Jens-Christian Holm

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Diabetes Update 2018
Obesity development in Copenhagen school children 1947-2003

6-8 yr old; increased with 20 times ♂
115 times ♂

14-16 yr old; increased with 6 times ♂
39 times ♂

A widely held belief about childhood obesity that simply isn’t true
Prevalence of class I, II, and III obesity among children, 2-17

Source: National Health and Nutrition Examination Survey via Ashley Cockrell Skinner, Eliana M. Perrin and Joseph A. Skelton
WAPO.ST/WONKBLOG
Prevalence of severe obesity (Class II+III) among children, 2-17

Source: National Health and Nutrition Examination Survey via Ashley Cockrell Skinner, Eliana M. Perrin and Joseph A. Skelton

WAPO.ST/WONKBLOG
Definition of obesity
Definition of obesity

2 to 20 years: Boys
Body mass index-for-age percentiles

2 to 20 years: Girls
Body mass index-for-age percentiles

Published May 03, 2005 (modified 10/16/07)

CDC, National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/nccdphp/dnpa/physical/
Obesity related Complications

- **Psychosocial**
  - Depression
  - Eating disorders
  - Poor self esteem

- **Respiratory**
  - Sleep apnoea
  - Asthma
  - Exercise intolerance

- **Gastrointestinal**
  - Gallstones
  - Fatty liver

- **Cardiovascular**
  - Dyslipidaemia
  - Hypertension
  - Coagulopathy
  - Chronic inflammation
  - Endothelial dysfunction

- **Renal**
  - Glomerulosclerosis

- **Endocrine**
  - Insulin resistance
  - Type 2 Diabetes
  - PCOS
  - Precocious puberty

- **Musculoskeletal**
  - SIFE
  - Blount’s Disease
  - Fracture
  - Pain
  - Malalignment
  - Balance problems
Cancer
282,137 patients

- Increase in BMI of 5 kg/m² was associated with cancer in the esophagus, large bowel, kidney, and thyroid.
- Increase in BMI of 5 kg/m² was associated with cancer in the uterus, gall bladder, esophagus, and kidney.
- Association between an increase in BMI and cancer in the rectum and malignant skin cancer.
- As well as cancer in the breast (postmenopausal), large bowel, pancreas and thyroid.
- And leukemia, multiple myeloma and non-Hodgkin lymphoma in both genders.

Context 2018

Overwhelming number of patients

Overwhelming comorbidities

Very little structure

Enormous need to treat

Need to act now!
‘A disorder with a specific cause (which may or may not be known) and recognizable signs and symptoms; any bodily abnormality or failure to function properly, except that resulting directly from physical injury (the latter, however, may open the way for disease)’.

Multiple established specific causes

The circular logic of defining obesity by its signs of elevated anthropometric values (such as BMI, waist circumference, or percent of body fat) seems problematic to some yet is shared by multiple conditions in the medical nomenclature.

Are characterized by increased tendency towards tissue-specific resistance to the actions of insulin, increased mechanical stress on joints, and impaired cardiovascular function. These may manifest as abnormal glucose tolerance, dyslipidemia, varying degrees of hypertension, orthopedic complications, and the presence of early atherogenesis. Importantly, childhood obesity is commonly associated with a reduced quality of life and impaired social functioning of the child.
WHO recognition of the global obesity epidemic

W P T James

1London School of Hygiene and Tropical Medicine, International Obesity TaskForce, London, UK

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The recognition of obesity as a disease was in theory established in 1948 by WHO's (World Health Organization) taking on the International Classification of Diseases but the early highlighting of the potential public health problem in the United States and the United Kingdom 35 years ago was considered irrelevant elsewhere. The medical profession disregarded obesity as important despite the new evidence and WHO data set out in the 1980s.
Today can now be declared one of the most monumental days in healthcare, since the war on tobacco was started. The AMA American Medical Association has declared Obesity a disease.

The group of doctors voted in their annual meeting today with an overwhelming majority of support. While the immediate benefits are not still clear what is known is that there will now be a larger focus on treating and studying obesity. Other changes down the line could include better insurance coverage for the treatment of obesity.
CMA recognizes obesity as a disease

by Pat Rich  10/9/2015

The Canadian Medical Association (CMA) has declared obesity to be a chronic medical disease requiring enhanced research, treatment and prevention efforts.

At the recent meeting of the CMA Board of directors, overwhelming support was given to a resolution to this effect that had been referred to the Board for consideration from the August General Council meeting.

“It is important for health care providers to recognize obesity as a disease so preventive measures can be put in place and patients can receive the appropriate treatment,” said CMA President Cindy Forbes.

“This move by the CMA speaks to the importance of addressing obesity and dealing with the stigma that is often associated with the condition.”

“We need to strongly alter the course of the problem,” said Board member Dr. Adam Steacie who brought the issue forward.

He said recognizing obesity as a disease may precipitate a shift in thinking of obesity as just a lifestyle choice to a medical disease with an obligation to treat it as other diseases. Steacie acknowledged that there is divided opinion as to whether obesity should be considered a disease but said it meets the definition because it decreases life expectancy and impairs normal functioning of the body; also, it can be caused by genetic factors.

Several other prominent medical and health organizations, including the American Medical Association, have declared obesity a chronic disease.

The resolution was referred from General Council in part because of concerns about the limitations of using body mass index (BMI) as the measure for diagnosing obesity.
• According to the Convention on the Rights of the Child (CRC) by the UNICEF;

• this reality is unacceptable because all children should be able to receive medical care when it is needed: ‘States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services’
Clinical Information

The Ethics of Childhood Obesity Treatment – from the Childhood Obesity Task Force (COTF) of European Association for the Study of Obesity (EASO)

Jens Christian Holm\textsuperscript{a} Paulina Nowicka\textsuperscript{b} Nathalie J. Farpour-Lambert\textsuperscript{c} Grace O’Malley\textsuperscript{d, e} Maria Hassapidou\textsuperscript{f} Ram Weiss\textsuperscript{g} Jennifer L. Baker\textsuperscript{h, i}

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Clinical Information

Childhood Obesity Is a Chronic Disease Demanding Specific Health Care – a Position Statement from the Childhood Obesity Task Force (COTF) of the European Association for the Study of Obesity (EASO)

Nathalie J. Farpour-Lambert\textsuperscript{a} Jennifer L. Baker\textsuperscript{b, c} Maria Hassapidou\textsuperscript{d} Jens Christian Holm\textsuperscript{e} Paulina Nowicka\textsuperscript{f} Grace O’Malley\textsuperscript{g} Ram Weiss\textsuperscript{h}

\textsuperscript{a}Obesity Prevention and Care Program Contrepoids, Service of Therapeutic Education for Chronic Diseases, Department of Community Medicine, Primary Care and Emergency, University Hospitals of Geneva and University of Geneva, Geneva, Switzerland; \textsuperscript{b}Institute of Preventive Medicine, Bispebjerg and Frederiksberg Hospital, The Capital Region, Copenhagen, Denmark; \textsuperscript{c}Novo Nordisk Foundation Center for Basic Metabolic Research, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark; \textsuperscript{d}Alexander Technological Educational Institute of Thessaloniki, Department of Nutrition and Dietetics, Thessaloniki, Greece; \textsuperscript{e}The Children’s Obesity Clinic, Department of Paediatrics, Copenhagen University Hospital Holbæk, Holbæk, Denmark; \textsuperscript{f}Division of Pediatrics, Karolinska Institute, Stockholm, Sweden; \textsuperscript{g}Physiotherapy Department; Temple Street Children’s University Hospital, Dublin, Ireland; \textsuperscript{h}Department of Human Metabolism and Nutrition and the Department of Pediatrics, The Hadassah Hebrew University School of Medicine Jerusalem, Israel
Otte ud af ti danskere: Det er fedes eget ansvar at de er tykke

Det er dit eget ansvar, hvis du er tyk, mener 82 procent i en ny måling. Her svarer næsten halvdelen også, at der ikke bør åbnes for flere fedmeoperationer. Formand for fedme-opererede peger på, at indgreb på lang sigt giver samfundet en gevinst.
Fat mass is beneficial in an evolutionary perspective
Phenotypes of the ob/ob and db/db mice

- Hungry
- Obese
- Insulin resistant
- Impaired growth
- Hypothermic
- Hypoactive
- Infertile
- Cortisol $\uparrow$, T3/T4 $\downarrow$
- Immune-incompetent

Ingestion of food generates neural and hormonal satiety signals to the hindbrain. Leptin/insulin-sensitive central effector pathways interact with hindbrain satiety circuits to regulate the meal size, thereby modulating food intake and energy balance.

Leptin and insulin act on central effector pathways in the hypothalamus, repressing brain anabolic neural circuits that stimulate eating and inhibit energy expenditure, while simultaneously activating catabolic circuits that inhibit food intake and increase energy expenditure.

Leptin and insulin circulate in the blood in concentrations proportional to body fat content and energy balance.

Figure 1 Model showing how a change in body adiposity is coupled to compensatory changes of food intake. Leptin and insulin are adiposity signals, secreted in proportion to body fat content, which act in the hypothalamus to stimulate catabolic, while inhibiting anabolic, effector pathways. These pathways have opposing effects on energy balance (the difference between calories consumed and energy expended) that in turn determines the amount of body fuel stored as fat.
Mice receiving 5% less food vs. Mice receiving food = need

Negative energy balance?

- Induces comprehensive neuroendocrinological adaptations
- Energy balance is not a passive balance, but instead an active biological function to ensure sufficient energy to those demands anticipated in the future
- Fat and energy regulation is able of being "energy efficient" when demanded
- Be careful about expectations/predjudice since you really don't know what is going on in the individual patient
Neuroendocrinological adaptation against weight loss provide

Translation which explains weight regain

Self-identification in most patients

We don`t know what the challenge is individually

Be humble and serious with your patient

Convey an understanding of the patient`s situation
Lucas

Constantly hungry to a degree where he feels he is starving to death

-Totally leptin resistant-
Distinguish between *Causes* and *ensuing fat mass regulation*

Multifactorial including environmental factors and psychosocial neglect

Genetic – mono/polygenetic

Syndromes

Medications (antipsychotic, steroids etc)

Endocrine

Early growth related

VERSUS the ENSUING fat mass regulation AIMED at energy PRESERVATION

PARAMOUNT IMPORTANCE IN DAILY CLINICAL PRACTICE
Fish trap
Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report.

