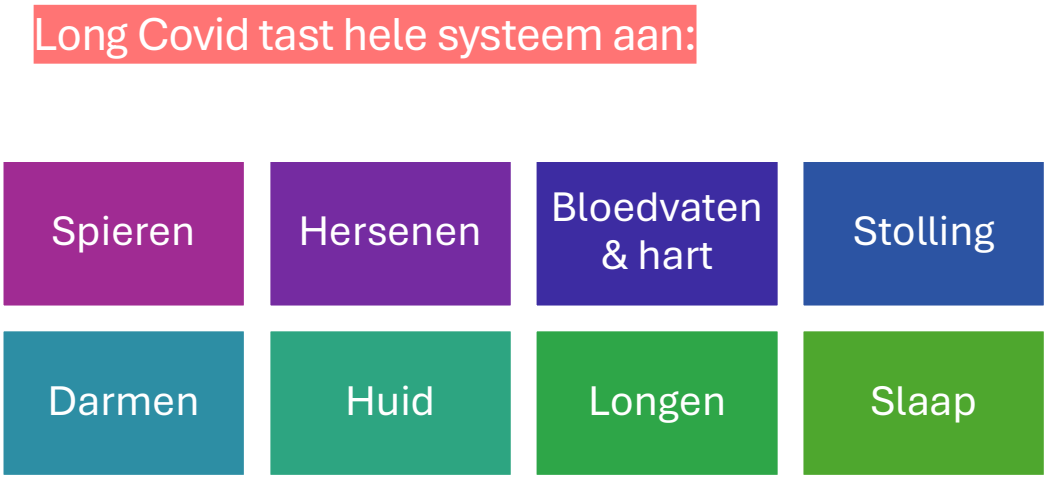
Merzon 2020



The study also showed that medication for ADHD had a protective effect against contracting COVID: the risk of COVID was 68% higher in people with ADHD, but normalised to average levels in those who used medication. This is interesting because the anti-inflammatory effect of ADHD and other psychiatric medications, such as SSRIs and melatonin, had not been established before. It confirms the potential inflammatory background of ADHD and other psychiatric disorders.

Long COVID

Long COVID very closely resembles Mast Cell Activation Syndrome (MCAS) and falls under the category of PAIS, post-acute infectious syndromes, along with ME/CFS, Q fever, chronic Lyme disease, post-influenza, post-sepsis, and post-legionella syndrome.



We speak of Long COVID when, three months after infection with the COVID virus, there is no improvement and symptoms actually worsen. Long COVID is a multisystem disease in which the blood vessels, brain, muscles, intestines, hormones, coagulation system, and mitochondria (the cell's energy centres) no longer function properly due to chronic inflammation. Sleep is also often disturbed, preventing recovery.

Risk factors for Long COVID include being female, pre-existing hay fever, asthma, urticaria, fibromyalgia, chronic fatigue or ME/CFS, infection with herpes zoster, Pfeiffer's disease, hypermobility, and psychiatric disorders such as ADHD, anxiety, and depression. The blood-brain barrier becomes more permeable as a result of COVID; in addition to a 'leaky gut,' there is also a 'leaky blood-brain barrier', as shown by brain scan research.

‘Brain fog’ bij Long Covid geassocieerd met dysfunctie bloed-hersenbarriere

Hersenscan: herstelde patienten versus LC met /zonder brainfog (n=76)

- Verhoogde permeabiliteit: ‘leaky blood-brain barrier & leaky bloodvessels’ bij Long Covid patienten + brainfog: toename volume cerebrospinale vloeistof
- Afname hersenvolume: dunnere cortex
- Continue systemische inflammatie: toename immuuncellen, cytokines and inflammatoire markers bij patienten met brainfog
- Associatie met anosmie (verlies reuk)
- Ontregelde stolling en beschadigd endotheel

Greene 2024

The COVID virus itself can remain chronically present in the gut, posing a risk of flare-ups of the infection, for example, when someone exerts themselves more than their body can handle, also known as PEM, post-exertional malaise. Therefore, patients must limit their exertion, a strategy called pacing, otherwise a setback follows. Approximately 90,000 people with Long COVID lie in bed in the dark, with earplugs in, to minimise sensory stimuli because they are so seriously ill. In total, it is estimated that 500,000 people in the Netherlands are affected by Long COVID. Sex hormones become dysregulated in both women and men, with possible consequences for sexuality and fertility.

