

Når dirigenten svikter

ADHD i somatikken: Implikasjoner for klinikken

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Spesialist i klinisk nevropsykologi/Ph.D.

Regionalt fagmiljø for autisme, ADHD og Tourettes syndrom

Helse Vest

Ytringer

ADHD-konstruksjonen

Det er ennå ikke påvist at tilstanden skyldes noen hjerneorganisk skade. Selv etter langvarig og massiv forskning er funnene svært tendensiøse, skriver psykologspesialist Espen Idås.



VG VG LIVE VGTV VG+ SPORT TV-GUIDE TIPS OSS Q, Sek



ADHD – Helsevesenet vårt klarer verken å fange opp de som trenger hjelp, eller å fjerne de som ikke trenger det. Systemet er urettferdig og baserer seg ikke på vitenskapelige kriterier, skriver Kåre Raaen. Foto: Janne Møller-Hansen / VG

Velkommen til ADHD-lotteriet!

REPLIKK

ADHD-bremsen og de andre bremsene

Det som tidligere var innenfor normalitets-mangfoldet, er i dag blitt en diagnose med flere uheldige konsekvenser.



Svanhild Hansen
skolelege

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BUP-arbeidere slår alarm: – Trakk på ADHD-bremsen



Stig Eve
Journalist

Publisert 19

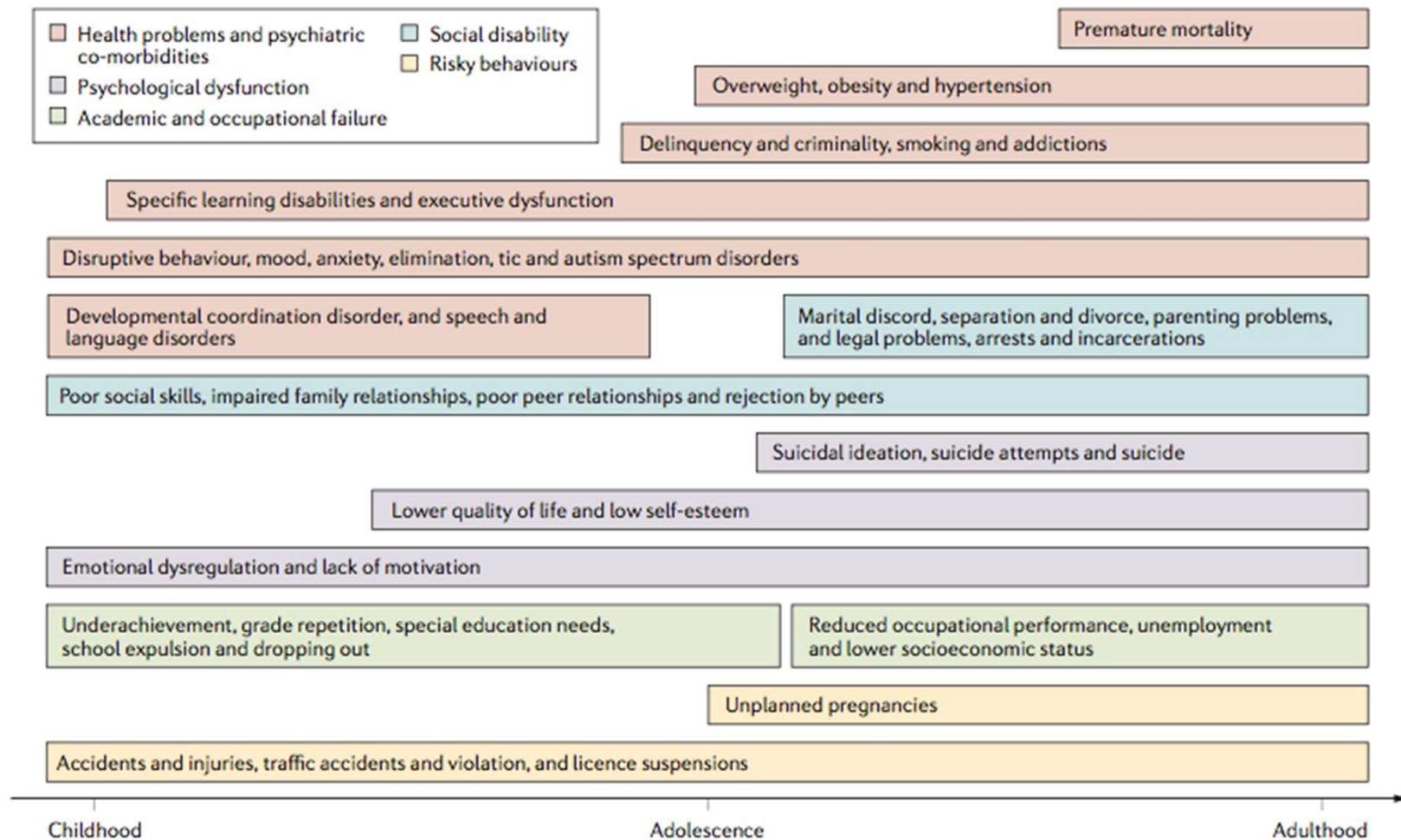


Figure 8 | Quality of life and attention-deficit/hyperactivity disorder. Throughout the lifetime of the patient, the impairments of attention-deficit/hyperactivity disorder manifest in psychiatric co-morbidities, health problems, psychological dysfunction, academic and occupational failure, social disability and risky behaviours.

