VETENSKAP OCH KLINISK ERFARENHET BAKOM SAMSJUKLIGHET MED NEUROPSYKIATRISK FUNKTIONSNEDSÄTTNING

23 OKTOBER

KARIN FAST, M.D. PH.D.

"GE BARNEN KÄRLEK, MERA KÄRLEK OCH ÄNNU MERA KÄRLEK – SÅ KOMMER FOLKVETTET AV SIG SJÄLV.”

Citat av Astrid Lindgren

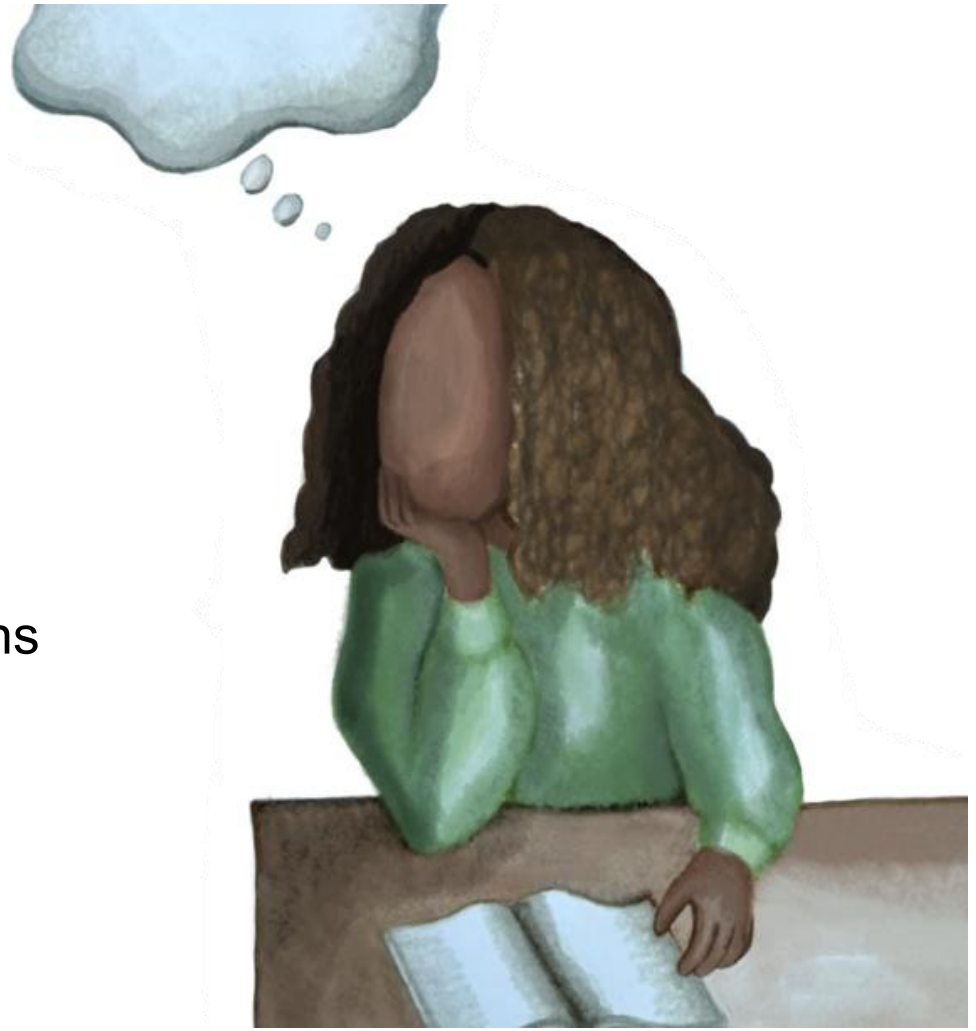
Illustrationer av Cecilia Kullberg



Chen et al. Psychol Med 2019
Wentz et al. Acta Paediatr 2017
Coretese et al. Am J Psychiatry 2016

Hur hör NPF och obesitas ihop?

- Neuropsykiatriska tillstånd är vanliga
- Obesitas är vanligt
- Samsjuklighet är vanligt
- Påverkar barnets och familjens vardag på många nivåer



American Psychiatric Association, DSM-5

Neuropsykiatriska funktionsnedsättningar

Kännetecknas av

- Tidig debut, symtom visar sig under barndomen
- Varaktiga skillnader i kognition, beteende och självreglering
- Påverkan på funktion inom flera livsområden, ofta även i vuxen ålder

I den här presentationen avses främst

- ADHD, Attention Deficit Hyperactivity Disorder
- Autism (ASD), autismspektrumtillstånd



Paediatric obesity: a neurodevelopmental perspective

Mats Hölcke[1], Claude Marcus[1], Christopher Gillberg[2], Elisabeth Fernell (elisabeth.fernell@vgregion.se)[3]

1.Department of Endocrinology and Obesity at Department of Paediatrics, Karolinska University Hospital, Huddinge, Sweden
2.Department of Child and Adolescent Psychiatry, Gothenburg University, Sweden and National Centre for Young People with Epilepsy, London University/Strathclyde University, Glasgow, U.K.
3.Department of Neuropaediatrics, Astrid Lindgren Children's Hospital, Stockholm, Sweden.
Current address: Unit of Neurodevelopmental Disorders, Skaraborgs Hospital, Mariestad, Sweden

Correspondence
Elisabeth Fernell, MD, PhD, Unit of
Neurodevelopmental Disorders, Skaraborgs Hospital,
542 24 Mariestad, Sweden.
Tel: +46-0501-62500 |
Fax: +46-0501-62578 |
Email: elisabeth.fernell@vgregion.se

Received
16 December 2008; revised 20 February 2008;
accepted 31 March 2008.

DOI:10.1111/j.1651-2227.2008.00816.x

INTRODUCTION

Child obesity is a major concern in the developed world (1,2). There are specific risks in the long-term perspective, especially cardiovascular and metabolic, but associated morbidity is common already in childhood (2). Preventive measures are important and school-based intervention programmes, focussing on increasing physical activity, reducing time spent in front of the television and diet interventions have been presented (3).

From a neurodevelopmental point of view, clinical experience and research show that eating disorders such as anorexia and bulimia nervosa and neurodevelopmental/ viduals may experience higher rates of obesity in the presence of abundant food.

Based on this rather meagre data, we set out to explore the rate of cognitive dysfunctions–manifested as learning and behavioural problems–in a group of children and adolescents attending the national centre for obesity at the Karolinska University Hospital, Huddinge. Our hypothesis was that children with obesity would display (1) a higher rate of ADHD symptoms and/or of cognitive or executive/learning dysfunctions and (2) a higher rate of social and emotional problems than children in the general population.