It is time for us to recognise what this desperate mother demonstrated at the Malieveld during the PAIS protest on November 30, 2025: Doctors, it is NOT all in our heads!

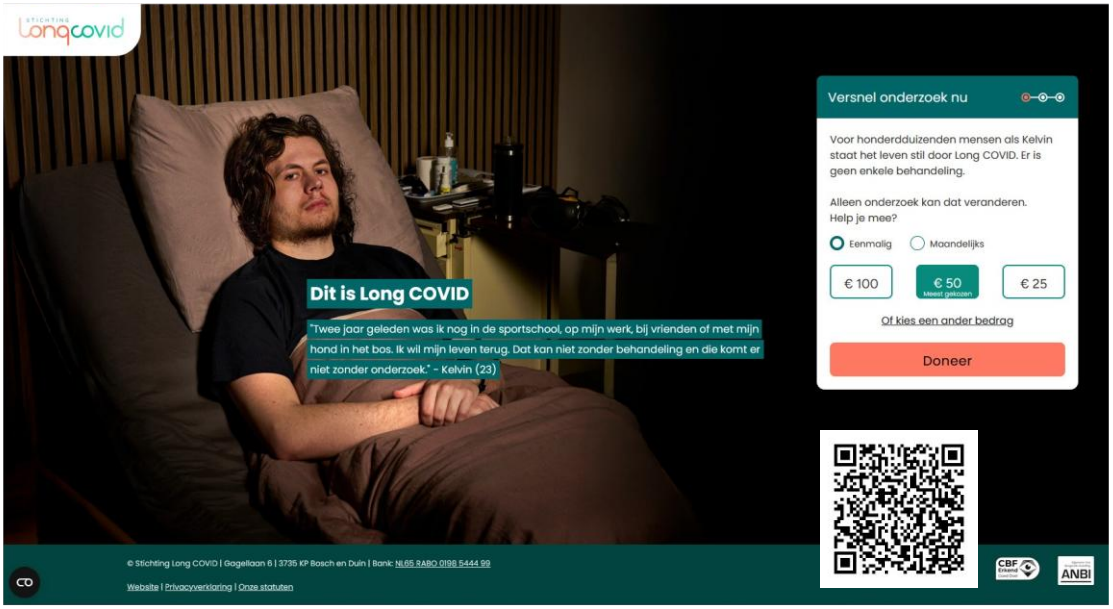
#NIETHERSTELD

PAIS Protest

Malieveld, 30 November 2025

Our lack of knowledge and concern for this overlooked group of patients, who struggle to advocate for themselves, makes them more chronic, more ill, and deeply desperate. Moreover, they fall prey to well-meaning but misguided advice, such as being told to exercise more. The

Dutch Employee Insurance Agency (UWV) does not know how to handle this when medicine provides no clear answers, resulting in severely ill individuals being considered fit to work. Consequently, they unjustly lose their benefits and can no longer afford the necessary care. This severe injustice continues because, two weeks ago, the Minister of Health, Welfare and Sport announced plans to cease patient support via C-support, and withdraw funding for newly initiated research. As long as it is not sufficiently recognised that PAIS patients suffer from a systemic disease that devastates their lives and urgently requires biomedical research and treatment, over 500,000 people in our country are literally abandoned by both God and man.



The Long COVID Foundation is making brave efforts to raise funds for research, a campaign I wholeheartedly recommend. €750,000 is needed. You will understand, most people with Long COVID have limited resources.