Agenda

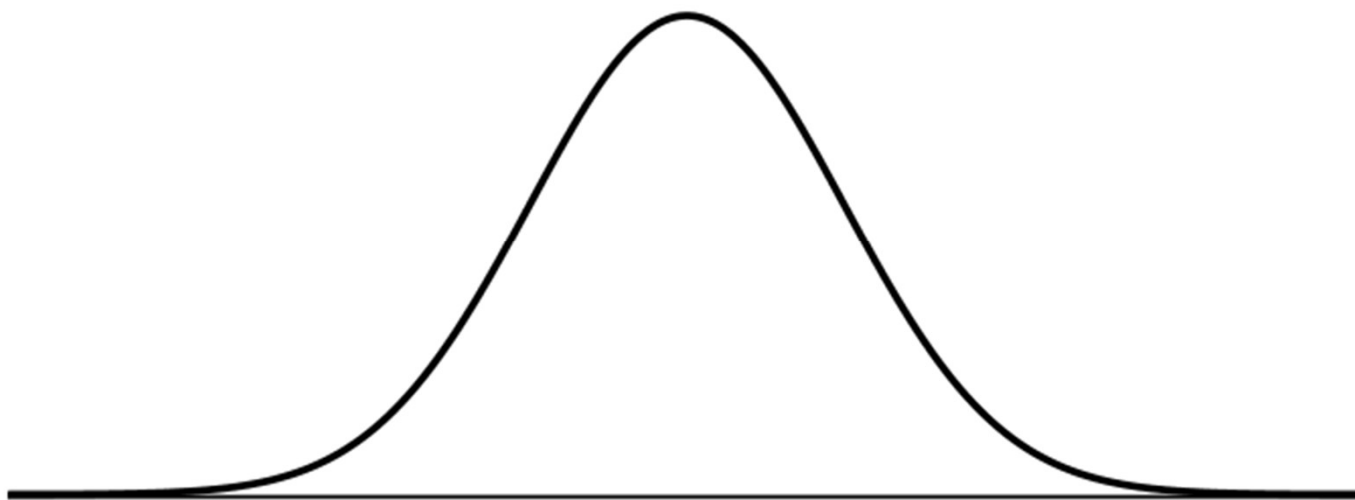
- Hva er ADHD?
- ADHD og reguleringsvansker
- ADHD og somatiske lidelser
- ADHD og behandlingsetterlevelse
- Tiltak

Hva er ADHD?

•DSM-5 kriterier for ADHD

- 6 av 9 symptomer på uoppmerksomhet eller hyperaktivitet/impulsivitet eller 6 på begge
 - Uoppmerksom presentasjon
 - Hyperaktiv/impulsiv presentasjon
 - Kombinert presentasjon
- For voksne er 5 av 9 tilstrekkelig ifølge DSM-5
- Alderskriterium ≤ 12 år (endret fra ≤ 7 år i DSM-IV)
- Symptomer på minst to ulike arenaer
- Symptomene må ikke kunne forklares bedre av annen mental lidelse
- Karakterisert som nevroutviklings-forstyrrelse heller enn atferdslidelse

DSM-V, American Psychiatric Association, 2013



Hvor setter vi terskelen?