Agranat-Meged et al. Int J Eat Disord 2005
Anderson et al. Ambul Pediatr 2006
Cortese och Vincenzi Curr Top Behav Neurosci 2012

Childhood Obesity and Attention Deficit/Hyperactivity Disorder: A Newly Described Comorbidity in Obese Hospitalized Children

Anat N. Agranat-Meged, MD*
Chane Deitcher, PhD
Gil Goldzweig, PhD
Lilach Leibenson, MD
Magda Stein, BA
Esti Galili-Weisstub, MD

ABSTRACT

Objective: The current study described a subgroup of children presenting with obesity and comorbid attention deficit/hyperactivity disorder (AD/HD) and assessed a possible casual relationship.

Method: School-aged children hospitalized for obesity (body mass index [BMI] >85%) in a tertiary referral center underwent extensive evaluations and were prospectively assessed for comorbid AD/HD.

Results: During a 4-year period, 32 obese school-aged children were hospitalized and 26 were included in the current study. We found that over one half (57.7%) suffered from comorbid AD/HD.

Discussion: AD/HD shows a high comorbidity among obese hospitalized children. The characteristic difficulty in regulation found in AD/HD may be a risk factor for the development of abnormal eating behaviors leading to obesity. We suggest that obese children should be screened routinely for AD/HD. © 2005 by Wiley Periodicals, Inc.

Keywords: obesity; attention deficit/hyperactivity disorder; abnormal eating behaviors; AD/HD; adolescents

(Int J Eat Disord 2005; 37:357–359)

Introduction

The current study demonstrates comorbidity between childhood obesity and attention deficit/hyperactivity disorder (AD/HD) among a subset of children hospitalized for severe obesity. To date, this potential relationship has not been studied sufficiently. Raising the awareness to the possible comorbidity between the two is of great clinical importance. It may enhance the diagnosis and treatment of AD/HD in the obese population that has generally been overlooked. Early intervention may also prevent the development of childhood obesity in AD/HD patients who are at risk.

AD/HD is a prevalent disorder in childhood, causing a significant burden to patients, families, and society as a whole. Its prevalence in school-aged children is estimated to be 5%–10% (Scahill & Schwab-Stone, 2000).

Increased comorbidity has been noted between AD/HD and a number of psychiatric disorders, such as oppositi
mood, substance
(Pliska, 2000). Lu
high incidence
among adults di
the comorbidity
eating disorders
described.

Obesity is an o
hood, with increa
world (Styne, 200
becoming obese a
tion of risk facto
development of o

Research on th
characteristics of
that, in general, t
psychopathologies
Wadden, 1992). Ho
distinct subgroups
do require the at
sionals. Bruch (197
obesity to describe
blematic parenting
fered with normal
Although the maj
meet the criteria f
from binge eating
have a high prevalence of anxiety and mood disorders
(Kaplan & Ciliska, 1999; Stunkard & Wadden, 1992).

Accepted 9 February 2004

*Correspondence to: Anat N. Agranat-Meged, MD, Department of Child and Adolescent Psychiatry, Hadassah Mount Scopus Hospital, P.O. Box 24035, Jerusalem 91240, Israel.
E-mail: anatagranat@barak-online.net
Department of Child and Adolescent Psychiatry, Hebrew University Hadassah Medical Center, Jerusalem, Israel

Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/eat.20096

© 2005 Wiley Periodicals, Inc.

Obesity and ADHD: clinical and neurobiological implications

Samuele Cortese [1], Brenda Vincenzi

Affiliations + expand

PMID: 21845534 DOI: 10.1007/7854_2011_154

Abstract

Although quite overlooked, increasing evidence points to a significant association between attention-deficit/hyperactivity disorder (ADHD) and obesity. Here, we present an updated systematic review and a critical discussion of studies on the relationship between ADHD and obesity, with a particular emphasis on the possible behavioral, neurobiological, and genetics underlying mechanisms. Available empirically based studies indicate that the prevalence of ADHD in clinical samples of patients seeking treatment for their obesity is higher than that in the general population. Moreover, although still limited, current evidence shows that individuals with ADHD
her obesity rates
ssociation between
d with it (such as
HD-like symptoms; (2)
s, involving the
actor, melanocortin-4-
gain via dysregulated
st that it is noteworthy
behaviors as possible
irm a causal
y improve eating
ity and ADHD.

Relationship of Childhood Behavior Disorders to Weight Gain from Childhood into Adulthood

Sarah E. Anderson, PhD; Patricia Cohen, PhD; Elena N. Naumova, PhD; Aviva Must, PhD

Objective.—Obesity and behavior disorders are important conditions that affect the health of children and adolescents; some evidence suggests that they are associated. However, these relationships have not been studied longitudinally from childhood to adulthood. We investigated childhood to adulthood weight change associated with attention-deficit and disruptive behavior disorders.

Methods.—We analyzed data from a prospective cohort study in which 655 individuals observed before age 16.6 years, and assessed in 1983 (when aged 9.1 to 16.6 years), 1985–1986 (when 11.1 to 20.8 years), 1991–1994 (when 16.6 to 26.9 years), and 2001–2003 (when 27.7 to 38.3 years). Attention-deficit/hyperactivity disorder, oppositional defiant disorder, and conduct disorder (collectively, "disruptive disorders") were assessed by trained interviewers who used the Diagnostic Interview Schedule for Children. We evaluated the association of disruptive disorders (assessed when youth were <16.6 years) with longitudinal body mass index (BMI) z scores from childhood to adulthood using linear mixed-effects models.

Results.—Female subjects with disruptive disorders were estimated, at all ages, to have mean BMI z scores 0.23 (95% confidence interval, 0.03–0.44) units higher than female subjects without disruptive disorders. Male subjects with disruptive disorders were estimated, at all ages, to have mean BMI z scores 0.20 (95% confidence interval, 0.00–0.39) units higher than male subjects without disruptive disorders. For male and female subjects, annual BMI z-score change was statistically unrelated to disruptive disorder history.

Conclusions.—Disruptive disorders were associated with elevated weight status that was maintained from childhood into adulthood. These findings suggest that associations between behavior disorders and increased weight begin early in childhood and may have lifelong health effects.

KEY WORDS: adolescents; attention-deficit/hyperactivity disorder; conduct disorder; longitudinal study; oppositional defiant disorder

Ambulatory Pediatrics 2006;6:297–301

Li et al. Obes Rev 2020
Zheng et al. Sci Rep 2017
Nigg et al. Clin Psychol Rev 2016
Cortese et al. Am J Psychiatry 2016
Sammels et al. Obes Facts 2022

Vad vet vi?