Treatment options

Interestingly, medication for MCAS also improves immune-related psychiatric symptoms. This medication could also hold promise for the treatment of Long COVID:

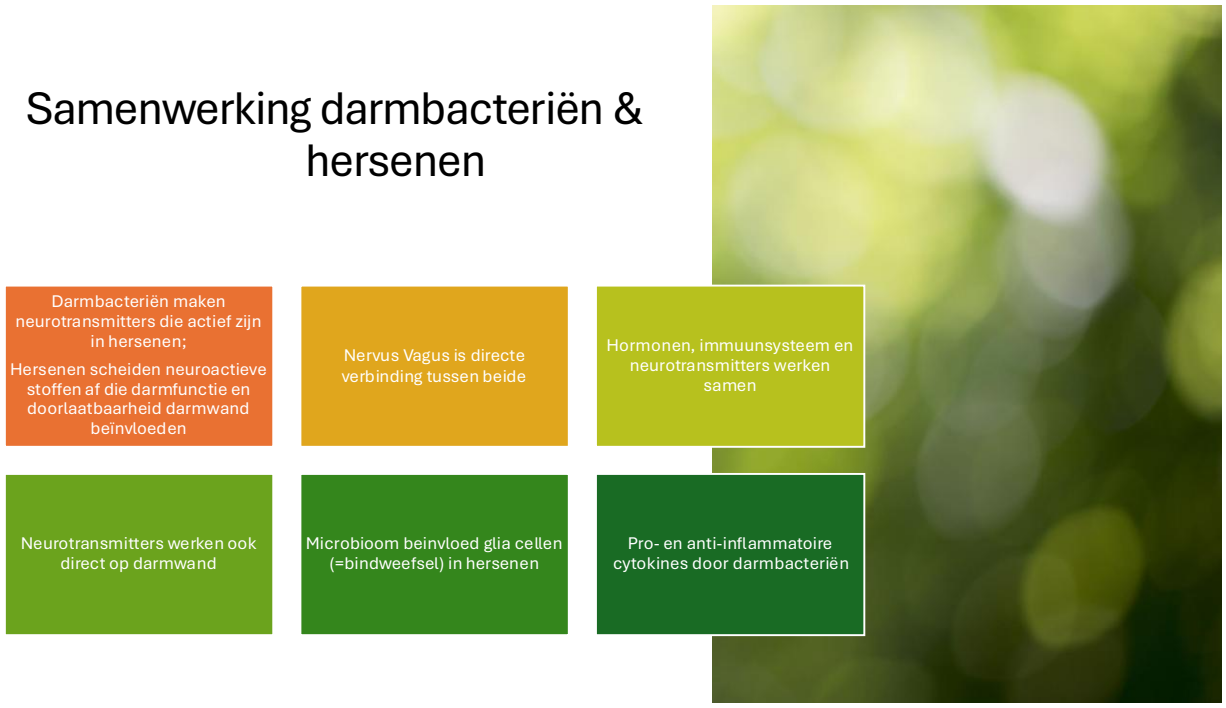
MCAS therapie verbetert behalve MCAS symptomen, ook neuropsychiatrische symptomen

- Antihistaminica
- Omalizumab
- Corticosteroiden
- Low dose naltrexon
- IV IG
- Antibiotica
- Zileuton
- Vit D
- Probiotica

- NB - Microbioom/dieet vermindert doorlaatbaarheid darm en BHB!

Lemal 2019; Weinstock 2025

And then there is also the influence of gut bacteria on brain function, and vice versa—the 'brain-gut connection', which may be influenced by diet:



Behandeling van MCAS bij ADHD: symptomatisch

- POTS: compressiekousen, zout
- Prikkelbare darm: anti-histaminerg dieet
- Allergie: anti-histaminica, anti-histaminerg dieet
- Ontstekingsremmers tegen MCAS
- Bescherming tegen luxaties/versterken gewrichten
- De pil/hormoontherapie ter vermindering inflammatie
- Behandeling depressie/angst/brainfog/ADHD/slaap: o.a. SSRIs, stimulantia, melatonine. Blijken alle anti-inflammatoir!

Conclusion

Is this the end of psychiatry? If indeed 'the brain is embodied', the distinction between body and mind, psychiatry and physical diseases, seems at least partly outdated.