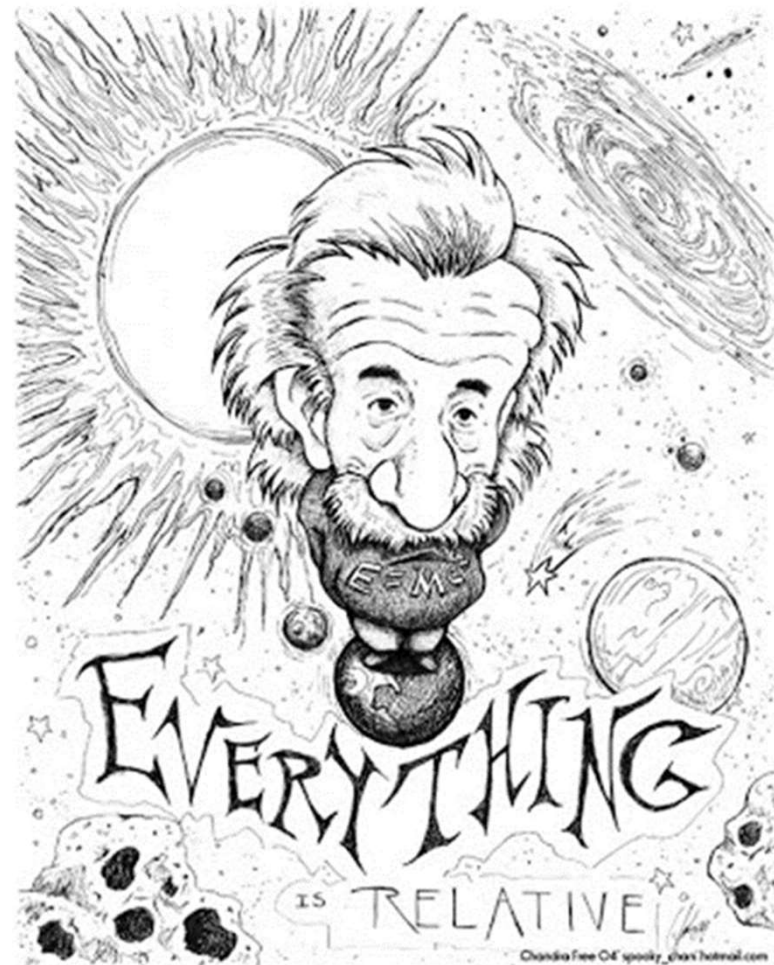


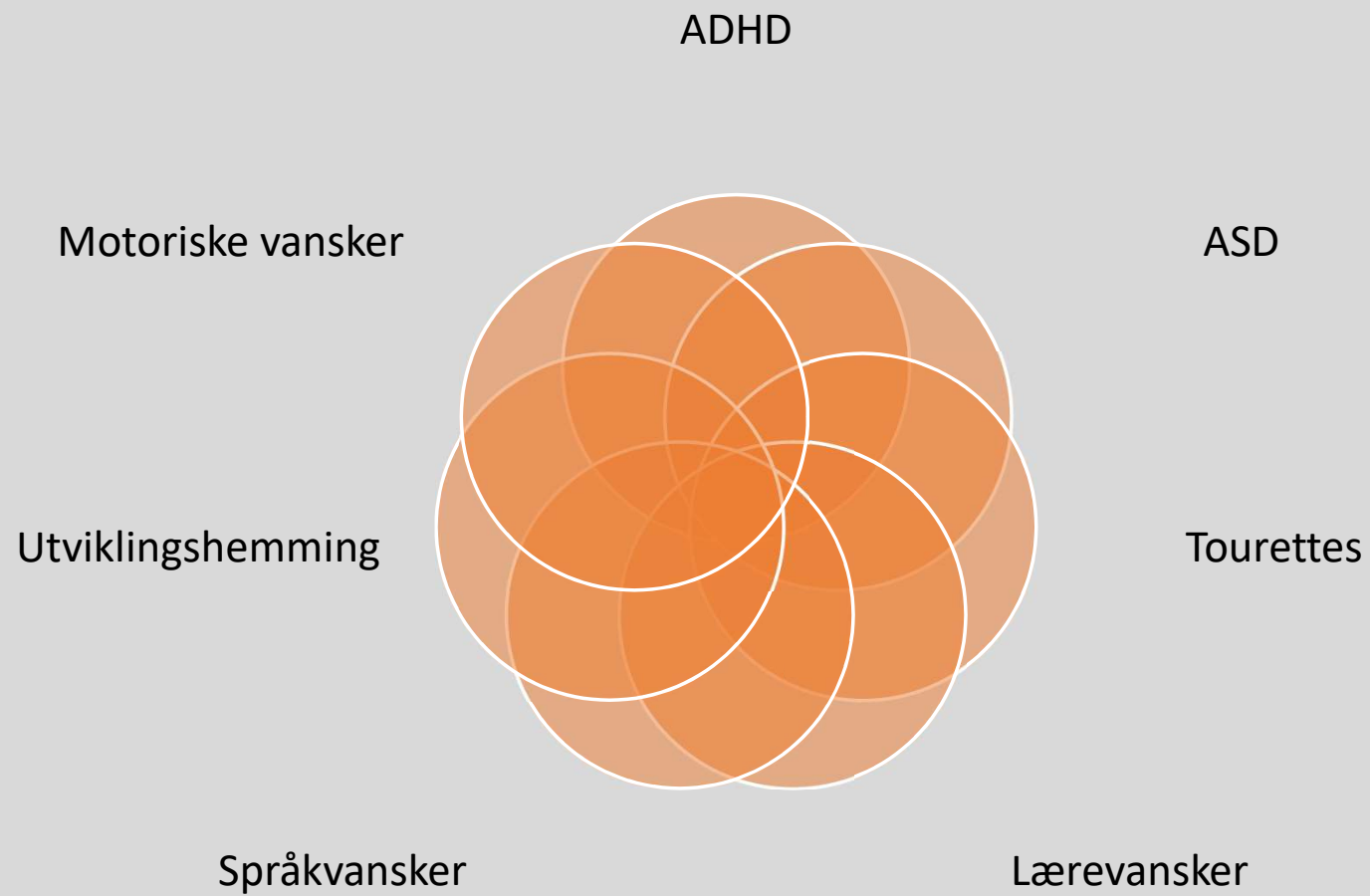
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ADHD er en heterogen tilstand