- ADHD och autism är associerade med ökad förekomst av obesitas
- Sambanden har påvisats i studier från flera delar av världen

ADHD

OR 1,20

95 % KI 1,05–1,37

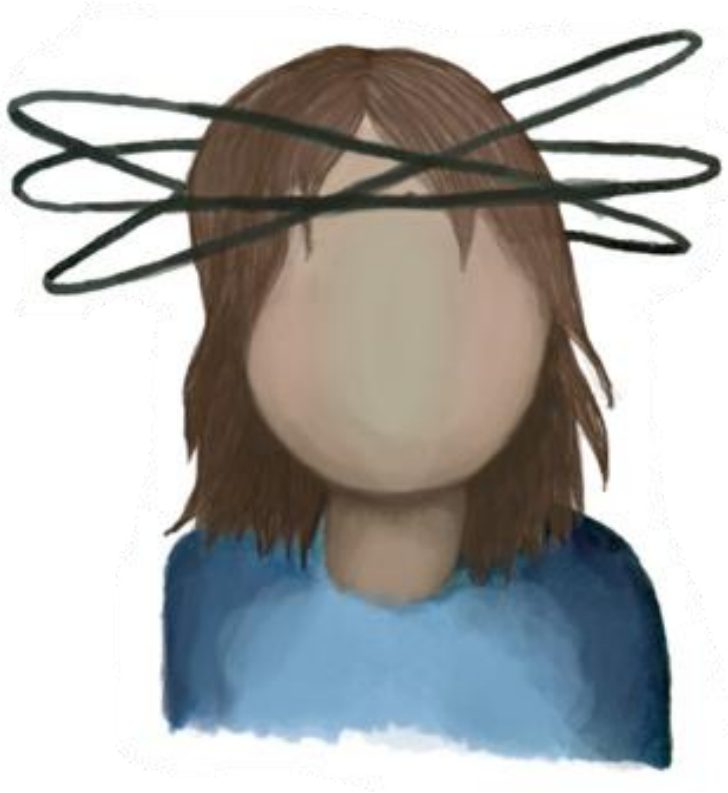
Cortese et al. 2016

Autism

OR 1,70

95 % KI 1,44–1,99

Sammels et al. 2022



Cortese et al. Am J Psychiatry 2016
Hill et al. Pediatrics 2015

Vad kan förklara sambanden?



- Exekutiva funktioner & självreglering
- Sensorisk känslighet & rigiditet
- Sömnsvårigheter
- Psykosociala & miljömässiga faktorer
- Effekten av läkemedel & samsjuklighet

Gohlke et al. J Pediatr Endocrinol Metab 1998

Normal tillväxt: grundläggande behov under barndomen

- Balanserad kost
- Sömn
- Tillväxthormon
- Stressreglering
- Återhämtning
- Frånvaro av sjukdom
- Trygg, omsorgsfull och säker miljö



Khalife et al. J Am Acad Child Adolesc Psychiatry 2014
Rolland-Cachera et al. Am J Clin Nutr 1984
Geserick et al. N Engl J Med 2018

Tillväxtmönster

- Tidiga tillväxtmönster kan påverka risken för senare övervikt och obesitas – timing matters

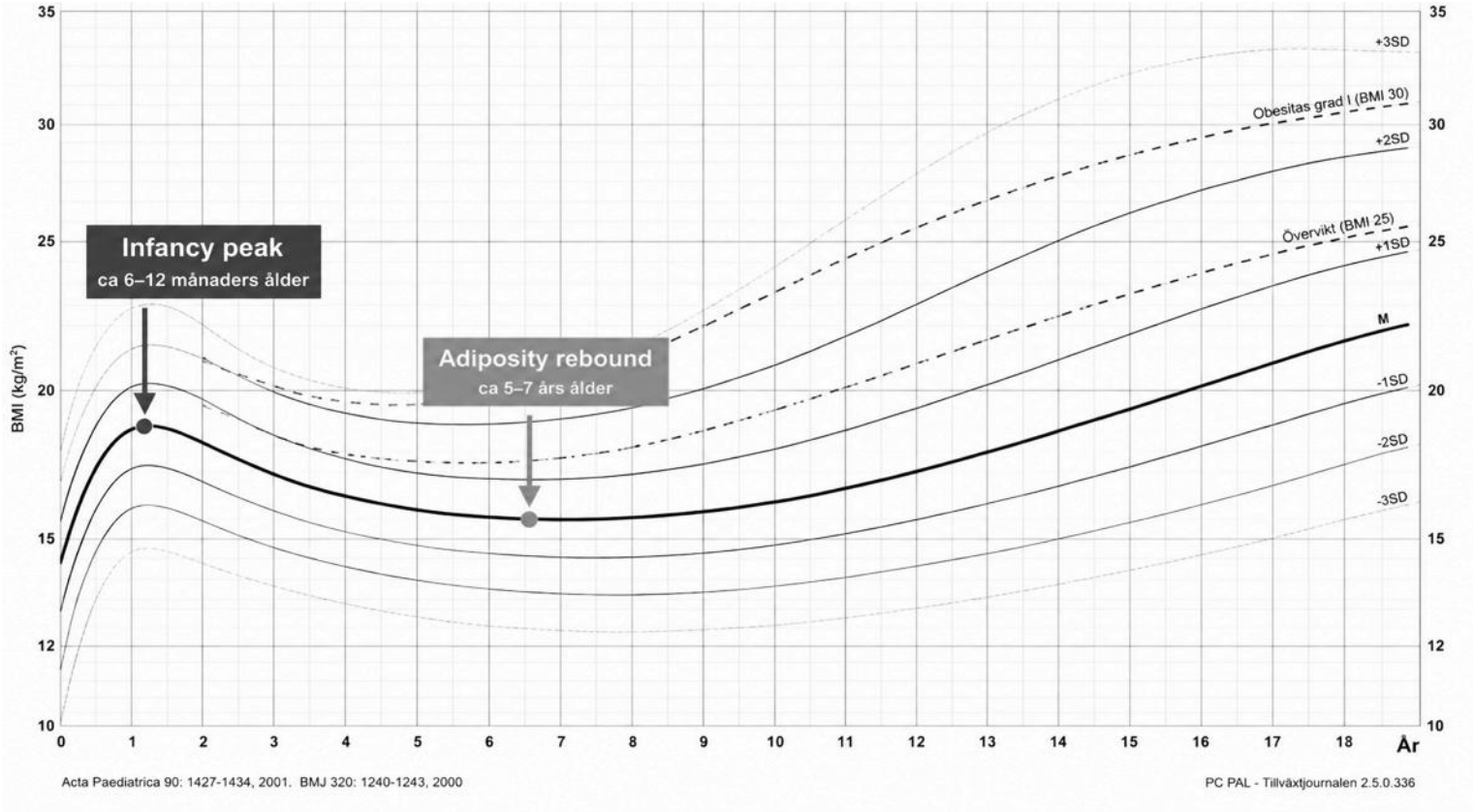
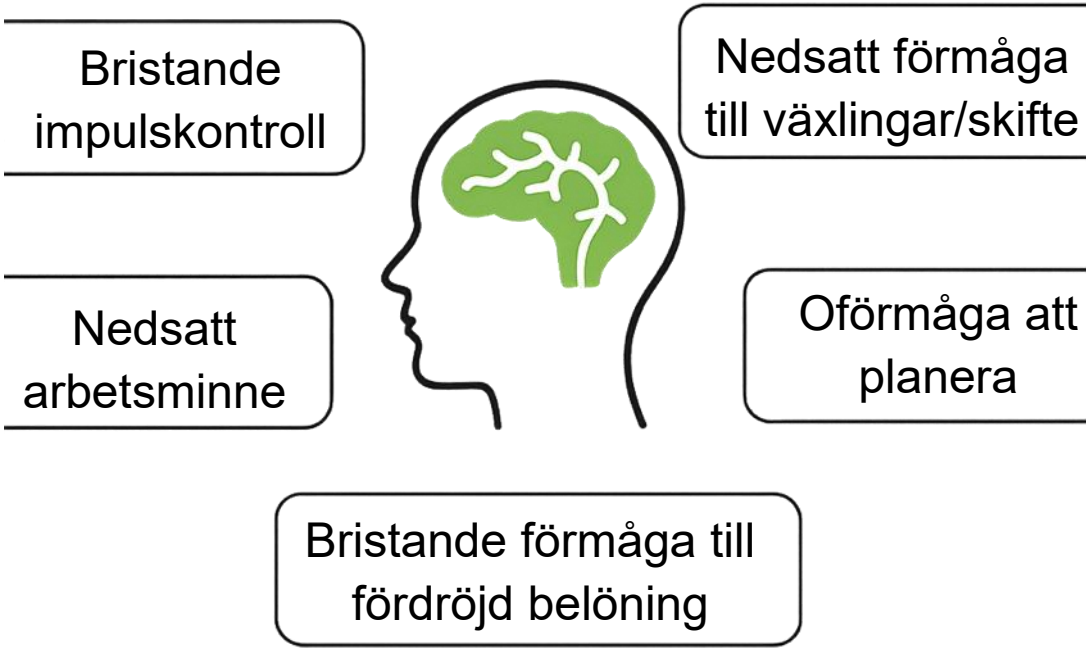