Barlow SE; Expert Committee.

Abstract

To revise 1998 recommendations on childhood obesity, an Expert Committee, comprised of representatives from 15 professional organizations, appointed experienced scientists and clinicians to 3 writing groups to review the literature and recommend approaches to prevention, assessment, and treatment. Because effective strategies remain poorly defined, the writing groups used both available evidence and expert opinion to develop the recommendations. Primary care providers should universally assess children for obesity risk to improve early identification of elevated BMI, medical risks, and unhealthy eating and physical activity habits. Providers can provide obesity prevention messages for most children and suggest weight control interventions for those with excess weight. The writing groups also recommend changing office systems so that they support efforts to address the problem. BMI should be calculated and plotted at least annually, and the classification should be integrated with other information such as growth pattern, familial obesity, and medical risks to assess the child's obesity risk. For prevention, the recommendations include both specific eating and physical activity behaviors, which are likely to promote maintenance of healthy weight, but also the use of patient-centered counseling techniques such as motivational interviewing, which helps families identify their own motivation for making change. For assessment, the recommendations include methods to screen for current medical conditions and for future risks, and methods to assess diet and physical activity behaviors. For treatment, the recommendations propose 4 stages of obesity care; the first is brief counseling that can be delivered in a health care office, and subsequent stages require more time and resources. The appropriateness of higher stages is influenced by a patient's age and degree of excess weight. These recommendations recognize the importance of social and environmental change to reduce the obesity epidemic but also identify ways healthcare providers and health care systems can be part of broader efforts.
BMI above 99% percentile for age and gender

Age between 3-18 years

No selection criteria

EASO Collaborating Centres for Obesity Management (COMs)
Paediatric Section

Centre: The Children's Obesity Clinic, Copenhagen University Hospital
Contact: Jens-Christian Holm

We would like to take this opportunity to thank you for submitting an application for your centre to become an EASO accredited Collaborating Paediatric Centre for Obesity Management.

Under the EASO COM scheme, paediatric obesity management centres (including university and public clinics) are accredited against a set of carefully developed criteria and in accordance with accepted European and academic guidelines, with applying centres assessed by the EASO Childhood Obesity Task Force (COTF). The COTF has completed its assessment of your centre and we are pleased to confirm that your application was successful – your centre has thus been granted EASO COM status for the three year period 1st May 2015 to 31st April 2018.

Your centre will therefore be recognised by EASO as a leading paediatric obesity management centre in Europe throughout that period. The EASO COM network brings together accredited centres from across Europe and as a member of this network, your centre will have the opportunity to contribute to a number of important EASO projects. One of the main goals of the COM network is to develop consensus guidelines on a number of management issues, with consensus achieved via the exchange of expertise during specially convened ‘Paediatric COM Summit Meetings’.

We will send further information in due course, and look forward to working with you to develop the EASO Paediatric COM network and its important actions in the coming years.

With kind regards
Yours sincerely

Professor Gema Frühbeck  
President, EASO

Professor Nathalie Farpour-Lambert  
Chair, EASO COTF

Mr Euan Woodward  
Executive Director, EASO

On behalf of the EASO COTF and Executive Committee.
TCOCT protocol
4-5 hours of HCP time per patient per year

Reduces the degree of obesity in 65, 75, 80 and 90% of children

- Reduce degree of hypertension

- Reduce degree of steatosis

- Reduce degree of dyslipidemia

- Reduce parental degree of obesity

- Reduces appetite and bullying

- Increases QoL body selfesteem

- Primary and secondary sectors

- Preliminary studies in adults (weight reduction in 80%)

- Independent upon baseline degree of obesity and SES

- Independent on familial predisposition

- Independent on impaired glucose metabolism

- Independent on disordered eating

- Independent on sugary intakes
  - Trier, C. et al. No influence of sugar, snacks and fast food intake on the degree of obesity or treatment effect in childhood obesity. Pediatric Obesity n/a n/a (2016).
Paediatrician: first contact, tailored plan
Dietician: advices according to guidelines
Nurses: advice, counseling and support
Psychologists: Family based / individual consultations
Social workers: social support according to need
Secretaries: booking, journals, calls, etc.
Research assistants: blood testing, data entry in database, quality control

In-patient admittance

7 pages questionnaire history
Physical exam
Anthropometry
PEDsQL and VAS
DEXA
24 hour BP
MRS
Blood samples
Run and jump test
Eating practices; arranged in the kitchen, plate model, 2 serving after 20 minutes in order to target the eating disturbance; over-, rapid-, comfort eating, and avoidance of meals

Satiated at meals – conservatively speaking (ad libitum intake!)

Sugar dependency?

Allowance?

In bed times?

Hygiene?
Focused Pedagogy

• Based on true empathy, not HCP speculations or perceptions

• A wider HCP responsibility

• Initiate 10-25 plan items changes from start

• Without compromise during growth and development

Criteria of success

- Avoid drop-out
- To reach the children, establish trust
- Getting better with a reduced appetite
- Maintain weight during growth
- Adult height; weight loss
- Severely obese; lower weight though still obese

1. *Eat breakfast*
2. *Avoid high fat and sugar refined products*
3. *Eat cereals, dark bread with low fat meats rich in vitamins and minerals*
4. *Lunch; avoid high fat and sugar products*
5. *Eat dark bread with low fat meats / vegetables*
6. *Afternoon; avoid various high fat and sugar intakes*
7. *Controlled eating similar to breakfast*
8. *Dinner; avoid high fat diets*
9. *Instead low fat meats, complex carbohydrates, vegetables*

Plan items

10. Fast food reduced to once monthly
11. Sweets once weekly
12. Snacking once weekly
13. Soda, juice, ice-tea etc one weekly; ½ l in total
14. Fruit; max 2 per day
15. Transportation to school; walking or bicycling
16. TV/PC reduced to 2 hours daily
17. TV/PC not before 5 o’clock pm
18. Organized sport

617 children; 292 boys and 325 girls

Mean BMI SDS 3.03 and age 11.5 year

Weight; ♂; 64.7(18.9-160.8) ♀; 59.6 (23.2-186.0) kg

492 had more than 1 visit
70 stopped - drop out (14.2%)

376 reduced their BMI SDS (76.4%) (p<0.0001) after a mean of 12 months

<table>
<thead>
<tr>
<th>N of children and (N of diagnoses)</th>
<th>From the Pediatric Department</th>
<th>From GP and School based Doctors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>192 (214)</td>
<td>412 (126)</td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>58</td>
<td>26</td>
</tr>
<tr>
<td>Allergy</td>
<td>53</td>
<td>47</td>
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<tr>
<td>Neurologic diseases</td>
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<tr>
<td>ADHD</td>
<td>11</td>
<td>7</td>
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<tr>
<td>Asberger</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>CP</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Epilepsia</td>
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<td></td>
</tr>
<tr>
<td>Other neurologic</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Orthopedic</td>
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<tr>
<td>Cardiologic</td>
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<tr>
<td>Endocrine</td>
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<td>DM type 1</td>
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<td>1</td>
</tr>
<tr>
<td>Hyperthyrodimus</td>
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<td>1</td>
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<td>Hypothyroidismus</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Other endocrine</td>
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<td>3</td>
</tr>
<tr>
<td>Retentio testis</td>
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<td></td>
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<tr>
<td>Enuresis nocturna</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Dermatitis</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Abdominal</td>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>

Other neurological diseases: Obsessive Compulsive Disease, Autism, Hydrocephalus, and Fragile X syndrome, Down, Headache, Tourette, Blindness, Dyslexia, Duchenne-Erb palsy, Klumpkes Paresis.

Orthopedic: Mb. Scheuerman, Osgood Schlatter, Epifysiolyis.

Cardiologic diseases: Hypercholesterolemia, Hypertension, and Heart Murmur.

Other endocrine: Beckwieth syndrome, Testis agenesi, Gynecomastasia, Polycystic Ovarian Syndrome, Pseudoparathyroidismus, Pubertas Praecox.

Abdominal: Sprue, Reflux, Obstipation.

Drop out

70 children stopped treatment

8 moved away

5 due to success

15 own wish

42 "dirty drop-out" (8.5%)
Treatment results 2008-2009
Treatment results 2008-2009
Background

**Puberty**: tendency that girls with menarche lost more weight.

**Sex**: tendency that boys lost more weight.

**Age**: none in boys, girls over 11.5 years lost less weight, but still significant with $P<0.0001$.

**Baseline BMI SDS**: Over 3.0 no different than below.

**Social class**: None, except a tendency that class 1 lost more
1657 children
924 girls
Median age 11.5 years (range 3-25)
Median BMI SDS of 2.8 (range 1.4-5.5)

733 boys
Median age 11.9 years (range 3-21)
Median BMI SDS of 3.2 (range 1.4-9.7).

Treatment results 2008 - 2014

Treatment effect on BMI z-score

- Boys
- Girls
- 95% Conf. int.

BMI SDS

Treatment (years)
Puberty; tendency that girls with menarche lost more

Sex; boys lost more weight

Age; Elder children (age above 11.7 years) exhibited a lower degree of weight loss compared to younger children, though still attaining a significant weight loss ($p<0.0001$).

Baseline BMI SDS; Over 3.0 no different than below

Social class; None, except a tendency that class 1 lost more
Obesity and type 2 diabetes

Schematic illustration of the detrimental effect of increasing amounts of adipose (fat) tissue on whole-body sensitivity to the actions of insulin and glucose tolerance. Elevated rates of fat breakdown (lipolysis) lead to a release of FFAs. These have a detrimental action on the uptake of insulin by the liver, which in turn results in increased gluconeogenesis (breakdown of amino acids and conversion to glucose), production of glucose by the liver, and systemic dyslipidaemia. These factors contribute to the prevailing systemic hyperinsulinaemia (raised circulatory insulin concentrations) and decreased skeletal insulin sensitivity with reduced glucose uptake. Initially, the β-cells of the pancreas compensate for these processes by producing more insulin. In time, there is failure of the β-cells and the development of a raised circulating blood glucose concentration (hyperglycaemia), and hence type 2 diabetes.