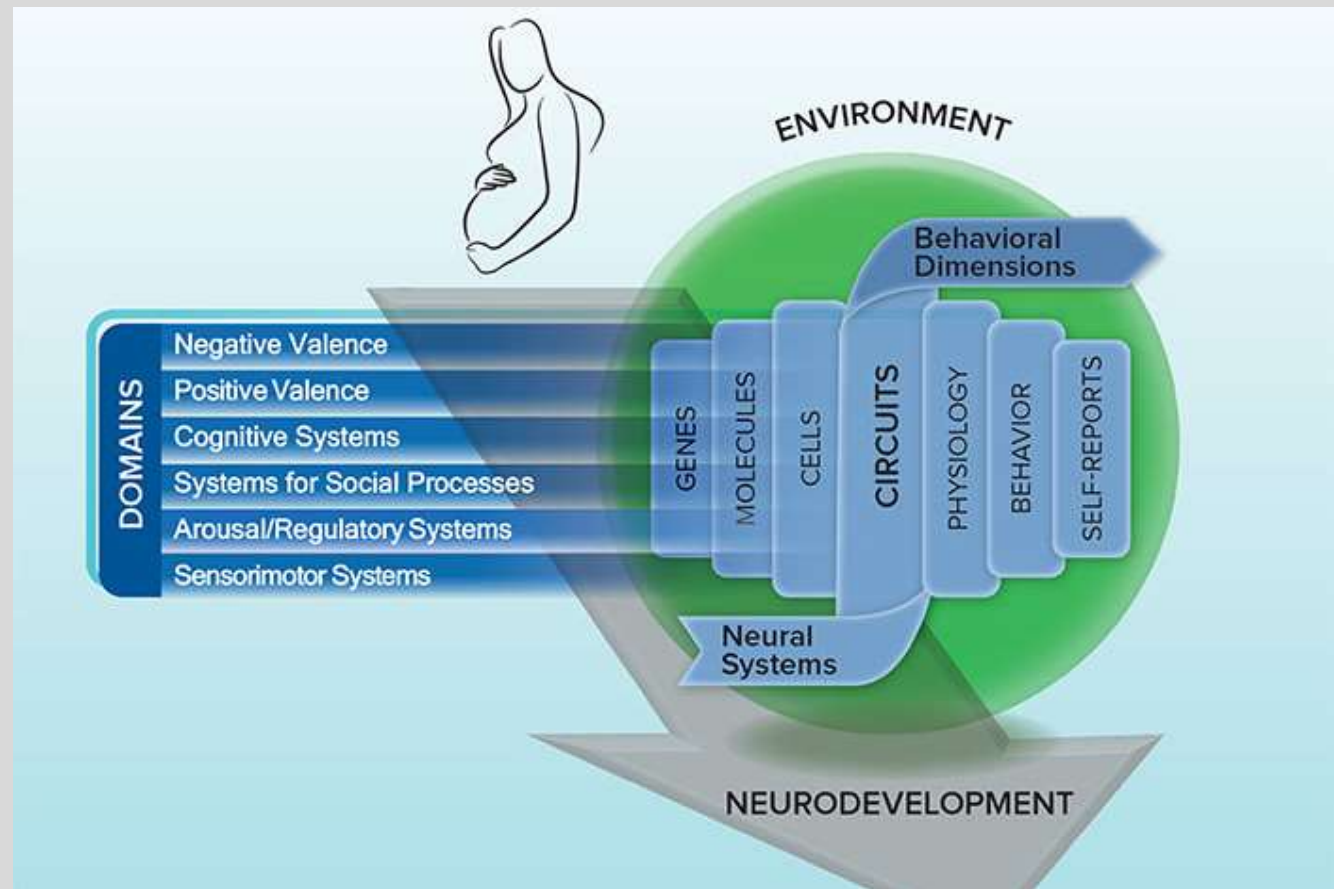
Uttrykk kan variere ut fra

- Ulike presentasjoner
- Kjønn
- Evnenivå
- Setting
- Miljø





Research domain criteria



<https://www.nimh.nih.gov/research/research-funded-by-nimh/rdoc/.shtml>

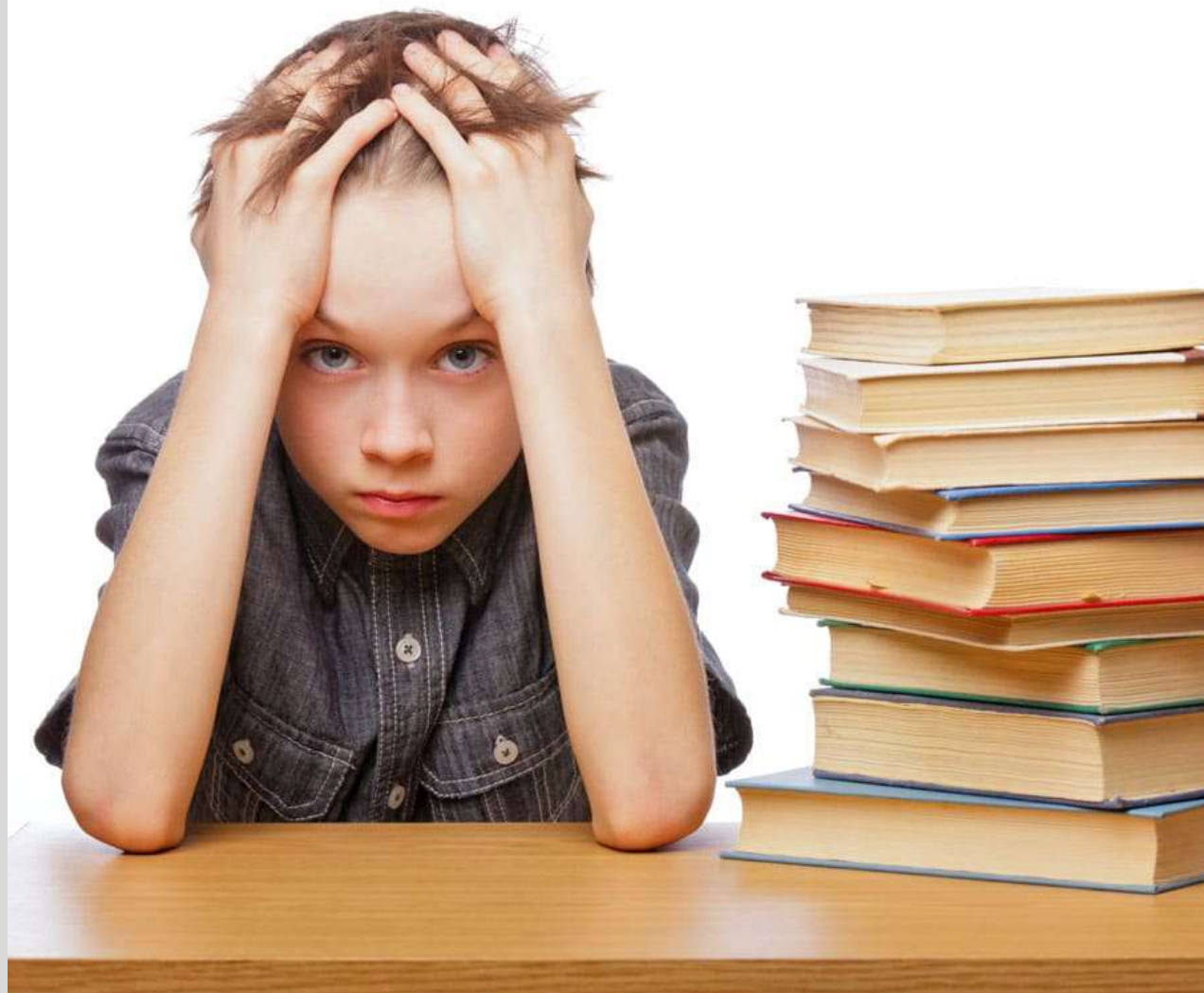
Agenda

- Hva er ADHD?
- ADHD og reguleringsvansker
- ADHD og somatiske lidelser
- ADHD og behandlingsetterlevelse
- Tiltak

Reguleringsfunksjoner

Regulering av:

- Tanker
- Følelser
- Atferd
- Oppmerksomhet



Hjernens dirigent

- Organisere
- Integrere
- Koordinere

Når dirigenten svikter

REGULERINGSVANSKER OG ADHD



Det handler ikke om å vite
hva en skal gjøre- det
handler om å gjøre det en
vet!