Illustration framtagen med hjälp av ChatGPT (OpenAI, 2026)

Graziano et al. Int J Obes 2012

Exekutiva funktioner och självreglering

Exekutiva funktion som kan ha betydelse för ökad risk för övervikt/obesitas vid ADHD



Figur framtagen med hjälp av ChatGPT 4.0

Ätbeteenden och aptitreglering

Cortese et al. Am J Psychiatry 2016



Illustration framtagen med hjälp av ChatGPT (OpenAI, 2026)

Sensorik och selektivt ätande

Bandini et al. J Pediatr 2010

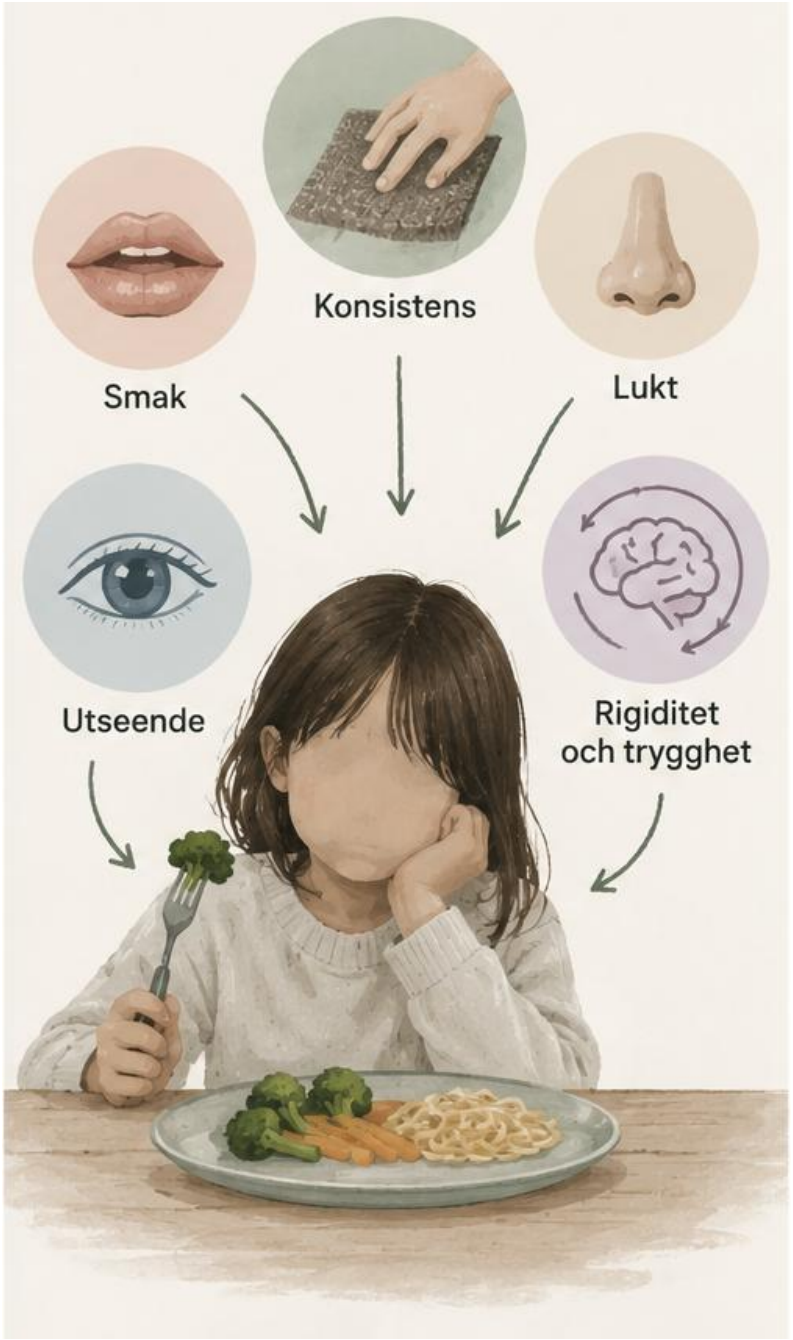


Illustration framtagen med hjälp av ChatGPT (OpenAI, 2026)

Sömn och dygnsrytm

Owens et al. J Atten Disord 2013
Fatima et al. Obes Rev 2015



Illustration framtagen med hjälp av ChatGPT (OpenAI, 2026)

Chen et al. Psychol Med 2019
Cortese et al. Am J Psychiatry 2016

Gemensamma bakomliggande faktorer

- Genetik och ärftlighet
- Familj och livsmiljö
- Psykisk och somatisk samsjuklighet
- Läkemedel och behandling

Fast et al. Dev Med Child Neurol 2023

Prevalens av ADHD och autism hos barn i 12-årsåldern: en populations-baserad studie