Key:
- ↑Gluconeogenesis — increased breakdown of amino acids and conversion to glucose.
- Hyperglycaemia — raised circulating blood glucose concentration.
- Hyperinsulinaemia — raised circulating blood insulin concentration.
- ↓Insulin resistance — ↑insulin sensitivity — reduced uptake by tissues of circulating glucose due to decreased sensitivity of cells to insulin action.
- ↓Antilipolytic effect of insulin — diminished action of insulin on fat cells to prevent the breakdown of fat to free fatty acids (FFAs).
- Dyslipoproteinaemia — abnormal blood lipid concentrations: ↓HDL-chol, reduced HDL-cholesterol; ↑LDL-Tg, increased LDL-triglyceride; ↑LDL, increased LDL concentrations.
Reductions in hepatic steatosis in chronic care childhood obesity treatment

- 88 (31 %) of 287 overweight/obese children and adolescents
- 12 months of treatment: significant reductions in hepatic fat (especially in those exhibiting hepatic steatosis),
- independent of age, sex, pubertal stage, duration of treatment, changes in BMI SDS, baseline degree of obesity.
Original Article

Effect of changes in BMI and waist circumference on ambulatory blood pressure in obese children and adolescents

Kristian Nebelin Hvidt, Michael Hecht Olsen, Hans Ibsen, and Jens-Christian Holm

Background: Weight reduction has been accompanied with a reduction in clinic blood pressure (BP) in children and adolescents; however, the effect on ambulatory BP (ABP) is uncertain. The objective was to investigate the impact of weight changes on ABP in obese children and adolescents.

Methods: Sixty-one severely obese patients aged 10–18 years underwent lifestyle intervention at the Children’s Obesity Clinic. Patients were examined with ABP monitoring at baseline and after 1 year of treatment (follow-up). To account for growth, BP and BMI were standardized into z scores, whereas waist circumference was indexed by height (waist/height ratio (WHR)).

Results: Patients experienced a reduction at follow-up in the degree of obesity (ΔBMI z score: –0.21, 95% confidence interval (CI) –0.32 to –0.10, P = 0.0003; and ΔWHR: –0.02, 95% CI –0.03 to –0.004, P = 0.009). Δ24-h, Δdaytime and Δnight-time SBP and DBP in mmHg and changes in equivalent z scores were related to ΔBMI z scores and ΔWHR. These relationships were reproduced in multiple regression analyses adjusted for relevant confounders, for example, a reduction in one BMI z score corresponds to a reduction in 24-h SBP by 6.5 mmHg (P < 0.05). No relationship was found between changes in these anthropometric obesity measures and changes in clinic BP.

Conclusion: Changes in obesity measures were closely related to changes in ABP, but not to changes in clinic BP, in severe obese children and adolescents after 1 year of lifestyle intervention. The findings do not support that weight loss is associated with a reduction in ambulatory BP.

INTRODUCTION

Obesity is associated with elevated blood pressure (BP) in children and adolescents [1,2], and weight reduction has been accompanied with a reduction in clinic BP [3–5]. Ambulatory BP (ABP) is the most precise measure to evaluate the BP burden [6–8], and weight-associated reduction in ABP has been related to a reduction in risk factors of cardiovascular disease in adults [9]. Knowledge is lacking on the effect of weight reduction on ABP in children and adolescents, and it is unknown whether changes in ABP are more closely related to changes in the degree of obesity when compared to changes in clinic BP.

Anthropometric and BP measurements over time during childhood are complicated by the influence of growth. However, actual measured values of BMI and BP can be standardized into z scores in respect to normative reference populations [10,11]. An ABP z score value of zero is the expected mean in respect to sex and height of the reference population [8,12]. Waist circumference – a surrogate for abdominal fat – can be indexed by height representing growth when comparing measurements over time [13–15].

The objective of the present study is to investigate whether weight changes are more closely related to changes in ABP than changes in clinic BP in severe obese children and adolescents after 1 year of lifestyle intervention.

METHODS

Design and patients

Recruitment period was from January 2011 to January 2012, and continued until 100 obese Caucasian patients were...
Changes in Lipidemia during Chronic Care Treatment of Childhood Obesity

Tenna Ruest Haarmark Nielsen, M.D.,¹ Michael Gamborg, Ph.D.,² Cilius Esmann Forvig, M.D.,¹ Julie Kloppenborg, M.D.,¹ Kristian Nebelin Hvidt, M.D.,¹ ³ Hans Ibsen, M.D., DrMedSci,³ and Jens-Christian Holm, M.D., Ph.D.¹

Conclusion: High lipid concentrations were associated with childhood obesity. The lipid profile improved during weight loss independently of the baseline BMI SDS and baseline lipid concentration.

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²Institute of Preventive Medicine, Copenhagen University Hospital, Copenhagen, Denmark.
³Division of Cardiology, Department of Internal Medicine, Copenhagen University Hospital Holbaek, Denmark.
Dyslipidemia in Obese Children

N=240 obese children and adolescents
(Age 11.3 years[3.9-20.9], BMI SDS 2.96[1.17-5.54]).

Prevalence of dyslipidemia **27.1%**

Dyslipidemia improved with weight loss: **OR 0.37**
per BMI SDS, $P = 0.014$ over median 12.9 months (adjusted for age, sex, and baseline BMI SDS)

Weight loss was associated with a decrease in the concentrations of

- TC ($P = 0.0005$)
- LDL ($P < 0.0001$)
- non-HDL ($P < 0.0001$)
- TG ($P < 0.0001$)
- HDL ($P < 0.0001$)

Impaired fasting glucose and the metabolic profile in Danish children and adolescents with normal weight, overweight, or obesity

Julie T Kloppenberg1,2 | Cilius E Fonvig1,3,4 | Tenna R H Nielsen1,3 | Pernille M Mollerup1,3 | Christine Bøjssø1,3 | Oluf Pedersen3,5 | Jesper Johannesen2,5 | Torben Hansen3,5 | Jens-Christian Holm1,3,5

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5Hans Christian Andersen Children’s Hospital, Odense University Hospital, Odense, Denmark
6Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

Correspondence
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Funding Information
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Objective: Whether the definitions of impaired fasting glucose (IFG) from the American Diabetes Association (ADA) and the World Health Organization (WHO) differentially impact estimates of the metabolic profile and IFG-related comorbidities in Danish children and adolescents is unknown.

Methods: Two thousand one hundred and fifty four (979 boys) children and adolescents with overweight or obesity (median age 12 years) and 1824 (728 boys) children with normal weight (median age 12 years) from The Danish Childhood Obesity Biobank were studied. Anthropometrics, blood pressure, puberty, and fasting concentrations of glucose, insulin, glycated hemoglobin (HbA1c), and lipids were measured.

Results: About 14.1% of participants with overweight or obesity exhibited IFG according to the ADA and 3.5% according to the WHO definition. Among individuals with normal weight, the corresponding prevalences were 4.3% and 0.3%. IFG was associated with a higher systolic blood pressure, higher concentrations of HbA1c, Insulin, C-peptide (P < .0001) and triglycerides (P = .03), and lower HOMA2-IS and HOMA2-B (P < .0001) independent of sex, age, puberty, waist-to-height ratio, and degree of obesity. Furthermore, IFG was associated with a higher risk for hypertension (OR = 1.66 [95% CI: 1.21; 2.28], P = .002) and dyslipidemia (OR = 1.90 [95% CI: 1.38; 2.56], P < .0001) compared with the group without IFG independent of age, sex, and puberty.

Conclusions: The prevalence of IFG, when applying the ADA criterion compared with the WHO criterion, was 4 times higher in individuals with overweight and obesity and 14 times higher in individuals with normal weight in this study sample of children and adolescents. IFG was associated with a higher risk of hypertension and dyslipidemia compared with their normoglycemic peers regardless of the definition applied.

KEYWORDS
children, glucose metabolism, impaired fasting glucose, obesity

1 INTRODUCTION

The increasing prevalence of altered glucose metabolism in children and adolescents, and the development of type 2 diabetes at an earlier age, might be consequences of the childhood obesity pandemic.1,2 In
RESEARCH ARTICLE

Effects of a Family-Based Childhood Obesity Treatment Program on Parental Weight Status

Cæcilie Trier¹,²*, Maria Dahl¹, Theresa Stjernholm¹, Tenna R. H. Nielsen¹,², Christine Bøjsøe¹,², Cilius E. Fonvig¹,², Oluf Pedersen², Torben Hansen²,³, Jens-Christian Holm¹,²,⁴

Table 2. Changes in parental body mass index of the parents of 664 children included in obesity treatment.

<table>
<thead>
<tr>
<th></th>
<th>Mothers</th>
<th>Fathers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N % of total Delta-BMI, kg/m²</td>
<td>p a</td>
</tr>
<tr>
<td>All</td>
<td>606 100 -0.5 (-0.8;-0.2)</td>
<td>0.0006</td>
</tr>
<tr>
<td>Normal weight</td>
<td>183 30 0.8 (0.5;1.1)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Overweight</td>
<td>195 32 -0.4 (-0.7;-0.0)</td>
<td>0.04</td>
</tr>
<tr>
<td>Obese</td>
<td>228 38 -1.7 (-2.3;-1.0)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Data are given as means with 95% confidence intervals unless stated otherwise.

Normal weight: BMI below 25 kg/m². Overweight: BMI equal to or above 25 kg/m² but below 30 kg/m². Obese: BMI equal to or above 30 kg/m².

* Paired t-test was used to calculate the p-values.

doi:10.1371/journal.pone.0161921.t002

No influence of sugar, snacks and fast food intake on the degree of obesity or treatment effect in childhood obesity

C. Trier,1,3,4 C. E. Fonvig,1,3 C. Bejsæe,1 P. M. Mollerup,1 M. Gamborg,3 O. Pedersen,2 T. Hansen,2,4 and J.-C. Holm1,2,5

Summary
Background: increased consumption of sweetened beverages has previously been linked to the degree of childhood obesity.

Objective: The aim of the present study was to assess whether the intake of sweetened beverages, candy, snacks or fast food at baseline in a multidisciplinary childhood obesity treatment program was associated with the baseline degree of obesity or the treatment effect.

Methods: This prospective study included 1349 overweight and obese children (body mass index standard deviation scores (BMI SDS) ≥ 1.64) enrolled in treatment at The Children's Obesity Clinic, Copenhagen University Hospital Holbæk. The children were evaluated at baseline and after up to 5.9 years of treatment (median 3.3 years).

Results: Both boys and girls decreased their BMI SDS during treatment with a mean decrease in boys of 0.35 (p < 0.0001) and in girls of 0.22 (p < 0.0001) after 1 year of treatment. There were no associations between the baseline intake of sweetened beverages, candy, snacks, and/or fast food and BMI SDS at baseline or the change in BMI SDS during treatment.