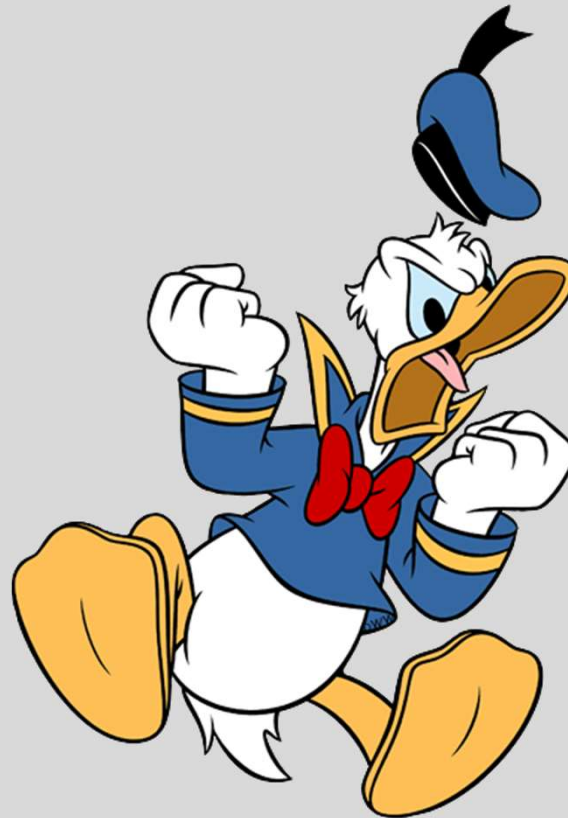


Mange ulike vansker.....

- Få gjort ting
- Søvn
- Kaos
- Muskulær regulering
- Utsettelse
- Få med seg instruksjoner
- Slurvefeil
- Ulykker
- Følelsesregulering
- Konflikter
- Grubling
- Etc.....



Når dirigenten
svikter...



Impuls-Trump på tur

Det er grunn til å spørre om hjernens orkesterleder svikter hos Donald Trump.



Jan Stubberud

Nevropsykolog ved Universitetet i Oslo

Publisert 12. juli 2018 kl. 17:09

Oppdatert 12. juli 2018 kl. 17:23



Artikkelen er
mer enn to år
gammel.



CS403945

I'M NOT A PEDANT

IN THE PRECISE
DEFINITION OF
THE TERM



CARTOONSTOCK
A CARTOON COLLECTIONS COMPANY



CHRIS MADDEN



©Sverre Bjørstad Graff

Reguleringsvansker
kan gjøre det
vanskeligere å følge
opp behandling



Agenda

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Relasjon mellom ADHD og somatiske tilstander

- ADHD fører til somatiske lidelser
- Somatiske lidelser fører til ADHD
- Felles risikofaktorer

“When a patient has more than one chronic condition, the conditions may interact such that the patient’s healthcare costs are greater than the sum of the costs for the individual diseases”

Cortaredona & Centelou, 2017

Oppsummert fra konsensus-statement

- Fedme
- Astma
- Allergier
- Diabetes
- Høyt blodtrykk
- Søvnvansker
- Psoriasis
- Epilepsi
- Seksuelt overførbare infeksjoner
- Abnormaliteter i øyet
- Immunlidelser
- Metabolske lidelser



Neuroscience & Biobehavioral Reviews

Available online 4 February 2021

In Press, Corrected Proof [?](#)



The World Federation of ADHD International Consensus Statement: 208 Evidence-based conclusions about the disorder

Stephen V. Faraone ^{a, b, c} , Tobias Banaschewski ^{d, e, f}, David Coghill ^g, Yi Zheng ^{h, i, j, k, l, m}, Joseph Biederman ^{n, o}, Mark A. Bellgrove ^{p, q}, Jeffrey H. Newcorn ^{r, s}, Martin Gignac ^{t, u}, Nouf M. Al Saud ^v, Iris Manor ^{w, x}, Luis Augusto Rohde ^y, Li Yang ^{z, A, l}, Samuele Cortese ^{B, C, D, E, F}, Doron Almagor ^{G, H}, Mark A. Stein ^{I, J}, Turki H. Albatti ^K, Haya F. Aljoudi ^{L, M}, Mohammed M.J. Alqahtani ^{N, O} ... Yufeng Wang ^{l, z, A}

Registerstudie i Lancet Psychiatry

- Økt risiko for 34 av 35 undersøkte somatiske lidelser
- Sterkest assosiasjon for
 - Sykdommer relatert til nervesystemet
 - Respiratoriske sykdommer

Mapping phenotypic and aetiological associations between ADHD and physical conditions in adulthood in Sweden: a genetically informed register study

Ebba Du Rietz, Isabell Brikell, Agnieszka Butwicka, Marica Leone, Zheng Chang, Samuele Cortese, Brian M D'Onofrio, Catharina A Hartman, Paul Lichtenstein, Stephen V Faraone, Ralf Kuja-Halkola, Henrik Larsson

Summary

Background Emerging evidence suggests increased risk of several physical health conditions in people with ADHD. Only a few physical conditions have been thoroughly studied in relation to ADHD, and there is little knowledge on associations in older adults in particular. We aimed to investigate the phenotypic and aetiological associations between ADHD and a wide range of physical health conditions across adulthood.