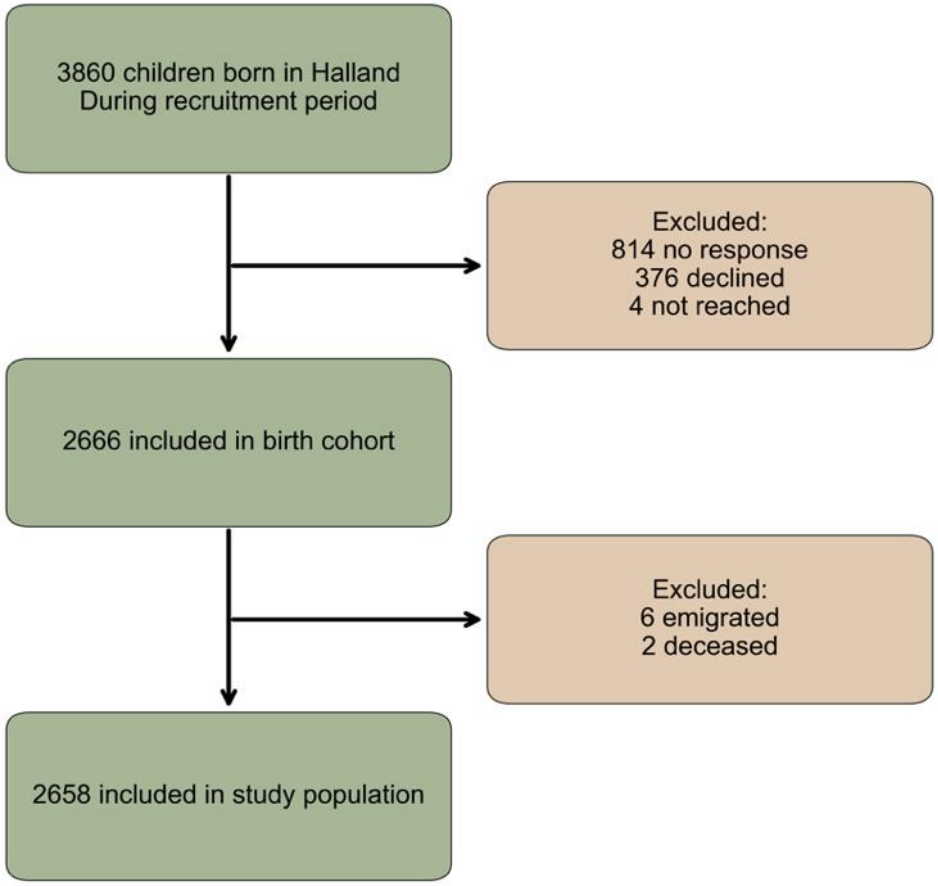
Kartlägga förekomsten av ADHD och autism vid 12 års ålder samt studera samband med faktorer under graviditet och förlossning.



Fast et al. Dev Med Child Neurol 2023

Resultat

- ADHD: 7,6 %
- Autism: 1,1 %
- 78 % med autism hade också ADHD.
- ADHD (2,3:1) och autism (2,5:1) vanligare hos pojkar.
- Få fall med autism, n=28.

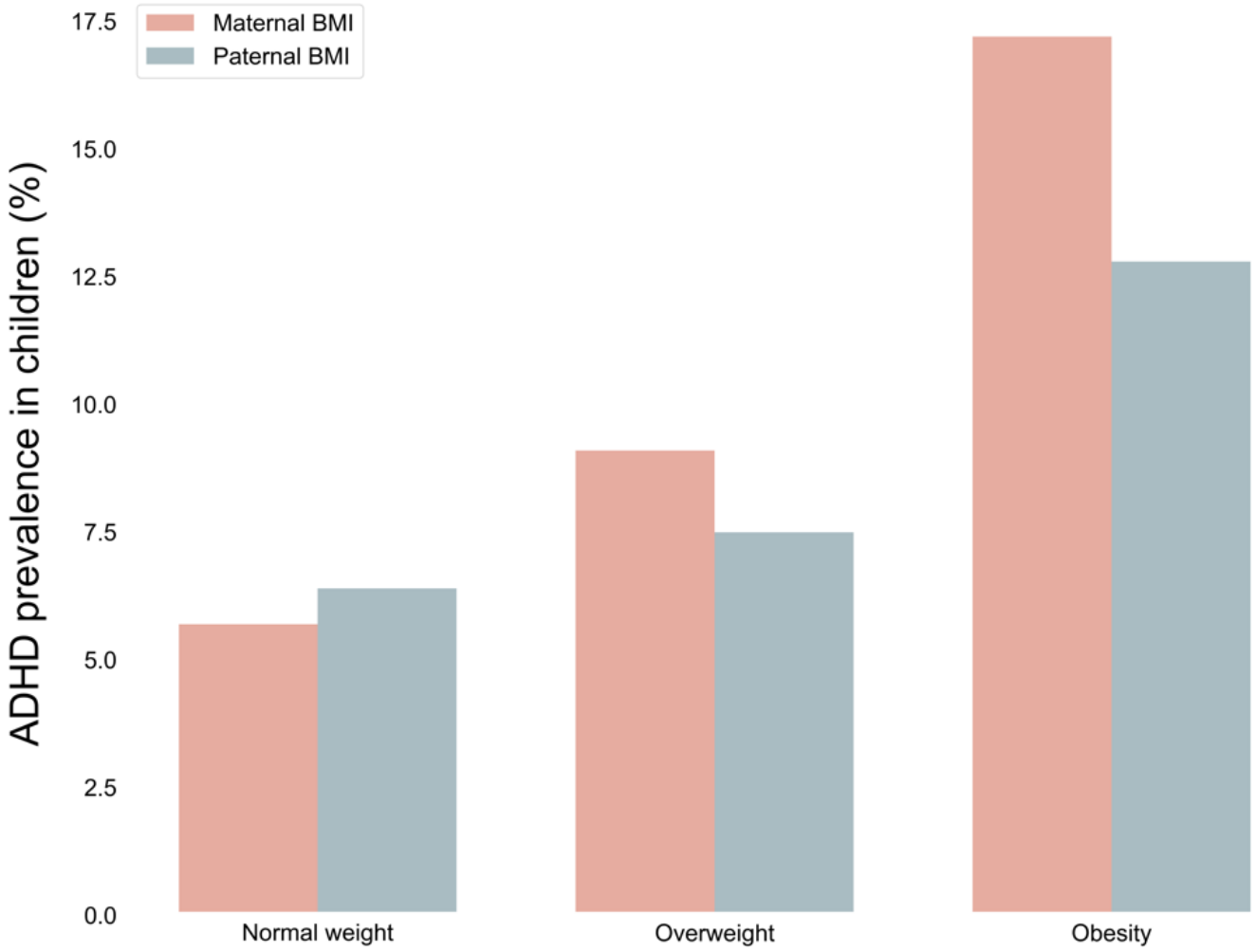


Fast et al. Dev Med Child Neurol 2023

- Ökad risk för ADHD hos barn som fötts för tidigt, före vecka 37.
- Även ökad risk vid ung ålder hos mamman, låg utbildningsnivå och rökning hos föräldrarna.
- Högt BMI hos mamman, **men också pappan**, när mamman var gravid, hade betydelse för barnets risk för ADHD.