Conclusions: The intake of sweetened beverages, candy, snacks or fast food when entering a childhood obesity treatment program was not associated with the degree of obesity at baseline or the degree of weight loss during treatment.

Keywords: paediatric, obesity, treatment, sugar, beverages.

Abbreviations: BMI, Body mass index; SDS, Standard deviation score; SSB, Sugar-sweetened beverages; LI, Low intake; HI, High intake; MI, Medium intake; ALL-HI, All-high intake:

Introduction
The prevalence of childhood overweight and obesity has increased rapidly during the past decades (1,2). Although some studies show evidence of a stabilization of the prevalence rates, childhood obesity remains a major health challenge worldwide (3,4). Simultaneously, the intake of sugar-sweetened beverages (SSB), snacks and some variants of fast food among children has likewise increased (5), which may contribute to the high prevalence of childhood obesity.

A large number of cross-sectional and prospective studies have reported an association between a high intake (HI) of SSB and the development of obesity in both adults and children (6–10), although other studies have not confirmed this association (11–14). The association between a HI of snacks or fast food and the development of obesity in childhood remains unclear (10,15).
The Influence of Familial Predisposition to Cardiovascular Complications upon Childhood Obesity Treatment

Louise A. Nielsen, Christine Bøjsøe, Julie T. Kloppenberg, Cæcilie Trier, Michael Gamborg, Jens-Christian Holm

Abstract

Introduction
The aim was to investigate whether a familial predisposition to obesity related cardiovascular complications was associated with the degree of obesity at baseline and/or changes in the degree of obesity during a multidisciplinary childhood obesity treatment program.

Methods
The study included 1421 obese children (634 boys) with a median age of 11.5 years (range 3.1–17.9 years), enrolled in treatment for 0.04 to 5.90 years (median 1.3 years) at the Children's Obesity Clinic, Denmark. At baseline, weight and height were measured, body mass index (BMI) standard deviation score (SDS) calculated, and self-reported information on familial predisposition to obesity, hypertension, type 2 diabetes mellitus (T2DM), thromboembolic events, and dyslipidaemia were obtained. A familial predisposition included events in biological parents, siblings, grandparents, uncles, and aunts. The treatment outcomes were categorically analysed according to the prevalence of familial predispositions.

Results
The median BMI SDS at enrolment was 3.2 in boys and 2.8 in girls. One-thousand-and-forty-one children had obesity in their family, 773 had hypertension, 551 had T2DM, 568 had thromboembolic events, and 583 had dyslipidaemia. Altogether, 733 had three or more predispositions. At baseline, familial T2DM was associated with a higher mean BMI SDS (p = 0.03), but no associations were found between the other predispositions and the children's degree of obesity. During treatment, girls with familial obesity lost more weight, compared to girls without familial obesity (p = 0.04). No other familial predispositions were associated with changes in BMI SDS during treatment.

Conclusion
Obese children with a familial predisposition to T2DM showed a significantly higher degree of obesity at baseline and girls with familial obesity responded better to treatment. Besides these findings, no other associations were found between the occurrence of familial predispositions and the degree of obesity or changes herein during multidisciplinary childhood obesity treatment.
Disordered eating behaviours
Conclusions

• DEBs; Overeating, Emotional eating, Rapid eating, and Skipping meals

• DEBs were highly prevalent (63 %) in children and adolescents with overweight and obesity

• DEBs were not associated with the changes in BMI SDS during treatment

• The Children’s Obesity Clinic Treatment Protocol can improve the degree of obesity regardless of the presence of DEBs
Subjective evaluation of psychosocial well-being in children and youths with overweight or obesity: the impact of multidisciplinary obesity treatment

Cilious Esmann Fonvig1,2 · Sophie Amalie Hamann1 · Tenna Ruest Haarmark Nielsen1,2 · Mia Østergaard Johansen1 · Helle Nergaard Grønbæk1 · Pernille Maria Mollerup1 · Jens-Christian Holm1,2,3

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Abstract
Purpose To investigate the effects of a multidisciplinary childhood obesity treatment programme on subjective evaluations of psychosocial well-being and quality of life.
Methods This longitudinal observational study included 1291 children, adolescents and young adults, 6–22 years of age, with overweight or obesity. At entry and after 2–82 months of obesity treatment, the patients evaluated the following domains of psychosocial well-being on a visual analogue scale: quality of life, mood, appetite, bullying, motivation for weight loss and body image satisfaction. The degree of overweight was calculated using a body mass index (BMI) standard deviation score (SDS) at each visit.
Results At entry, the mean BMI SDS was 2.81 (range: 1.35–6.65, 95% confidence interval [95% CI]: 2.44–3.18). After a median of 14 months of treatment, the median reduction in BMI SDS was 0.29 (95% CI: 0.26–0.31, p < 0.0001). Improvements were observed in the domains of quality of life, mood, appetite, bullying and body image satisfaction (p < 0.0001). Larger reductions in BMI SDS were associated with greater improvements in the domains of quality of life (r = 0.001), mood (r = 0.04) and body image satisfaction (r < 0.0001), independent of BMI SDS at entry. However, improvements in psychosocial well-being were also observed in those increasing their BMI SDS (n = 315).
Conclusions In a large group of children and youths, psychosocial well-being improved during a multidisciplinary childhood obesity treatment programme, irrespective of the degree of obesity at treatment entry. Greater reductions in BMI SDS were associated with greater improvements in psychosocial well-being, but even in the group increasing their BMI SDS improvements were observed.
Keywords Appetite · Body image · Bullying · Motivation · Paediatric obesity · Quality of life

Electronic supplementary material The online version of this article (doi:10.1007/s11136-017-1667-5) contains supplementary material, which is available to authorized users.

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Introduction
The development of paediatric obesity is influenced by a wide range of factors including genetic predisposition [1], sedentary behaviour [2], unfavourable diet [3], socioeconomic status [4, 5] and health-related quality of life
Figure 1. Changes in psychosocial well-being during childhood obesity treatment
RESEARCH ARTICLE

Childhood obesity treatment; Effects on BMI SDS, body composition, and fasting plasma lipid concentrations

Tenna Ruest Haarmark Nielsen1,2,4, Cillus Esmann Fonvig1,2,3,2, Maria Dahl1, Pernille Maria Mollerup1, Ulrik Lausten-Thomsen1,4, Oluf Pedersen2, Torben Hansen1, Jens-Christian Holm1,2,4

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Abstract

Objective

The body mass index (BMI) standard deviation score (SDS) may not adequately reflect changes in fat mass during childhood obesity treatment. This study aimed to investigate associations between BMI SDS, body composition, and fasting plasma lipid concentrations at baseline and during childhood obesity treatment.

Methods

876 children and adolescents (498 girls) with overweight/obesity, median age 11.2 years (range 1.6–21.7), and median BMI SDS 2.8 (range 1.3–5.7) were enrolled in a multidisciplinary outpatient treatment program and followed for a median of 1.8 years (range 0.4–7.4). Height and weight, body composition measured by dual-energy X-ray absorptiometry, and fasting plasma lipid concentrations were assessed at baseline and at follow-up. Lipid concentrations (total cholesterol (TC), low-density lipoprotein (LDL), high-density lipoprotein (HDL), non-HDL, and triglycerides (TG)) were available in 469 individuals (264 girls). Linear regressions were performed to investigate the associations between BMI SDS, body composition indices, and lipid concentrations.

Results

At baseline, BMI SDS was negatively associated with concentrations of HDL ($p = 6.7 \times 10^{-4}$) and positively with TG ($p = 9.7 \times 10^{-6}$). Reductions in BMI SDS were associated with reductions in total body fat percentage ($p = 2 \times 10^{-6}$) and percent truncal body fat ($p = 2 \times 10^{-6}$). Furthermore, reductions in BMI SDS were associated with improvements in concentrations of TC, LDL, HDL, non-HDL, LDL/HDL-ratio, and TG (all $p < 0.0001$). Changes in body fat percentage seemed to mediate the changes in plasma concentrations of TC, LDL, and non-HDL, but could not alone explain the changes in HDL, LDL/HDL-ratio or TG. Among 81
Adoption of the children’s obesity clinic’s treatment (TCOCT) protocol into another Danish pediatric obesity treatment clinic

Sebastian W Most1, Birgitte Højgaard1, Grete Teilmann1, Jesper Andersen1, Mette Valentin1, Michael Gamborg2 and Jens-Christian Holm3,4

Abstract

Background: Treating severe childhood obesity has proven difficult with inconsistent treatment results. This study reports the results of the implementation of a childhood obesity chronic care treatment protocol.

Methods: Patients aged 5 to 18 years with a body mass index (BMI) above the 99th percentile for sex and age were eligible for inclusion. At baseline patients’ height, weight, and Tanner stages were measured, as well as parents’ socioeconomic status (SES) and family structure. Parental weight and height were self-reported. An individualised treatment plan including numerous advices was developed in collaboration with the patient and the family. Patients’ height and weight were measured at subsequent visits. There were no exclusion criteria.

Results: Three-hundred-thirteen (141 boys) were seen in the clinic in the period of February 2010 to March 2013. At inclusion, the median age of patients was 11.1 years and the median BMI standard deviation score (SDS) was 3.24 in boys and 2.85 in girls. After 1 year of treatment, the mean BMI SDS difference was −0.30 (95% CI: −0.39; −0.21, p < 0.0001) in boys and −0.19 (95% CI: −0.25; −0.13, p < 0.0001) in girls. After 2 years of treatment, the mean BMI SDS difference was −0.40 (95% CI: −0.56; −0.25, p < 0.0001) in boys and −0.24 (95% CI: −0.33; −0.15, p < 0.0001) in girls. During intervention 120 patients stopped treatment. Retention rates were 0.76 (95% CI: 0.71; 0.81) after one year and 0.57 (95% CI: 0.51; 0.63) after two years of treatment. Risk of dropout was independent of baseline characteristics. Median time spent by health care professionals was 4.5 hours per year per patient and the mean visit interval time was 2.7 months. The reductions in BMI SDS were dependent on gender, parental BMI, and family structure in girls, but independent of baseline BMI SDS, age, co-morbidity, SES, pubertal stage, place of referral, hours of treatment per year, and mean visit interval time.

Conclusions: The systematic use of the TCOCT protocol reduced the degree of childhood obesity with acceptable retention rates with a modest time-investment by health professionals.