Lancet Psychiatry 2021

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0000000000000000

Traumatiske skader

- Personer med ADHD har en økt risiko skader og ulykker
 - Forbrenninger
 - Frakturer
 - Tannskader
 - Trafikkulykker
- Spesielt utsatt i alderen 12-25 år

Daalsgard et al, 2015; Brunkhorst-Kanaan et al., 2021; Amiri et al, 2017



Motorikk og muskulær regulering ved ADHD

- Rundt halvparten har DCD (Wateberg et al., 2013)
- 80% av voksne med ADHD utbredte muskelsmerter (Stray et al., 2009)



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ADHD og syndromer

- Fragilt X
- Nevrofibromatose
- DiGeorge
- Tuberøs sklerose
- Turner
- Williams
- Klinefelter



ADHD og metabolske lidelser

- Fenyketonuri (Føllings sykdom)
- Andre, sjeldnere tilstander, som Tyrosinemi

[Review](#) > [Neurosci Biobehav Rev.](#) 2022 Jan;132:838-856. doi: 10.1016/j.neubiorev.2021.11.012.

Epub 2021 Nov 11.

ADHD symptoms in neurometabolic diseases: Underlying mechanisms and clinical implications

Selina Cannon Homaei ¹, Helene Barone ², Rune Kleppe ³, Nibal Betari ⁴, Andreas Reif ⁵, Jan Haavik ⁶

Affiliations + expand

PMID: 34774900 DOI: [10.1016/j.neubiorev.2021.11.012](#)

[Free article](#)

Abstract

Neurometabolic diseases (NMDs) are typically caused by genetic abnormalities affecting enzyme functions, which in turn interfere with normal development and activity of the nervous system. Although the individual disorders are rare, NMDs are collectively relatively common and often lead to lifelong difficulties and high societal costs. Neuropsychiatric manifestations, including ADHD symptoms, are prominent in many NMDs, also when the primary biochemical defect originates in cells and tissues outside the nervous system. ADHD symptoms have been described in phenylketonuria, tyrosinemias, alkaptonuria, succinic semialdehyde dehydrogenase deficiency, X-linked ichthyosis, maple syrup urine disease, and several mitochondrial disorders, but are probably present in many other NMDs and may pose diagnostic and therapeutic challenges. Here we review current literature linking NMDs with ADHD symptoms. We cite emerging evidence that many NMDs converge on common neurochemical mechanisms that interfere with monoamine neurotransmitter synthesis, transport, metabolism, or receptor functions, mechanisms that are also considered central in ADHD

ADHD og Tyrosinemi

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DOI: 10.1002/ajmg.b.32764



ORIGINAL ARTICLE

medical genetics | B | Neuropsychiatric Genetics | WILEY

Tyrosinemia Type 1 and symptoms of ADHD: Biochemical mechanisms and implications for treatment and prognosis

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Hereditary tyrosinemia Type 1 (HT-1) is a rare metabolic disease where the enzyme catalyzing the final step of tyrosine breakdown is defect, leading to accumulation of toxic metabolites. Nitisinone inhibits the degradation of tyrosine and thereby the production of harmful metabolites, however, the concentration of tyrosine also increases. We investigated the relationship between plasma tyrosine concentrations and cognitive functions and how tyrosine levels affected enzyme activities of human tyrosine hydroxylase (TH) and tryptophan hydroxylase 2 (TPH2). Eight Norwegian children between 6 and 18 years with HT-1 were assessed using questionnaires measuring Attention Deficit Hyperactivity Disorder (ADHD)-symptoms and executive functioning. Recent and past levels of tyrosine were measured and the enzyme activities of TH and TPH2 were studied at conditions replicating normal and pathological tyrosine concentrations. We observed a significant positive correlation between mean tyrosine levels and inattention symptoms. While TH exhibited prominent substrate inhibition kinetics, TPH2 activity also decreased at elevated tyrosine levels. Inhibition of both enzymes may impair syntheses of dopamine, noradrenaline, and serotonin in brain tissue. Inattention in treated HT-1 patients may be related to decreased production of these monoamines. Our results support recommendations of strict guidelines on plasma tyrosine levels in HT-1. ADHD-related deficits, particularly inattention, should be monitored in HT-1 patients to determine whether intervention is necessary.