ADHD and also other psychiatric disorders are strongly associated with weak connective tissue or hypermobility, which makes one vulnerable to a wide range of physical conditions, ranging from hernias to allergies, asthma, injuries, pain, irritable bowels, and chronic fatigue, as well as repeated viral and other infections, including COVID and Long COVID. All these factors reinforce each other. We can conclude that ADHD may be a systemic disease, much more than just a behavioural disorder or psychiatric condition; through the connection with hypermobility and inflammation, much multimorbidity may be explained.

Much more research is necessary, and what this means for the treatment of ADHD as a systemic disorder, and for the treatment of other psychiatric disorders, is the next question for scientific research, which can only benefit from a broader, immunological perspective on physical and mental symptoms.

It is time to abolish the separation between body and mind; it hinders our understanding and the ability to ask the right questions to find better treatments for both psyche and soma.

In closing

Eerste ADHD team 2003

Landelijke PsyQ ADHD-dag 2023

I would like to sincerely thank the team of the outpatient PsyQ clinic ADHD in adults and older people, with whom I have had the privilege to share this entire journey since 2003—first alone in The Hague, and later nationwide, with growing numbers. I have enjoyed it immensely! Such hard work we have done, and with great pleasure, developing care for people with ADHD and putting it on the map! Thank you all for your dedication and trust! I wish you an inspiring journey ahead under the leadership of the management team Marije Simsic and Robert den Ouden, together with dr. Dora Wynchank, my successor.