Keywords: Adolescence, BMI, Child, Obesity, Puberty, Treatment
A hospital-based child and adolescent overweight and obesity treatment protocol transferred into a community healthcare setting

Pernille Maria Mollerup¹*, Michael Gamborg², Cæcilie Trier¹,³, Christine Bøjssøe¹,³, Tenna Ruest Haarmark Nielsen¹,³, Jennifer Lyn Baker²,³, Jens-Christian Holm¹,³,⁴

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Abstract

Background
Due to the pandemic of child and adolescent overweight and obesity, improvements in overweight and obesity treatment availability and accessibility are needed.

Methods
In this prospective study, we investigated if reductions in body mass index (BMI) standard deviation scores (SDS) and waist circumference (WC) would occur during 1.5 years of community-based overweight and obesity treatment based upon an effective hospital-based overweight and obesity treatment protocol, The Children's Obesity Clinics' Treatment protocol. Height, weight, and WC were measured at all consultations. Changes in BMI SDS and WC were analyzed using linear mixed models based upon the repeated measures in each child.

Results
From June 2012 to January 2015, 1,001 children (455 boys) were consecutively enrolled in the community-based treatment program. Upon entry, the median age was 11 years (range: 3–18), and the median BMI SDS was 2.85 (range: 1.26–8.96) in boys and 2.48 (range: 1.08–4.41) in girls. After 1.5 years of treatment BMI SDS was reduced in 74% of the children. BMI SDS was reduced by a mean of 0.36 (95% confidence interval (CI): 0.30–0.45,
Community-Based Childhood Obesity Treatment

Based on The Children’s Obesity Treatment (TCOCT) Protocol Conducted by nurses and dietitians at 8 health care centres across Denmark.

Study period: June 2012 to January 2015

N = 1,001 children and adolescents (455 boys)

Inclusion criteria:
• Age: 3–18 years
• Overweight or obesity (BMI > 85\textsuperscript{th} percentile, Danish reference charts\textsuperscript{3})

No exclusion criteria

Reductions in BMI SDS:
After 1 year of treatment
74% reduced their BMI SDS.

Boys: - 0.35 BMI SDS, p<0.0001
Girls: - 0.22 BMI SDS, p<0.0001

Regardless of age, degree of obesity, and pubertal development stage upon entry. Regardless of socioeconomic status in girls. Boys with low socioeconomic status reduced BMI SDS by 0.1 less per year.

Time cost: An average of 4.5 consultation hours/child/year.

Results from the communities

Percentage of children with reduced BMI SDS
Quality of life improves in children and adolescents during a community-based overweight and obesity treatment

Pernille M. Mollerup¹ · Tenna R. H. Nielsen¹ ² · Christine Bøjsoe¹ ² · Julie T. Kloppenborg¹ ³ · Jennifer L. Baker² ⁴ · Jens-Christian Holm¹ ² ⁵

Accepted: 13 January 2017
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Abstract
Purpose The quality of life is compromised in children and adolescents with overweight or obesity. The aim of this study was to evaluate whether the quality of life improves during a community-based overweight and obesity treatment, and whether improvements depend on reductions in the degree of obesity.

Methods Quality of life was assessed using the Pediatric Quality of Life Inventory (PedsQL) 4.0 in children and adolescents aged 3–18 years with overweight or obesity [body mass index (BMI) ≥85th percentile] upon entry into a community-based chronic care overweight and obesity treatment based upon The Children’s Obesity Clinic’s Treatment protocol, and upon follow-up after 10–30 months of treatment. Height and weight were measured at each consultation and converted into a BMI standard deviation score (SDS).

Results Upon entry, 477 children (212 boys) completed a PedsQL, and 317 (143 boys) completed another PedsQL after a median of 13 months of treatment. Quality of life improved (p < 0.001), regardless of sex, age, and pubertal development stage upon entry (p ≥ 0.108). Greater reductions in BMI SDS and high socioeconomic status were associated with greater improvements in the quality of life (p ≤ 0.047). However, improvements also occurred in children and adolescents with low socioeconomic status or who increased their BMI SDS (p < 0.001).

Conclusions Improvements in quality of life occurred in children and adolescents during a community-based overweight and obesity treatment, even in children and adolescents who increased their BMI SDS. Thus, improvements may be due to the treatment itself and not exclusively to reductions in BMI SDS.

Trial registration Clinicaltrials.gov, ID-no.: NCT02013843.

Keywords Adolescent · Child · Community health services · Obesity · Overweight · Quality of life

Abbreviations
BMI Body mass index
PedsQL Pediatric Quality of Life Inventory
Qol Quality of life
SDS Standard deviation score
TCOCT The Children’s Obesity Clinic’s Treatment
Quality of life assessed using PedsQL 4.0 at entry into treatment and at follow-up after >10 months of treatment.

Inclusion criteria:
- Completing PedsQL 4.0 at entry
- Attending a consultation >10 months after entry

A total score consisting of a physical, emotional, social, and school score were calculated.

Results:
N = 477 were included and 317 completed the PedsQL at follow-up after 13 months (10–30 months)

**All scores improved significantly**
(p<0.0001)

The total score improved by a mean of 4.1 points.
(95% CI: 2.9–5.4, p<0.001)

63% of the children improved their total score by a mean of 10.3 points (95% CI: 9.2–11.3, p<0.001)

The total score improved even in children increasing in degree of obesity (2.9 points, 95% CI: 0.5–5.3, p=0.02)

Reductions in blood pressure during a community-based overweight and obesity treatment in children and adolescents with prehypertension and hypertension

PM Mollerup¹, U Lausten-Thomsen¹, CE Fonvig¹,², JL Baker²,³ and J-C Holm¹,²,⁴

Due to the pandemic of childhood obesity and thus obesity-related hypertension, improvements in treatment availability are needed. Hence, we investigated whether reductions in blood pressure (BP) would occur in children with overweight and obesity exhibiting prehypertension/hypertension during a community-based overweight and obesity treatment program, and if changes in body mass index (BMI) are associated with changes in BP. The study included 663 children aged 3–18 years with a BMI ≥ 85th percentile for sex and age that entered treatment from June 2012 to January 2015. Height, weight and BP were measured upon entry and every 3–6 months. BMI and BP s.d. scores (SDSs) were calculated according to sex and age, or sex, age and height. Prehypertension was defined as a BP SDS ≥ 1.28 and < 1.65. Hypertension was defined as a BP SDS ≥ 1.65. Upon entry, 52% exhibited prehypertension (11.9%) or exhibited hypertension (40.1%). After 12 months (range: 3–29) of treatment, 29.3% of the children with prehypertension/hypertension were normotensive. Children with systolic prehypertension/hypertension upon entry reduced their systolic BP SDSs by 0.31 (95% confidence interval (CI): 0.70–0.83, P < 0.0001). Children with diastolic prehypertension/hypertension upon entry reduced their diastolic BP SDSs by 0.78 (95% CI: 0.78–0.86, P < 0.0001). BMI SDS changes were positively associated with BP SDS changes (P < 0.0001). Nonetheless, some children reduced BP SDSs while increasing their BMI SDSs, and prehypertension/hypertension developed in 23.3% of the normotensive children despite reductions in BMI SDSs (P < 0.0001). These results suggest that community-based overweight and obesity treatment can reduce BP, and thus may help improve treatment availability.

Journal of Human Hypertension advance online publication, 11 May 2017; doi:10.1038/jhh.2017.36
Criteria of success

- Avoid drop-out
- To reach the children, establish trust
- Getting better with a reduced appetite
- Maintain weight during growth
- Adult height; weight loss
- Severely obese; lower weight though still obese

Focused Pedagogy

- Based on true empathy, not HCP speculations or perceptions
- A wide HCP responsibility
- With 10-25 plan items changes from start
- Without compromise during growth and development

• 5.5 hours of hcp time per patient/year in secondary sector and 4.5 in the primary sector

Holm JC et al IJPO. 2011 (3-4):188-96
The dynamics of weight loss

- Expected treatment outcome, process development
- Phase 1; weight loss by treatment plan
- Phase 2; compliance/adaptation against weight loss
- Phase 3; realizing your reality and treatment need
- Induce process development within the family
Identify those issues that troubles the patient and family quickly and focus on those difficult issues in the forthcoming consultations.

Holm JC et al IJPO. 2011 Aug;6(3-4):188-96
Neutral communication introduce adaptation against weight loss as an external cause of obesity, reduce guilt and shame
- Treatment obstacles are easily understood and causes no blame, focus on external factors
- All treatment points are essential in weight loss
- Introduce empowerment and self-awareness
- Compromises will burden the patient/child`s weight development
- Process development over time to integrate and establish a lifestyle as a new normal
- Control the environment
Direct and indirect effects

- **Direct** effects securing daily family based habits providing efficient sleep, nutrition, activity, development, education, and safety according to the **UNICEF criteria** of a healthy life during childhood
- **Indirect** effects secure well-being and thriving which induce family involving process development to guard the child, raising and parenting
- Parents aren`t to blame
- Parents are the solution
- All parents want to guard their child
- Health care professionals act and take responsibility like in other chronic diseases in childhood
- All patients are highly motivated
## Power and resistance respect autonomy

### Resistance
- *Sarcasm*
- *Irony*
- *Excuses*
- *Explanations*
- *Intellectualisation*
- *Distraction*
- *Confusion*
- *Chaos*

### Authority
- Set up borders/boundaries
- Change
- In character, authentic messaging
- HCP responsibility
- HCP resignation
- HCP excellence
Double trouble

• *Challenges;* low social class, other ethnicity, deprived development, puberty, low IQ

• *Perceptions (HCPs / patients);* both parents should accompany the child, patient shall learn from own success, not measuring weight, a lot of psychosocial strain, expect less result with low SES, IQ

• *Double trouble*
Motivating techniques

induce shame, guilt and self blame

Holm JC. Behandlerbladet Diabetes. Behandleren kan gøre sig skyldig i mislykket væggtab. 2017
• Empathi

• Acknowledgement, overunderstanding, alliances

• Time

• Look good

• Motivation
Improve and support raising

• Concrete and simple treatment plan that demand that parents improve setting up boundaries and thus support raising, competence develop parents

• *Spoiled raising, curling, limitless raising, the best intention/misunderstood consideration vs demands, setting limits, challenge, and expect during growth and development is respectfull*
Built-in dynamics

- Familial disposition address sincerity
- Sensitive questions is followed by questions that can be perceived as funny, which is perceived as liberating
- Many questions address serious attitude
- Treatment identify quickly the greatest challenges
- Direct and indirect effects
Perspective

- HCP gives patient the essential perspective that quickly eliminate complex psychosocial problems without shame and guilt.