KEYWORDS

ADHD, dopamine, hereditary tyrosinemia Type 1, inattention, serotonin

1 | INTRODUCTION

Many metabolic diseases influence brain function and are associated with psychiatric symptoms and neuropsychiatric disorders (including autism-spectrum disorders, ADHD and psychotic disorders). ADHD is a common neurodevelopmental disorder with symptoms of either hyperactivity/impulsivity, or inattention, or both (American Psychiatric

Association, 2013). ADHD has high rates of comorbidity with psychiatric or somatic disorders, possibly reflecting shared pathophysiological mechanisms (Instanes, Klungsoyr, Halmoy, Fasmer, & Haavik, 2018). Knowledge about the relationship between neurometabolic disorders (NMDs) and symptoms of ADHD may provide insight into the etiology of ADHD, as well as improve the clinical management of patients with such conditions. As symptoms of ADHD have been

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Am J Med Genet. 2019;1–11.

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1

ADHD og søvn

Prevalence and clinical correlates of insomnia in adults with attention-deficit hyperactivity disorder

Brevik EJ, Lundervold AJ, Halmøy A, Posserud MB, Instanes JT, Bjorvatn B, Haavik J. Prevalence and clinical correlates of insomnia in adults with attention-deficit hyperactivity disorder

Objective: To investigate the prevalence of insomnia in adults with Attention-deficit hyperactivity disorder (ADHD) and its association with clinical subtypes, current ADHD symptoms, and stimulant treatment.

Method: We obtained diagnostic information, symptom rating scales and treatment history from clinically ascertained adult ADHD patients diagnosed according to DSM-IV criteria ($n = 268$, mean age 38.1 years) and randomly selected population controls ($n = 202$, mean age 36.5 years). The Bergen Insomnia Scale (BIS) was used to measure insomnia. ADHD symptom domains were self-rated using the Adult ADHD Self-Rating Scale.

Results: Insomnia was far more frequent among adults with ADHD (66.8%) than in the population controls (28.8%) ($P < 0.001$). Insomnia was more common in adults with the combined subtype than in those with the inattentive subtype (79.7% and 55.6%, respectively) ($P = 0.003$). For self-reported current ADHD symptoms, inattention was strongly correlated to insomnia. Patients currently using stimulant treatment for ADHD reported a lower total insomnia score compared to patients without medication ($P < 0.05$).

Conclusion: Insomnia was highly prevalent among adults with ADHD. The lower insomnia score in patients on current stimulant treatment suggests that stimulant treatment is not associated with worsening of insomnia symptoms in adult ADHD patients.

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Key words: attention-deficit hyperactivity disorder; sleep; psychostimulants; clinical aspects; neuropsychiatry

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ADHD og fedme

- Økt forekomst både hos voksne og barn med ADHD
- Rapportert prevalens av ADHD hos voksne som søker behandling for fedme er 27%, og 43% hos de med ekstrem fedme
- Ikke økt forekomst hos de som er medisinert
- Genetisk overlapp mellom fedme og ADHD
 - Gener involvert i dopaminerg transmisjon

Cortese et al., 2016, Demontis et al., 2019, Altfas, 2002;
Fleming et al., 2005, Mota et al., 2020



Kostnader ved ADHD og samtidige tilstander

- Et studie fra Tyskland viste at
 - ADHD medførte 1500 euro ekstra i årlige medisinske utgifter
 - Kostnader for behandling av samtidige lidelser (rusmisbruk, overvekt, stemningslidelser og angst) utgjorde de største ekstra kostnadene (2800 euro per år)
 - Kostnader assosiert med de samtidige tilstandene hos de med ADHD var 1420-2715 euro mer sammenlignet med dem som hadde de samme tilstandene, men ikke ADHD
 - Kostnadene økte betydelig i voksen alder

Libutzki et al., 2019

Agenda

- Hva er ADHD?
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ADHD og timeavtaler

Søndergaard et al., 2016:

- nesten en tredjedel av pasienter med ADHD droppet ut av behandling i løpet av et år
- 42% møtte ikke til tre eller flere timeavtaler

McQueenie, 2019:

- av pasienter som ikke møtte til to eller flere avtaler hos allmennlege i løpet av et år var 5% døde innen et år

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Tiltak

- Vær obs på somatiske lidelser ved ADHD
- Vær obs på ADHD ved somatiske lidelser

Tiltak for å øke behandlingsetterlevelse

- Forutsigbarhet
- Påminnelser
- Skriftlig og muntlig informasjon
- Jobb med relasjon
- Ikke moraliser
- Gi flere sjanser

Dersom vi skal
behandle folk
rettferdig, må vi
behandle dem ulikt!



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Snøballen kan stoppes!





Takk for
oppmerksomheten!