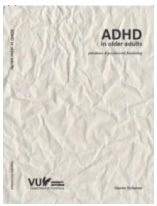
Promoties

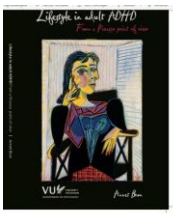
Marieke Michielsen en Evert Semeijn

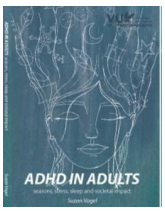
Annet Bron & Suzan Vogel

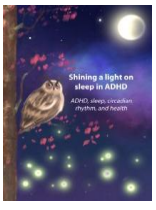
Dora Wynchank

Emma van Andel



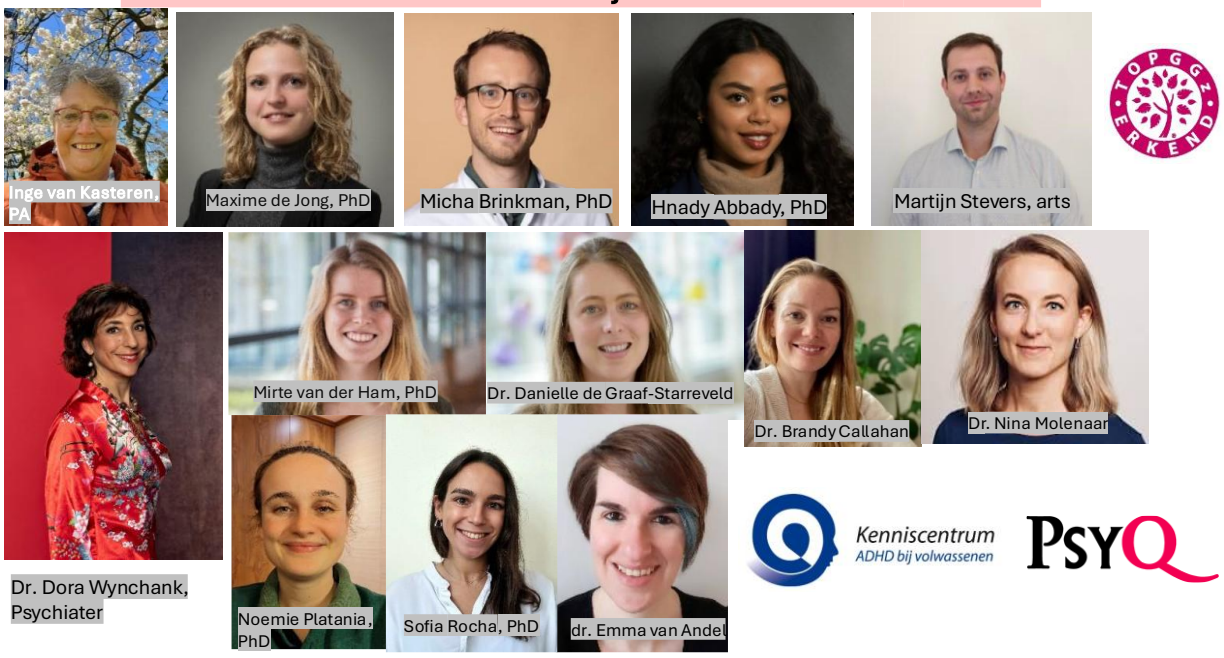






Thanks to the PhD candidates from the very beginning: Evert Semeijn, Marieke Michielsen, Annet Bron, Suzan Vogel, Dora Wynchank, and Emma van Andel, who enriched science with research on ADHD in older people and on ADHD and sleep.

Team Kenniscentrum ADHD bij volwassenen en ouderen



I am proud of my amazing team of PhD students and senior researchers at the Expertise Center Adult ADHD at PsyQ. You inspire me every day with new questions and possible solutions, I am still learning so much from you! We will continue to work closely together in the coming years. Thanks to Inge van Kasteren, my management assistant, without whom the Expertise Center could not exist! Maxime de Jong, a passionate researcher on ADHD in women, including the online survey on women and ADHD. Micha Brinkman researches ADHD, hypermobility, and endothelial dysfunction in women with cardiovascular disease at the Heartlife clinic of Janneke Wittekoek and in the NESDA study. Hnady Abbady will conduct the validation study of the new DIVA-5-Revised and develop an AI version of the DIVA-5-R. Martijn Stevers studies the severity of ADHD in the first and second halves of the menstrual cycle. I am very grateful for my colleague, psychiatrist Dr. Dora Wynchank, who came from South Africa to the Netherlands as a researcher to pursue her PhD with me, and is now my successor in research, education, and patient care at the ADHD department and Expertise Center. Hopefully, she will be able to hold a new distinguished chair in ADHD in the future, to enable and implement knowledge about ADHD as a systemic disease and better integrated treatment across all domains in mental healthcare. Dora is currently researching the relationship between sleep and hormonal transitions in women with ADHD, treatment with hormone therapy and stimulants, and the impact of hormones on mood and ADHD during the premenstrual week. There is good collaboration with Prof. Birit Broekman from Amsterdam UMC, which results in fruitful knowledge exchange and strengthening of the research. Mirte van der Ham investigates sleep disorders in adults with ADHD. Danielle de Graaf-Starreveld supports all PhD candidates in the team and studies the implementation of the newly established regional Head Heart Hormones (H3) networks in the Netherlands. Dr. Brandy Callahan from Canada chose our Expertise Center for her sabbatical. She researched, among other topics, the physical complaints in ADHD in the NEMESIS study with the Trimbos Institute. Dr. Nina Molenaar supports us with methodology and grant applications. Noemi Platania aims to close the gender gap between men and women with ADHD regarding age of diagnosis. She is adapting the current DIVA-5 interview for ADHD with better examples of the female presentation of ADHD (DIVA-5-R). Sofia Rocha, who is unfortunately currently ill, researches mood swings in women with ADHD during the cycle using an app. Dr. Emma van Andel completed her PhD on ADHD and delayed sleep patterns, and the

effect of treatment with melatonin, and now also light therapy.

www.h3-netwerk.nl

I would also like to thank the *lovely ladies* of the Head Heart Hormones (H3) network, Dorenda van Dijken and Janneke Wittekoek, for their friendship, research, and loyal collaboration in advancing better, multidisciplinary care for women in the Netherlands. And thanks to all our collaborative partners:

Professor Jan Buitelaar, thank you for willing to be my promotor and learning me what research entails. Professor Aartjan Beekman: thanks for your trust in a psychiatrist from the periphery with, at the time, still controversial ideas; you saw possibilities early on when others were only raising barriers. Thank you for your years of support and confidence! Esteemed Brenda Penninx, thank you for your accessibility, trust, and guidance of my PhD candidates involved in the NESDA and LASA studies. Professor Arne Popma: thank you for taking over the baton and your willingness to deepen your understanding of ADHD in adults, in women, the physical conditions, and AI developments! You too are a visionary! Thanks also to professor Martine de Bruijne, dean, for her guidance, and the Board of Directors of Amsterdam UMC for their trust.