- The patient achieves a lifelong perspective where the HCP control is transformed so that the patients takes responsibility and control of her/his own life i.e. Steering to self-steering, help to self-help, care to self-care. In this perspective development the patient learn how to cope, take responsibility and master her/his challenges 24/7.
TCOCT Pedagogy

Authentic Self-identification Enables change by a new perspective Empowerment the patients to choose a new normal
Dr Holm Health Courses
HCP and patient training

- 700 HCPs over the past 4 years
- Course 1-3, Brusch-up course, all materials developed with high ratings
- Supervision
- 70 municipalities across Denmark (98)
- Uniform results
- International development
• Preventive nurse and dietician
• 7 pages questionnaire as history
• Anthropometry and PEDsQL and VAS
• Impedance to measure body composition
• Same pedagogy
• Same strategies
• Same criteria of success
• Same treatment plans
Eating practices; arranged in the kitchen, plate model, 2 serving after 20 minutes in order to target the eating disturbance; over-, rapid-, comfort eating, and avoidance of meals

Satiated at meals – conservatively speaking (ad libitum intake!)

Sugar dependency?

Picky eating

Allowance

In bed times

Hygiene

Prior to TCOCT, no efficient tool was available in regards to children with obesity. TCOCT is efficient and applicable in daily clinical practice.

- Simplify a complex context
- Ready to use for the HCP, makes daily clinical practice clear and feasible
- TCOCT can be used both as multidisciplinary or with a few HCPs, important due to local budgets and possibilities
- TCOCT respond to the need of the patients, which makes it relevant for the patients
• Questionnaire with 160 questions
• Provide a personal treatment plan
• Follow-ups including text reminders
• Library including video explanations
• Support service
• English version in August 2018
• Obesity is a disease and a major threat to normal growth, development and health in children, youths and adults!
• Need to act now!
• Understand reality of fat mass regulation and its impact for daily clinical practice!
• Evidence based results establishing trust!
• Competent knowledge and clear delivery of messages!
• TCOCT demands training into a new pedagogy!
The new pedagogy supports and enforces UNICEF's convention of the right of the child; 1. eating, 2. activity, 3. sleep well, 4. no abuse, and 5. learn according to potential. Fundamental criteria to ensure normal health, growth and development.
According to the Convention on the Rights of the Child (CRC) by the UNICEF:

this reality is unacceptable because all children should be able to receive medical care when it is needed: ‘States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services’
Danish clinical guidelines for examination and treatment of overweight and obese children and adolescents in a pediatric setting

Anders Johansen, Jens-Christian Holm, Seija Pearson, Mimi Kjærgaard, Lone Marie Larsen, Birgitte Højgaard, Dina Cortes

This guideline by the Obesity Committee within The Danish Paediatric Society has also been approved by the Committees for Endocrinology, Gastroenterology, Cardiology, Neonatology and Nephro-urology within The Danish Paediatric Society, Danish Paediatricians Organization, The Danish Society for Diabetes in Childhood and The Danish Association for the Study of Obesity. The Danish College of General Practitioners supports the referral criteria for pediatric evaluation. November 28, 2014.

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It may seem discouraging, that a previous Cochrane review has...
Gennembrud i behandlingen af overvægtige børn

Overvægtige børn fra blandt andet Vejle har haft gavn af en særlig behandlingsmetode udviklet på Holbæk Sygehus.

Kommunale sundhedsplejersker og kostvejledere har stor succes med at handle overvægtige børn og unge efter et særligt Holbæk-koncept.

Indtil nu er 743 svarede overvægtige børn startede i - præcis hvor mange kilo, børnene har tabt sit, tæller vi ikke sammen. Det er ikke relevant, da børn jo samtidig med, at de taber sit, også skal voleske og have umdannet fedt til muskler, understreger overlæge Jens-Christian Holm.

- Det er en behandlingsrespons, som aldrig er set tidligere, siger han og understreger, at det bænkebrydende samarbejde mellem otte kommuner og Børneafdelingen på Holbæk Sygehus er en meget stor landfinding, hvor det er lykkedes at handle en meget sammenfaldet gruppe af børn.

- Og forbedringerne er sket hos alle typer af børn - uanset bornes alder, deres grad af overvægt eller sociale tilhøringsforhold.

Avanceret form for BMI

Personale i kommuner er blevet grundigt oplært i metoden af overlæge Jens-Christian Holm og sygeplejerske Rikke Melskens, og de bliver løbende vejledet af Rikke Melskens fra Holbæk Sygehus.

- Resultaterne bygger på gennemsnitligt seks måneders behandling. Målemeteren er en unik, der vurderer resultatet for hver enkelt børn.

- Enheden for overvægtige børn og unge på Holbæk Sygehus ledes af overlæge Jens-Christian Holm, som blandt andet er kendt fra tv-udsendelsen Generation XL.

HOLBÆK METODEN

- Enheden for overvægtige børn og unge på Holbæk Sygehus blev etableret i 2007.

- Enheden ledes af overlæge Jens-Christian Holm, som blandt andet er kendt fra tv-udsendelsen Generation XL.

- Holbæk metoden har i princip i tre primære delelementer, sommer grundlaget for at arbei- de, det fører det til succes i kommunerne.

- Man skal forstå, at overvægt er en omgivende sygdom, som kan behandles.

- Man skal have indsigt i, at svær overvægt er hormonelt regulert.

- Man skal have en pædagogisk tilgang, så barnet og familien forstår, hvad der er på spil i kroppen, og hvad de selv kan arbejde med i behandlingen.

OVERVÆGTIGE BØRN

- Det er anslået, at der er 60.000 svarende overvægtige børn og unge i Danmark. Konservativt beregnet for børn og unge, der lider af svær overvægt, er meget alvorlige.

- 74 procent har mere end fem procent fedt i musklerne (normalen er nogen få procent).

- 57 procent har et for højt blodtryk.

- 44 procent har fedtveleg.

- 28 procent har et for højt kolesterol.

- 18 procent har forstærker til diabetes.

- Beregningerne er blevet til på grund af data fra 1.800 børn, der er blevet behandlet efter Holbæk-metoden.
Egedal-børn taber sig med Holbæk-metoden

SUNDHED: Siden januar har kommunens sundhedsplejersker brugt metoden fra Holbæk Hospital, og den virker.

EGEDAL: Siden januar i år har Egedal Kommunes Sundhedsstjeneste haft succes med at få børn til at tage sig selv efter den såkalte Holbæk-metode, der er udviklet på Holbæk Hospital under ledelse af børnelæge og klinikchef Jens-Christian Holm.

Alle sundhedsplejersker er nu uddannet i hans metode, oplever Nina Rasch, der er leder af Egedal Kommunes Sundhedsstjeneste, og det har 40 børn indtil nu haft glæde af det. Det kan ses på forholdet mellem deres børn som sjældent og vægti i et Body Mass Index, BMI.

- 82 procent af alle børnene er faldet i deres BMI, fortæller hun, og gennemsnittet er et fald i BMI på 1,22.

For at komme i betragtning til et forløb skal børnene være uovervågte og motiverede for at ændre livsstil, og midtend at deres foreldre skal være klar til at gå med dem til samtalen hos sundhedsplejersker, cirka hver 6-8. uge. Til gengæld foregår der på deres egen skole, for Sundhedsstjenten er ved at eksempelvis spise en krydterbolle til middagen, kan den se, om barnet er klar til at tage sig selv efter den såkaldte Holbæk-metode.

Indbrudstving tog colæra i grillbar

VEKSO: En tvivl har begået indbrud i grillbar. Route 26 på Kirkebakken i Vekso, oplever Nordjysk Politi.

Gerningsmanden kom ind i grillbar ved at bryde et vindue op, og vedkommende rev også tyverialarmen ned fra væggen, inden der blev stjålet døskolær og halv liter colæra, fortæller politiassistent Niels Petersen.

Indbruddet skete mellem tirsdag klokken 21.30 og onsdag klokken 10.30, og politiet vil nu kigge grillbarenes videovurdering igennem i et forsøg på at finde frem til gerningsmanden.

17-årig pige taske stjålet


Sammen med tasken forsvandt pigeens pung med diverse korst julesker, parfume og nogle sko.

Tommy Hilfigers sko, fortæller politiassistent Niels Petersen.

Sølvtoj blev stjålet i to villaer

GANLÅSE-VEKSO: Der har været villaendringer i Ganløse og Vekso, og i begge tilfælde fik gerningsmanden fange i sølvtoj, oplever Nordjysk Politi.

På Urtefonden i Ganløse kom tvy her ind ved at afsteje en rute til stuen mellem fredag den 16. oktober klokken 15 og onsdag i denne uge klokken 13, og ud over sølvtojet blev der hæftet en iapad og småkøkken, fortæller politiet.
Gennembrud i behandling af overvægtige børn og unge

84 procent af de børn og unge, der har deltaget i projekt Vægtstoppere i Kolding har tabt sig. Det er et gennembrud i behandlingen, siger lægen bag projektet.

Det er et gennembrud for behandlingen af overvægtige børn og unge at 84 pct. af de overvægtige børn i projekt vægtstoppere i Kolding har tabt sig. (Foto: Colourbox © Colourbox)
NYHEDER

Overvægtige børn taber sig

Kiloene rasler af overvægtige børn - og deres forældre - der er i behandling i Vejle Kommunes nye overvægtsklinik

Af Jeppe Rafn

OVERVÆGT "Det er en utrolig succes."

Vejle Kommunes ledende sundhedsplejerske Ulla Dupont er særdeles tilfreds med resultaterne i kommunens nye overvægtsklinik, der åbnede i maj 2013.

De første deltagere gik i gang i maj måned, og allerede efter sommerferien var der godt nyt.

Der er nogle børn, der havde tabt seks kilo til den første kontrol, fortæller sundhedsplejerske Hanne Brøndbjerg.

Cirka 140 børn er indtil videre startet på overvægtsklinikken, der arbejder efter "Holbæk-modellen" og har overlæge Jens-Christian Holm og hans forskningsteam tilknyttet.

Forældrene taber sig også

Hele familien skal være involveret på at ændre sin kost og følge den kostplan, som kostvedlerne laver med udgangspunkt i det overvægtige børn. "Holbæk-modellen" tager udgangspunkt i familien og kræver, at forældre og søskende er solidariske.