Fast et al. Dev Med Child Neurol 2023

Föräldra-BMI och ADHD hos barnet



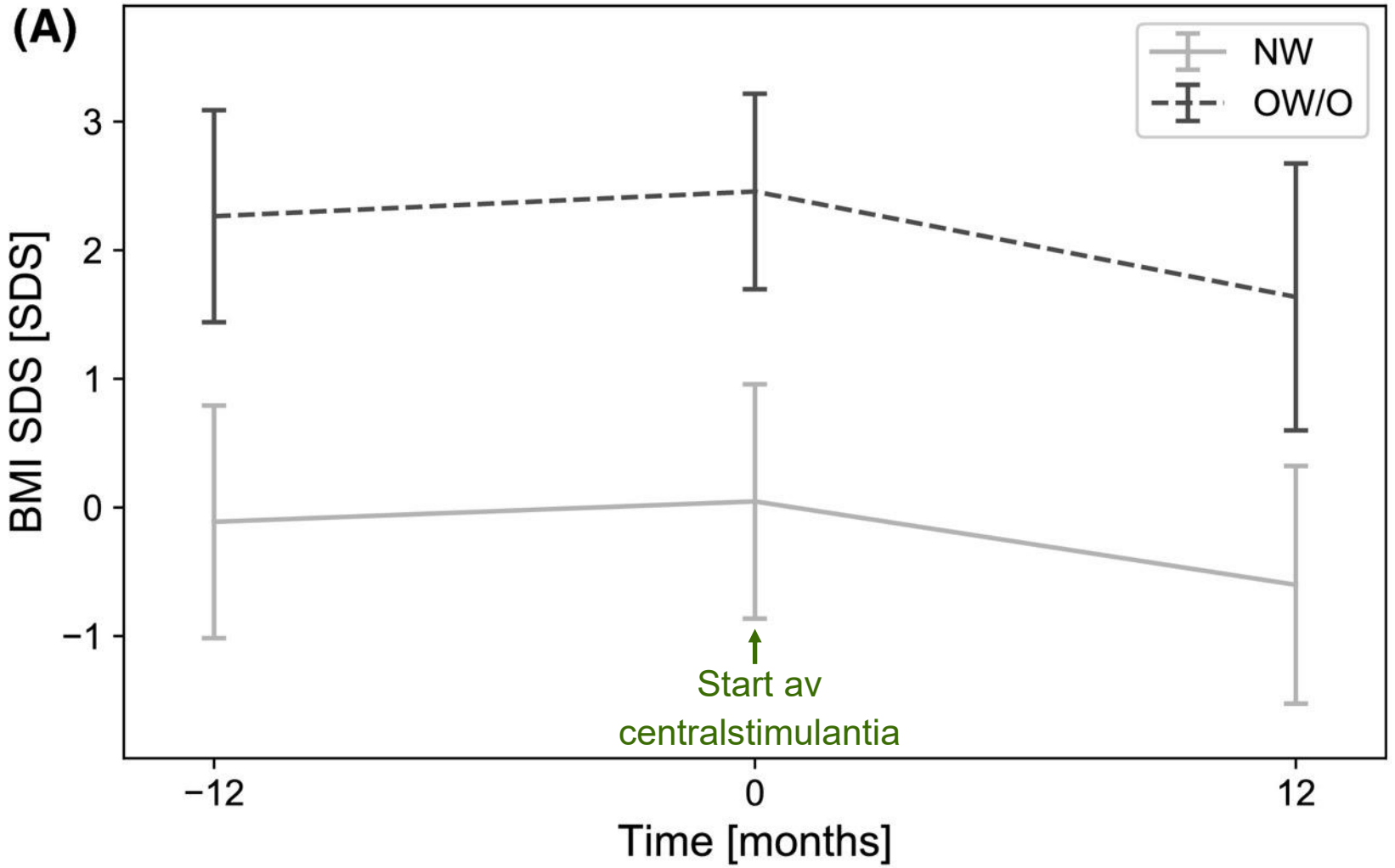
Fast et al. Acta Paediatr 2021

Vad händer med viktutvecklingen när barn med ADHD börjar med centralstimulantia?

Undersöka viktförändringar vid behandling med centralstimulantia hos barn med ADHD.