I thank the Board of Directors of the Parnassia Group, Elnathan Prinsen, Anita Wydoodt, and Sjoerd van Breda, and their predecessors for years of mental and financial support for the chair and the TOPGGz recognition of the department and research, as well as the administrators of PsyQ, Jurgen Verbeeck and Lonneke van Bijnen, the Parnassia Academy: Ron Strijaards, Carla Hagestein, and dean Ursula Klumpers for their enthusiasm for scientific research and their support.

Finally, I want to thank my patients with ADHD for patiently guiding me through their complaints and repeatedly presenting me with their research questions. I have learned èverything from you!!

My dearest Marc, my beloved nieces and nephews, and the Kooij and Blom families: thank you for your love, warmth, and patience, and for sharing all of this with me!

I have spoken.

QR CODE to the RECORDING of Symposium and Farewell speech prof. dr. Sandra Kooij on February 12th, 2026 and the Dutch and English PDFs of the Farewell speech:

References

Afrin LB, Weinstock LB, Molderings GJ. Covid-19 hyperinflammation and post-Covid-19 illness may be rooted in mast cell activation syndrome. Int J Infect Dis. 2020 Nov;100:327-332. doi: 10.1016/j.ijid.2020.09.016. Epub 2020 Sep 10. PMID: 32920235; PMCID: PMC7529115.

Averyanova M, Vishnyakova P, Yureneva S, Yakushevskaya O, Fatkhudinov T, Elchaninov A, Sukhikh G. Sex hormones and immune system: Menopausal hormone therapy in the context of COVID-19 pandemic. Front Immunol. 2022 Aug 2;13:928171. doi: 10.3389/fimmu.2022.928171. PMID: 35983046; PMCID: PMC9379861.

Cederlöf M, Larsson H, Lichtenstein P, Almqvist C, Serlachius E, Ludvigsson JF. Nationwide population- based cohort study of psychiatric disorders in individuals with Ehlers-Danlos syndrome or hypermobility syndrome and their siblings. BMC Psychiatry. 2016 Jul 4;16:207. doi: 10.1186/s12888-016-0922-6. PMID: 27377649; PMCID: PMC4932739.

Csecs JLL, Iodice V, Rae CL, Brooke A, Simmons R, Quadt L, Savage GK, Dowell NG, Prowse F, Themelis K, Mathias CJ, Critchley HD, Eccles JA. Joint Hypermobility Links Neurodivergence to Dysautonomia and Pain. Front Psychiatry. 2022 Feb 2;12:786916. doi: 10.3389/fpsyt.2021.786916. PMID: 35185636; PMCID: PMC8847158.

Del-Ponte B, Quinte GC, Cruz S, Grellert M, Santos IS. Dietary patterns and attention deficit/hyperactivity disorder (ADHD): A systematic review and meta-analysis. J Affect Disord. 2019 Jun 1;252:160-173. doi: 10.1016/j.jad.2019.04.061. Epub 2019 Apr 10. PMID: 30986731.

Du Rietz E, Brikell I, Butwicka A, Leone M, Chang Z, Cortese S, D'Onofrio BM, Hartman CA, Lichtenstein P, Faraone SV, Kuja-Halkola R, Larsson H. Mapping phenotypic and aetiological associations between ADHD and physical conditions in adulthood in Sweden: a genetically informed register study. Lancet Psychiatry. 2021 Sep;8(9):774-783. doi: 10.1016/S2215-0366(21)00171-1. Epub 2021 Jul 6. PMID: 34242595; PMCID: PMC8376653.