"Forældrene siger, at de også har brug for at tabe sig, og vi har rigtig mange gode historier om, at både børn og forældre taber sig. Der er en familie, der har tabt sig over 20 kilo," fortæller sundhedsplejerske Hanne Brøndbjerg.

Det overdrevet barn og deres familie er tilknyttet overvægtsklinikken i et år, så der er endnu ikke nogle, som er færdige mod hele forløbet. De skal i løbet af året til 6-7 samtaler med sundhedsplejersker og kostvedlere/dietister.

Overvægtsklinikken er for børn og unge fra 3-18 år, men der er kun enkelte forskolebørn blandt deltagerne, samt meget få der er gået ud af folkeskolen. Hovedparten af deltagerne går i 4. til 8. klasse, oplyser sundhedsplejerske Hanne Brøndbjerg.

Det er ofte sundhedsplejerskerne ude på skolerne, der spotter de overvægtige børn og tager kontakt til forældre. Når børnene nærmer sig konfirmationsalderen, er de særligt opsat på at tabe sig.

"De bliver meget motiverede i den grad, der begynder at tænke meget over tøj og konfirmation," siger sundhedsplejersken.

Af Jeppe Rafn

VENTELISTE Vejle Kommunes overvægtsklinik var en succes fra starten. Målet var at finde 100 børn og unge, men på åbningsdagen havde de 100 tilmeldt sig. Det skabte ventetid på at komme i behandling, og det har været og er stadig op til et halvt års ventetid.

På nuværende tidspunkt er cirka 140 børn kommet i behandling, mens yderligere godt 100 børn ventet på at komme i gang.

"Børnene og familierne har været meget igennem, før de kommer til os, så de er meget motiverede for at komme i gang, når de siger ja. Et halvårs år er lang tid at vente," fortæller sundhedsplejerske Hanne Brøndbjerg og ledende sundhedsplejerske Ulla Dupont.


"Vi får næsten dobbelt kapacitet, så vi forventer at kunne nedbringe ventetiden," siger ledende sundhedsplejerske Ulla Dupont.


"Den er en stor succes, og hvis det fortsetter, er det noget, vi må prioriterere som et fast tilbud i Vejle Kommune," siger Ulla Dupont.

Han vurderer, at der vil være behov for at behandle cirka 100 børn om året, når den indledende storm på klinikkens lærd sig.
Stor succes med behandling af overvægtige børn

Siden 1. marts 2013 har sundhedsplejersker og kostvejledere i Stevns kommune behandlet overvægtige børn og unge efter den såkaldte ”Holbæk-metode”. I løbet af det første år viser foreløbige resultater at 70,6 procent af børnene i behandling har oplevet et vægttab.

STEVNS: Det er Enhed for overvægtige børn og unge på Holbæk Sygehus, som har udviklet behandlingsmetoden, og en opgørelse over det første år med den ny behandling viser særdeles positive resultater. De endelige resultater kommer i slutningen af 2015. Af de 73 børn, der det første år har været i behandling i Stevns kommune – hvoraf 39 er dreng og 34 er piger – har 70,6 procent oplevet et vægttab.

Det prescirent antal kilo, som børnene har tabt sig, bliver ikke talt sammen, da det ikke er relevant. For samtidig med at børnene taber sig, skal de også være med til at danne og have omsætningen fuldført med muskler.

Siden behandlingens start er der i alt startet 96 børn op i kommunen.

Derfor virker det

"Vi tager det meget alvorligt og betragter overvægt som en sygdom på linje med for eksempel diabetes, når et barn er overvægtigt", fortæller Malene Seier, der er teamleder og sundhedsplejerske i Stevns kommune, og hun vurderer, at det er en af de vigtigste årsganger at, at behandlingen virker så godt.

"Desuden er vi meget konkret i vores vejledning. Vi udarbejder en punktplan med op til 20 forskellige punkter, der for eksempel omfatter både mad- og motionsplan, tv- og computertid samt feste planetider. Så er det ikke ligt ud for foreldrene og børnene selv, og foreldrene slipper for de diskusioner, derellers ofte kan opstå“, forklarer Malene Seier.

Udover foreldrene er det også vigtigt at andre personer, som er en del af barnets hverdag, inddrages i behandlingen. For eksempel bedste foreldre, der også skal bakte op og samle planen. Foreldrenes stilling er derfor at støtte børnenes adfærd.

En tidlig start

"Vi håber at kunne fange børnene så tidligt, som muligt. For det er meget nemmere at ændre en tre-årigt madvarian end et barn på 10 år", siger Malene Seier.

Børn helt ned til tre år kan komme i behandling, og behandlingen kan fortsætte frem til man fylder 18 år - eller til man har tabt sig så meget, at det ikke længere er aktuelt.

Typisk er det barnets sundhedsplejerske, der vurderer, om et barn har behov for at komme i behandling. Men også barnets læge og - for de lidt ældre børn - lærere kan henvise til behandling. I sjældne tilfælde kan det være en sagsbehandler, der henvender sig med en forespørgsel.


14-årige Julie Kolbe fra Hårlev og hendes mor Helle er her til samtale med skolesygeplejerske Anne- lise Olsen (tv). Julie har været i behandling siden 4. marts sidste år. Udover at have tabt sig er hun også blevet en gladere og mere positiv pige. Behandlingen har fået Julie til at tænke mere over, hvad hun spiser og at hun skal motionere regelmæssigt. Anneline Olsen er en af dem fra Stevns kommune, som er uddannet i Holbæk til at varetage samtalerne med familierne. (Foto: Stevns kommune)

FAKTA

Enheden for overvægtige børn og unge på Holbæk Sygehus blev etableret i 2007. Enheden ledes af overlæge Jens-Christian Holm - blandt andet kendt fra tv-udsendelsen Generation XL. Holbæk metoden har i principippet tre primære delelementer, som er grundlaget for det arbejde, der udføres med succes i kommunerne:

• Man skal forstå, at overvægt er en omsiggriberig sygdom, som kan behandles
• Man skal have indsig, at der er behov for overvægt at beskytte
• Man skal have en dynamisk tilgang, så barnet og familien forstås, hvad der er på spil i kroppen, og hvad de selv kan arbejde med i behandlingen.

Kommunale sundhedsplejersker og kostvejledere i otte kommuner har stor succes med Holbæk-konceptet. Indtil nu er 743 svært overvægtige barn startet i behandling i Vejle, Kolding, Horsens, Kalundborg, Stevns, Slagelse, Hedensted og Holbæk kommuner. De foreløbige resultater viser, at mere end 80 procent af børnene har mindsket deres grad af overvægt under behandlingen.
Have the Danes cracked childhood obesity?

By Malcolm Brabant
BBC Health Check

8 November 2014 | Health
Has this town found the cure for childhood obesity? List of 20 rules - including sweets once a week and walking to school - are highly effective, doctors claim

- Rules have been drawn up by Danish paediatrician Dr Jens Christian Holm
- Known officially as The Children's Obesity Clinic's Treatment protocol
- Was first trialled in the town of Holbaek, 40 miles from Copenhagen, in 2008
- Dr Holm claims he's helped 1,300 overweight and obese children since then
- Has been so successful across Denmark 'it should be used in Britain'

Danish doctors claim to have cured childhood obesity by following a set of basic rules which include no second helpings of food within 20 minutes of eating.

Snacks and sweets are rationed to once a week, fruit juice or fizzy drinks once a month and children must walk or cycle to school.

The rules also state that pots are kept in the kitchen at mealtimes - rather than on the table to avoid the temptation of second helpings.

The rules have been drawn up by Danish paediatrician Dr Jens Christian Holm, who claims to have helped 1,300 overweight and obese children.
How doctor's 20 simple rules could hold the key to lifelong fitness for overweight children

IT is hoped the 20 lifestyle and eating rules - created by Danish paediatrician Dr Jens Christian Holm - could help curb the rise of overweight kids in Scotland.

Free exercise such as using a trampoline gets results
PARIS - Dr. Jens Christian Holm says parents, doctors and health officials need to think of obesity as more than a physical ailment.

The Danish pediatrician has seen it all in his clinic: childhood obesity with kids as young as 11 years old already dealing with cardiovascular problems, early signs of diabetes, high blood pressure and neurological complications.

They're overweight, but that's only part of the problem. Their quality of life is
Receita dinamarquesa é sucesso contra obesidade infantil

Malcolm Brabant
Do BBC Health Check

Um projeto que incentiva mudanças no estilo de vida de crianças e suas famílias está sendo adotado na Dinamarca com o objetivo de combater a obesidade infantil - hoje uma epidemic global.

Na cidade dinamarquesa de Holbaek, 1,9 mil crianças foram atendidas e 70% delas conseguiram manter um peso adequado por quatro anos após ajustar até 20 aspectos de seu estilo de vida.

A forma como o projeto lida com a criança e seus familiares difere dos "pequenos passos" das dietas tradicionais.
Svona takast Danir á við offituvandamál barna með mjög góðum árangri

Í Holbæk í Danmörku hafa læknar próað nýjar aðferðir til að takast á við offituvandamál barna og er árangurinn mjög góður. Um 70 prósent af þeim börnum sem hefja meðferð sem fylgir línnum lækannana í Holbæk ná aukaklónum af sér. Þetta hefur vakið mikla aðhyggi viða um heim og meðal annars sýrir BBC hæmirfyrirtæki um þetta nú í víkunní.

Við heyrum sí og æ að offita sé eitt starsta heilsufarsvandamál heimsins og offitufaraldurinn er ekki eingöngu bundinn við fullroðna því sifelt fleiri börn þjást af ofþrygg og offitu. Í Danmörku eru um 60.000 börn talin vera í mjög mikilli ofþrygg.

En þátt fyrir þetta háa hlutfall þá beina erindið sérfæðingar nú sjónunum að Danmörku og þeim aðferðum sem er beitt þar til að þjálpa börnum sem eru í ofþrygg.

Aðferðin, sem var próað í Holbæk, hefur reynst svo árangursrík að nú hefur hún verið tekinn upp í sjö sveitarfélögum til viðbótar og sex til viðbótar eiga nú í samningavéðræðum við Jens-Christian Holm, hófund aðferðaíannar, um að taka hana upp.