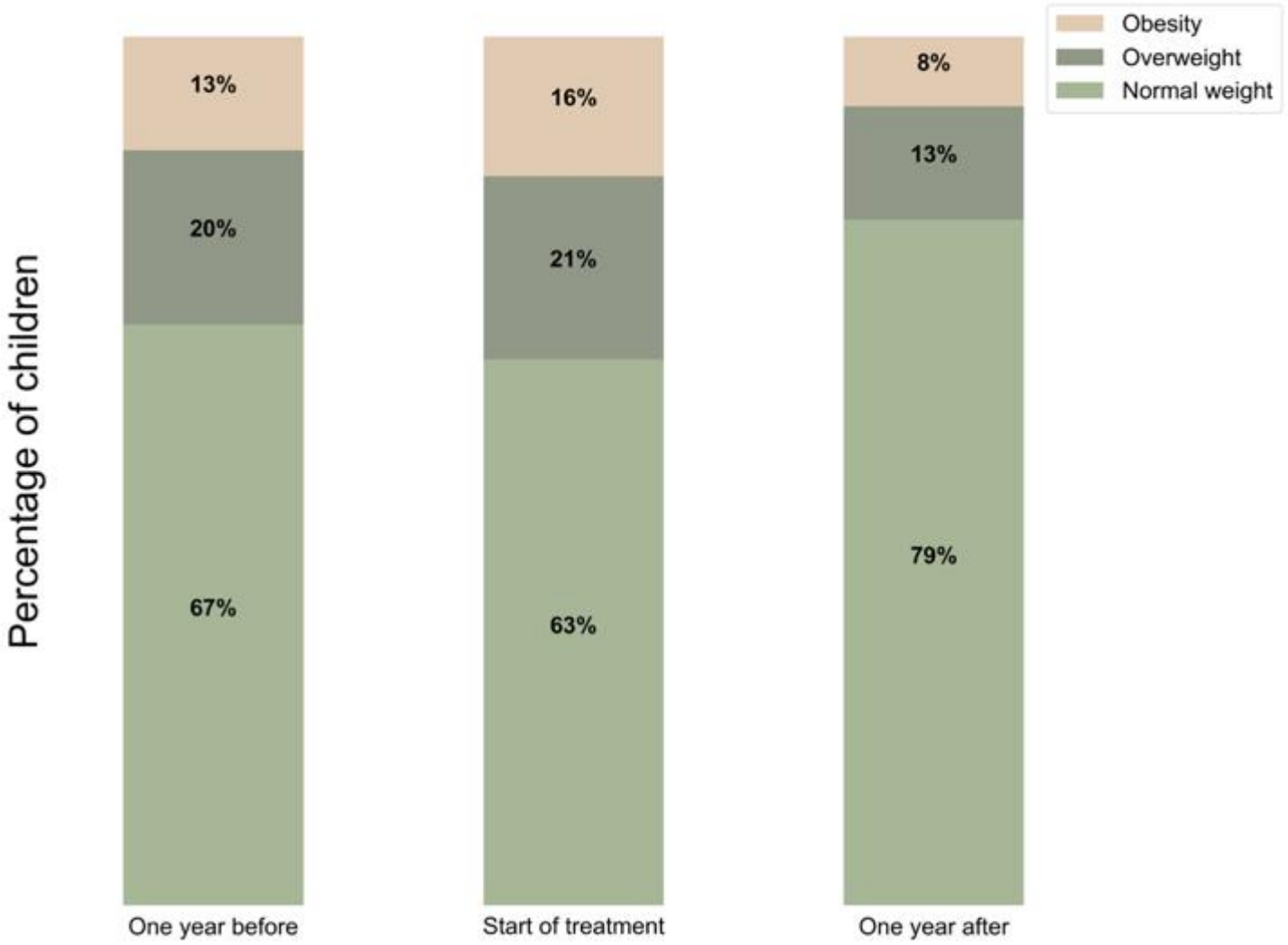


Fast et al. Acta Paediatr 2021



BMI-förändring vid ADHD-behandling

Fast et al. Acta Paediatr 2021

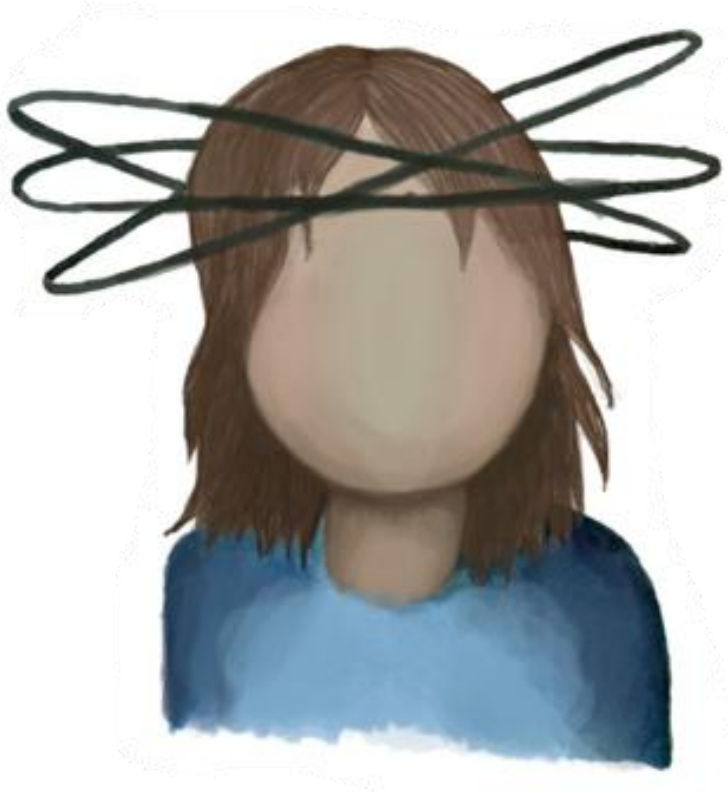


Izsak et al. Eur Child Adolesc Psychiatry 2026

En större studie av metylfenidat och viktutveckling

Hur påverkas BMI av metylfenidatbehandling?

- Populationsbaserad registerstudie från Göteborg
- BMI-utvecklingen jämfördes mellan barn med undervikt, normalvikt, övervikt och obesitas



Izsak et al. Eur Child Adolesc Psychiatry 2026

BMI minskade i alla viktgrupper

Obesitas

10,4 → 5,7 %

Efter ett års behandling

Undervikt

6,6 → 13,1 %

Efter ett års behandling

- BMI-SDS minskade i samtliga viktgrupper under första behandlingsåret.
- Störst minskning sågs hos barn med obesitas (cirka −0,5 SDS).
- Under andra behandlingsåret var BMI-utvecklingen relativt stabil hos dem som fortsatte behandlingen.

Fast et al. Acta Paediatr 2021

Läkemedel och vikt

Centralstimulantia:

- Minskad aptit initialt
- Komplexa långsiktiga effekter på vikt
- Kan förbättra självreglering och måltidsmönster hos vissa barn

Andra psykofarmaka:

- Risk för biverkan med viktuppgång
- Effekten varierar mellan olika preparat och samsjuklighet

Marcus et al. Acta Paediatr 2014
Gillberg C. Res Dev Disabil 2010
Janson et al. Acta Paediatr 2019

Kliniska implikationer

- Stöd till föräldrar
- Tidig identifiering och tidiga stödinsatser
- Tydlig, förutsägbar och flexibel vård
- Tvärprofessionellt samarbete
- Fokus på sömn, vardagsrutiner och sensoriska behov
- Behov av multidisciplinärt stöd kring barnet och familjen



Tänk om ADHD, autism och obesitas inte är tre enhetliga tillstånd, utan snarare tre kliniska paraplybegrepp som rymmer flera olika biologiska utvecklingsvägar?