Garcia-Argibay M, Pandya E, Ahnemark E, Werner-Kiechle T, Andersson LM, Larsson H, Du Rietz E. Healthcare utilization and costs of psychiatric and somatic comorbidities associated with newly diagnosed adult ADHD. Acta Psychiatr Scand. 2021 Jul;144(1):50-59. doi: 10.1111/acps.13297. Epub 2021 May 4. PMID: 33749845.

Greene C, Connolly R, Brennan D, Laffan A, O'Keeffe E, Zaporojan L, O'Callaghan J, Thomson B, Connolly E, Argue R, Meaney JFM, Martin-Loeches I, Long A, Cheallaigh CN, Conlon N, Doherty CP, Campbell M. Blood-brain barrier disruption and sustained systemic inflammation in individuals with long COVID- associated cognitive impairment. Nat Neurosci. 2024 Mar;27(3):421-432. doi: 10.1038/s41593-024- 01576-9. Epub 2024 Feb 22. Erratum in: Nat Neurosci. 2024 May;27(5):1019. doi: 10.1038/s41593-024-01644-0. PMID: 38388736; PMCID: PMC10917679.

Integrale handreiking Post-Covid, jan. 2026.Post Covid Netwerk Nederland. https://kennis.c-support.nu/wp-content/uploads/sites/4/2026/01/25015-Integrale-handreiking-post- COVID_V12.pdf

Kittel-Schneider S, Arteaga-Henriquez G, Vasquez AA, Asherson P, Banaschewski T, Brikell I, Buitelaar J, Cormand B, Faraone SV, Freitag CM, Ginsberg Y, Haavik J, Hartman CA, Kuntsi J, Larsson H, Matura S, McNeill RV, Ramos-Quiroga JA, Ribases M, Romanos M, Vainieri I, Franke B, Reif A. Non-mental diseases associated with ADHD across the lifespan: Fidgety Philipp and Pippi Longstocking at risk of multimorbidity? Neurosci Biobehav Rev. 2022 Jan;132:1157-1180. doi: 10.1016/j.neubiorev.2021.10.035. Epub 2021 Oct 29. PMID: 34757108.

Lan X, Chen D, Wang M, Yu X, Dong L, Li J, Chang D, Yang F. The Effect of COVID-19 on Male Sex

Hormones: A Meta-Analysis of Prospective Cohort Study. J Epidemiol Glob Health. 2024 Jun;14(2):255-
264. doi: 10.1007/s44197-024-00203-x. Epub 2024 Feb 26. PMID: 38407718; PMCID: PMC11176140.

Lemal R, Fouquet G, Terriou L, Vaes M, Livideanu CB, Frenzel L, Barete S, Canioni D, Lhermitte L, Rossignol J, Arock M, Dubreuil P, Lortholary O, Hermine O. Omalizumab Therapy for Mast Cell-Mediator Symptoms in Patients with ISM, CM, MMAS, and MCAS. J Allergy Clin Immunol Pract. 2019 Sep- Oct;7(7):2387-2395.e3. doi: 10.1016/j.jaip.2019.03.039. Epub 2019 Apr 5. PMID: 30954641.

Lewis N, Lagopoulos J, Villani A. Gut-Brain Inflammatory Pathways in Attention-Deficit/Hyperactivity Disorder: The Role and Therapeutic Potential of Diet. Metabolites. 2025 May 19;15(5):335. doi: 10.3390/metabo15050335. PMID: 40422911; PMCID: PMC12113503.

Lisco G, De Tullio A, Matin M, Giagulli VA, Guastamacchia E, De Pergola G, Piazzolla G, Triggiani V. Update on andrological effects of SARS-CoV-2 infection and COVID-19: An overview review. Andrology. 2025 Oct;13(7):1672-1682. doi: 10.1111/andr.13830. Epub 2024 Dec 31. PMID: 39737850; PMCID: PMC12476222.

Merzon E, Manor I, Rotem A, Schneider T, Vinker S, Golan Cohen A, Lauden A, Weizman A, Green I. ADHD as a Risk Factor for Infection With Covid-19. J Atten Disord. 2021 Nov;25(13):1783-1790. doi: 10.1177/1087054720943271. Epub 2020 Jul 22. PMID: 32697120; PMCID: PMC8427814.