”Í þeim átta sveitarfélögum sem hafa tekið aðferðina upp hafa rúmlega 800 börn tekið þátt í henni og 80 prósent þeirra hafa lítt og 70 prósent losnað algörlaga við aukaklóin.

Það sem einkennir aðferðina er að börnin gangast undir ákveðnar rannsóknir og síðan er þúin til
CEA MAI EFICIENTĂ METODĂ DE SLĂBIT, DOVEDITĂ cu REZULTATE

Un orășel danez pare să fi găsit soluția pentru a combate fenomenul obezității la copii. Omul-cheie din spatele reușitei este un medic pediatru pe nume Jens Christian Holm. Metoda danează de slăbit, care presupune schimbară radicală a aproximativ 20 de elemente ce țin de stilul de viață, a fost aplicată pe 1.900 de pacienți. 70% dintre aceștia, un procent absolut enorm, au reușit să își ţină greutatea sub control.

Într-un interviu acordat BBC și citat de GreatNews, doctorul Holm explică foarte clar că, pentru aceste rezultate, este nevoie de o abordare dură, cumva militarească. Rezultatele îl încurajeză să propună ca metoda sa să fie aplicată la nivel internațional. În Statele Unite și în multe state vest-europene, unul din trei copii este supraponderal, iar incidența obezității printre adolescenți s-a împătrit în ultimii 30 de ani.


"Nu facem nimic amuzant. Este ceva foarte dur"

La începutul programului, copiii sunt chemați la spital pentru 24 de ore de analize și teste amănunțite, care includ scanarea corporală pentru a identifica nivelul de grăsime. De asemenea, copiii trebuie să răspundă unui chestionar, cu ajutorul căruia
Cea mai DURĂ dietă din lume. Un oraș întreg a învins obezitatea

Autor: Alina Costache

Un oraș dănește pare să fi găsit soluția pentru a combate fenomenul obezității la copii. Omul-cheie din spatele reușitei este un medic pediatru pe nume Jens Christian Holm.
Sunderland takes lessons from Danes in tackling obesity

A DANISH expert shared his work on childhood obesity with Sunderland health workers.

Paediatrician Dr Jens-Christian Holm talked about tackling obesity in children when he met members of Sunderland CARE Academy, (Collaboration, Achieving high quality care, Research and Engagement) and health professionals from around the world at the University of Sunderland.

“If we can reverse obesity trends in children through simple lifestyle changes this could have a positive, lifelong impact on the health and wellbeing of adults.”

Professor Tony Alabaster

The meeting in the Tom Cowie Lecture Theatre saw the eminent academic present findings from his research, conducted with 1,900 obese children in Denmark.

As well as the university, CARE Academy members include City Hospitals Sunderland, Sunderland City Council, the Foundation of Light and Sunderland Clinical Commissioning Group.
6386 children (3800 obese and 2586 population based)

Quality control

Data analyses

More than 40,000 clinic based visits

Invaluable data resource in terms of childhood obesity and obesity related complications
120 MILLION DKK FOR RESEARCH ON THE ROLE OF THE GUT MICROBIOME IN METABOLIC DISEASES

18.01.16
Torben Hansen, Head of the Danish Diabetes Academy's Education Committee and Professor at University of Copenhagen was among the two excellent scientists, who received research funding from the Novo Nordisk Foundation Challenge Programme 2015, the aim of which is to enable research of the highest quality with focus on finding answers to key global technological or health-related challenges.

The other recipient was Fredrik Bäckhed, Professor, University of Gothenburg and University of Copenhagen. Both researchers applied for research funding on the theme of the human microbiome. Their projects focus on how gut bacteria are related to disease. Each project grant is for DKK 60 million over 6 years.

MICROBLIVER

Professor Torben Hansen applied for the funding on the basis of the project entitled "MicrobLiver",
ASSOCIATION STUDIES ARTICLE

Genome-wide association analysis identifies three new susceptibility loci for childhood body mass index

Abstract

A large number of genetic loci are associated with adult body mass index. However, the genetics of childhood body mass index are largely unknown. We performed a meta-analysis of genome-wide association studies of childhood body mass index, using sex- and age-adjusted standard deviation scores. We included 35,668 children from 20 studies in the discovery phase and 11,873 children from 13 studies in the replication phase. In total, 15 loci reached genome-wide significance (P-value < 5 × 10⁻⁸) in the joint discovery and replication analysis, of which 12 are previously identified loci in or close to ADCY3, CNPDA2, TMEM18, SEC16B, FAIM2, FTO, TFAP2B, TNNS1K, MC4R, GPR61, LMX1B and OLFM4 associated with adult body mass index or childhood obesity. We identified three novel loci: rs13253111 near ELP3, rs8092503 near RAB27B and rs13387838 near ADAM23. Per additional risk allele, body mass index increased 0.04 Standard Deviation Score (SDS) [Standard Error (SE) 0.007], 0.05 SDS (SE 0.008) and 0.14 SDS (SE 0.025) for rs13253111, rs8092503 and rs13387838, respectively. A genetic risk score combining all 15 SNPs showed that each additional average risk allele was associated with a 0.073 SDS (SE 0.011, P-value = 3.12 × 10⁻¹⁰) increase in childhood body mass index in a population of 1955 children. This risk score explained 2% of the variance in childhood body mass index. This study highlights the shared genetic background between childhood and adult body mass index and adds three novel loci. These loci likely represent age-related differences in strength of the associations with body mass index.
Inherited coding variants at the CDKN2A locus influence susceptibility to acute lymphoblastic leukaemia in children

Heng Xu1,2,*, Hui Zhang1,3,*, Wenjian Yang1, Rachita Yadav4, Alanna C. Morrison5, Maoxiang Qian1, Meenakshi Devidas6, Yu Liu7, Virginia Perez-Andreu1, Xujie Zhao1, Julie M. Gastier-Foster8, Philip J. Lupo9, Geoff Neale10, Elizabeth Raetz11, Eric Larsen12, W. Paul Bowman13, William L. Carroll14, Naomi Winick15, Richard Williams16, Torben Hansen17, Jens-Christian Holm18, Elaine Mardis19, Robert Fulton19, Ching-Hon Pui20,21, Jinhui Zhang7, Charles G. Mullighan20,22, William E. Evans1,20, Stephen P. Hunger23, Ramneek Gupta4, Kjeld Schmiegelow24, Mignon L. Loh25, Mary V. Relling1,20 & Jun J. Yang1,20

There is increasing evidence from genome-wide association studies for a strong inherited genetic basis of susceptibility to acute lymphoblastic leukaemia (ALL) in children, yet the effects of protein-coding variants on ALL risk have not been systematically evaluated. Here we show a missense variant in CDKN2A associated with the development of ALL at genome-wide sig...
Genome-wide associations for birth weight and correlations with adult disease

Figure 1 | Genome-wide genetic correlation between BW and a range of traits and diseases in later life. Genetic correlation ($R_g$) and corresponding s.e. (error bars) between BW and the traits displayed on the x axis were estimated using linkage-disequilibrium score regression (ref. 8). The genetic correlation estimates ($R_g$) are colour coded according to their intensity and direction (red for positive and blue for inverse correlation). WHRadjBMI, waist–hip ratio adjusted for body mass index; HOMA-B/IR, homeostasis model assessment of beta-cell function/insulin resistance; HbA1c, haemoglobin A1c; BMD, bone mineral density; ADHD, attention deficit hyperactivity disorder. See Supplementary Table 12 for references for each of the traits and diseases displayed.
Environmental spread of microbes impacts the development of metabolic phenotypes in mice transplanted with microbial communities from humans

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Microbiota transplantation to germ-free animals is a powerful method to study involvement of gut microbes in the aetiology of metabolic syndrome. Owing to large interpersonal variability in gut microbiota, studies with broad coverage of donors are needed to elucidate the establishment of human-derived microorganisms in mice, factors affecting this process and resulting impact on metabolic health. We thus transplanted faecal microbiota from humans (16 obese and 16 controls) separately into 64 germ-free Swiss Webster mice caged in pairs within four isolators, with two isolators assigned to each phenotype, thereby allowing us to explore the extent of microbial spread between cages in a well-controlled environment. Despite high group-wise similarity between obese and control human microbiotas, transplanted mice in the four isolators developed distinct gut bacterial composition and activity, body mass gain, and insulin resistance. Spread of microbes between cages within isolators interacted with establishment of the transplanted microbiota in mice, and contributed to the transmission of metabolic phenotypes. Our findings highlight the impact of donor variability and reveal that inter-individual spread of microbes contributes to the development of metabolic traits. This is of major importance for design of animal studies, and indicates that environmental transfer of microbes between individuals may affect host metabolic traits.

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Context in the medieval period
TCOCT protocol
4-5 hours of HCP time per patient per year

Reduces the degree of obesity in 65, 75, 80 and 90% of children

Reduce degree of hypertension

Reduce degree of steatosis

Reduce degree of dyslipidemia

Reduce parental degree of obesity

Increases QoL body selfesteem

Primary and secondary sectors

Preliminary studies in adults (weight reduction in 80%)

Independent upon baseline degree of obesity and SES

Independent on familial predisposition

Independent on impaired glucose metabolism

Independent on disordered eating

Independent on sugary intakes
Trier, C. et al. No influence of sugar, snacks and fast food intake on the degree of obesity or treatment effect in childhood obesity. Pediatric Obesity n/a; n/a (2016)

Reduce degree of obesity
Paradigm shift

• Chronic disease

• Prioritising obesity in the clinic like other traditional pediatric chronic diseases

• Understanding obesity as an endocrinological regulated disease which seeks energy preservation

• A new pedagogy implementing all relevant lifestyle advices into daily clinical practice based on respect for the reality of the patient with obesity
The Vision

A fully individualised treatment program of obesity and its complications including screening of genes and the microbiome providing 99% of patients with weight loss over time with a low drop out rate.
Ny reportageserie på DR1: Generation XL

En ny reportageserie på DR1 har igennem et år fulgt fem overvægtige børn og deres familier i kampen mod kiloene og mod et sundere liv. ’Generation XL’ får premiere på DR1 tirsdag d. 15. august klokken 20.45.
DET BEDSTE FOR BARNET
Kampen mod overvægt
Jens-Christian Holm
VÆGT TAB
DER HOLDER
HELE LIVET

Jens Christoffer Holm

LÆGEN BAG
HOLBÆKMODELLEN
- KENDT FRA TV

GYLDENDAL
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DrHolmApp.dk (gives personal treatment plan)