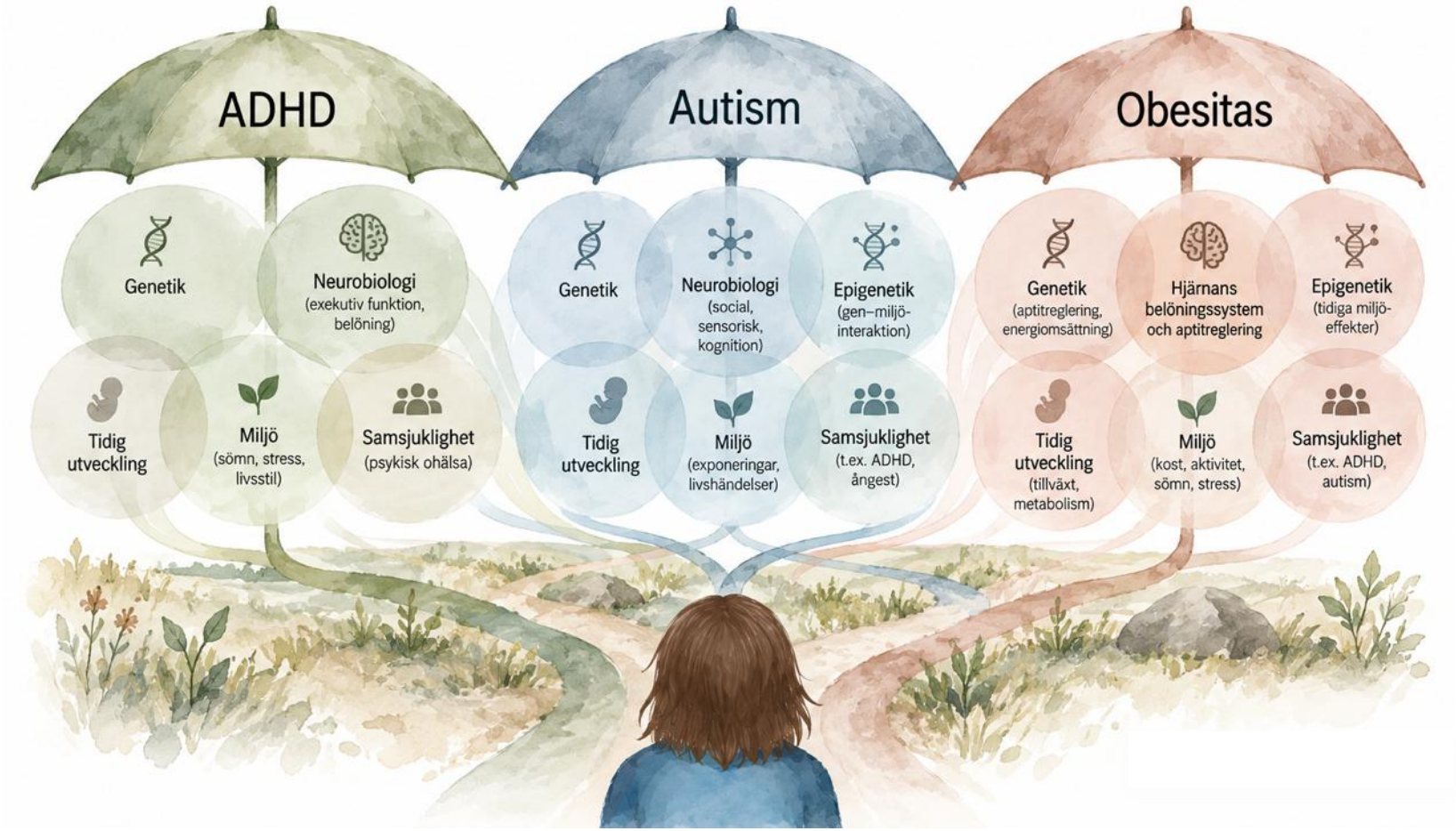


Illustration framtagen med hjälp av ChatGPT (OpenAI, 2026)

Take-home

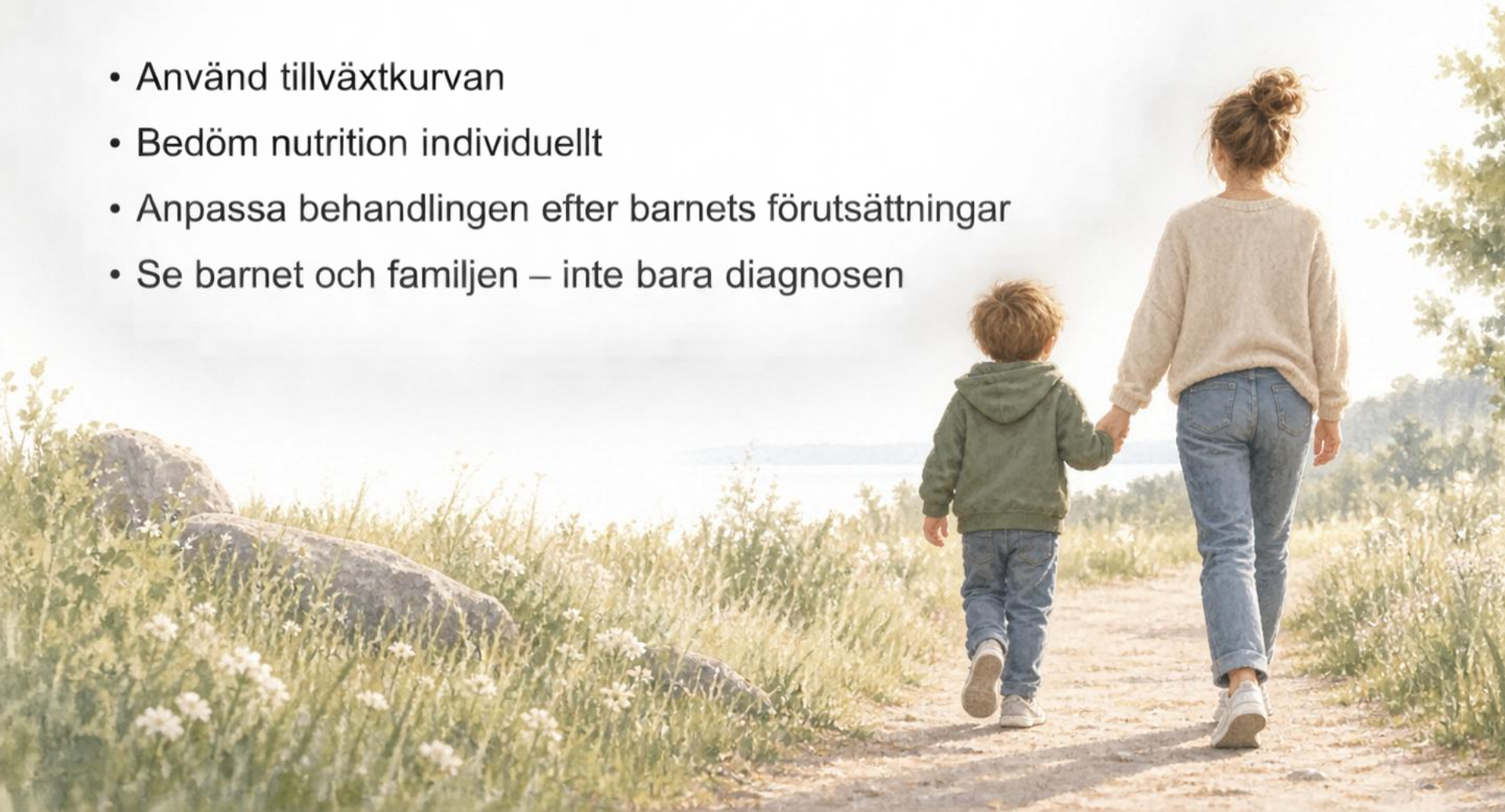
- ADHD och autism är kopplade till ökad risk för obesitas
- Sambanden är komplexa och multifaktoriella
- Tidiga tillväxtmönster och familjära faktorer kan ge viktig information om sårbarhet
- ADHD-behandling kan påverka viktutvecklingen – och ibland bidra till viktnormalisering



Hampl et al. Pediatrics 2023
NICE Guideline 2025

Vad betyder det i kliniken?

- Använd tillväxtkurvan
- Bedöm nutrition individuellt
- Anpassa behandlingen efter barnets förutsättningar
- Se barnet och familjen – inte bara diagnosen



"JAG HAR INGEN TEORI OM BARN. JAG TYCKER BARA ATT MAN SKA BEHANDLA DEM MED RESPEKT OCH KÄRLEK.”

Citat av Astrid Lindgren

Illustrationer av Cecilia Kullberg