Moon, C., 2025. Another Arrow in our Quiver: a Role for Anti-Inflammatory Therapies in Mental Health Treatment for Pediatric Patients. Medical Research Archives, [online] 13(10). https://doi.org/10.18103/mra.v13i9.7017

Racine N, McArthur BA, Cooke JE, Eirich R, Zhu J, Madigan S. Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19: A Meta-analysis. JAMA Pediatr. 2021 Nov 1;175(11):1142-1150. doi: 10.1001/jamapediatrics.2021.2482. PMID: 34369987; PMCID: PMC8353576.

Schnorr I, Siegl A, Luckhardt S, Wenz S, Friedrichsen H, El Jomaa H, Steinmann A, Kilencz T, Arteaga-Henríquez G, Ramos-Sayalero C, Ibanez-Jimenez P, Rosales-Ortiz SK, Bitter I, Fadeuilhe C, Ferrer M, Lavebratt C, Réthelyi JM, Richarte V, Rommelse N, Ramos-Quiroga JA, Arias-Vasquez A, Resch E, Reif A, Matura S, Schiweck C. Inflammatory biotype of ADHD is linked to chronic stress: a data-driven analysis of the inflammatory proteome. Transl Psychiatry. 2024 Jan 18;14(1):37. doi: 10.1038/s41398-023-02729-3. PMID: 38238292; PMCID: PMC10796401.

Sharp HEC, Critchley HD, Eccles JA. Connecting brain and body: Transdiagnostic relevance of connective tissue variants to neuropsychiatric symptom expression. World J Psychiatry. 2021 Oct 19;11(10):805-820. doi: 10.5498/wjp.v11.i10.805. PMID: 34733643; PMCID: PMC8546774.

Stichting Long Covid. https://www.stichtinglongcovid.nl/

Theoharides TC, Cochrane DE. Critical role of mast cells in inflammatory diseases and the effect of acute stress. J Neuroimmunol. 2004 Jan;146(1-2):1-12. doi: 10.1016/j.jneuroim.2003.10.041. PMID: 14698841.

Theoharides TC, Alysandratos KD, Angelidou A, Delivanis DA, Sismanopoulos N, Zhang B, Asadi S, Vasiadi M, Weng Z, Miniati A, Kalogeromitros D. Mast cells and inflammation. Biochim Biophys Acta. 2012 Jan;1822(1):21-33. doi: 10.1016/j.bbadis.2010.12.014. Epub 2010 Dec 23. PMID: 21185371; PMCID: PMC3318920.

Wang D, Duan H, Feng J, Xiang J, Feng L, Liu D, Chen X, Jing L, Liu Z, Zhang D, Hao H, Yan X. Soluble CD146, a cerebrospinal fluid marker for neuroinflammation, promotes blood-brain barrier dysfunction. Theranostics. 2020 Jan 1;10(1):231-246. doi: 10.7150/thno.37142. PMID: 31903117; PMCID: PMC6929609.

Weinstock LB, Afrin LB, Reiersen AM, Brook J, Blitshteyn S, Ehrlich G, Schofield JR, Kinsella L, Kaufman D, Dempsey T, Molderings GJ. Prevalence and treatment response of neuropsychiatric disorders in mast cell activation syndrome. Brain Behav Immun Health. 2025 Jun 30;48:101048. doi: 10.1016/j.bbih.2025.101048. PMID: 40686928; PMCID: PMC12270938.

Xiao H, Wei J, Yuan L, Li J, Zhang C, Liu G, Liu X. Sex hormones in COVID-19 severity: The quest for evidence and influence mechanisms. J Cell Mol Med. 2024 Jun;28(12):e18490. doi: 10.1111/jcmm.18490. PMID: 38923119; PMCID: PMC11194454.

Zierau O, Zenclussen AC, Jensen F. Role of female sex hormones, estradiol and progesterone, in mast cell behavior. Front Immunol. 2012 Jun 19;3:169. doi: 10.3389/fimmu.2012.00169. PMID: 22723800; PMCID: PMC3377947.