Managing obesity in adolescents

SCOPE School, Melbourne, Sept 2024

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Past-President, World Obesity Federation

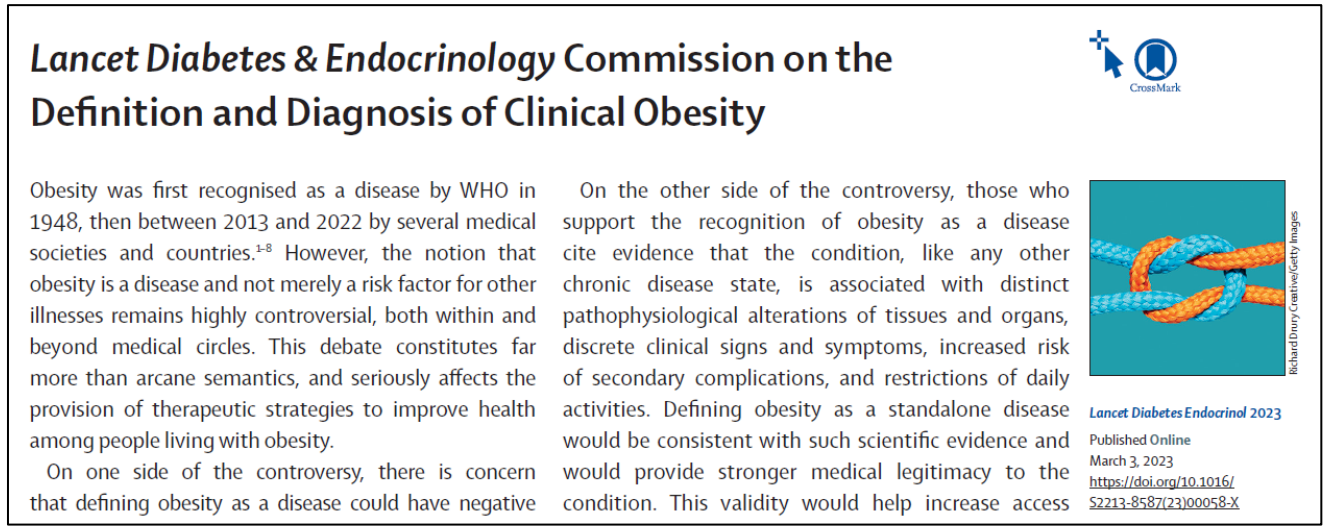
[ ] I have the following potential conflict(s) of interest to report:

- Novo Nordisk
  - ACTION Teens Steering Committee – honoraria, travel support
  - Speaker fees
- Lilly
  - Advisory Committee – honoraria, travel support

Clinical obesity should be treated as a chronic disease

Clinical obesity?

- **"Denotes a condition in which the risk to health associated with excess adiposity has already materialised and can be objectively documented…"**
- **The Lancet Commission report on clinical obesity will be published … soon-ish!**
- **Will include a definition for children and adolescents**
- **Discussed in more detail in another IFSO session**



Lancet Diabetes & Endocrinology Commission on the Definition and Diagnosis of Clinical Obesity

Obesity was first recognised as a disease by WHO in 1948, then between 2013 and 2022 by several medical societies and countries.[1-8] However, the notion that obesity is a disease and not merely a risk factor for other illnesses remains highly controversial, both within and beyond medical circles. This debate constitutes far more than arcane semantics, and seriously affects the provision of therapeutic strategies to improve health among people living with obesity.

On one side of the controversy, there is concern that defining obesity as a disease could have negative

On the other side of the controversy, those who support the recognition of obesity as a disease cite evidence that the condition, like any other chronic disease state, is associated with distinct pathophysiological alterations of tissues and organs, discrete clinical signs and symptoms, increased risk of secondary complications, and restrictions of daily activities. Defining obesity as a standalone disease would be consistent with such scientific evidence and would provide stronger medical legitimacy to the condition. This validity would help increase access

Richard Drury Creative/Getty Images

Lancet Diabetes Endocrinol 2023
Published Online
March 3, 2023
https://doi.org/10.1016/S2213-8587(23)00058-X

Rationale for the Lancet Commission published in:
Rubino F et al. Lancet Diabetes & Endocrinol 2023

Treating *clinical* obesity in adolescents

- **Avoid the acute-care, once-treated-always-cured paradigm**
- **Instead, bring a chronic disease care or rehabilitation perspective to the treatment of children and adolescents with obesity**

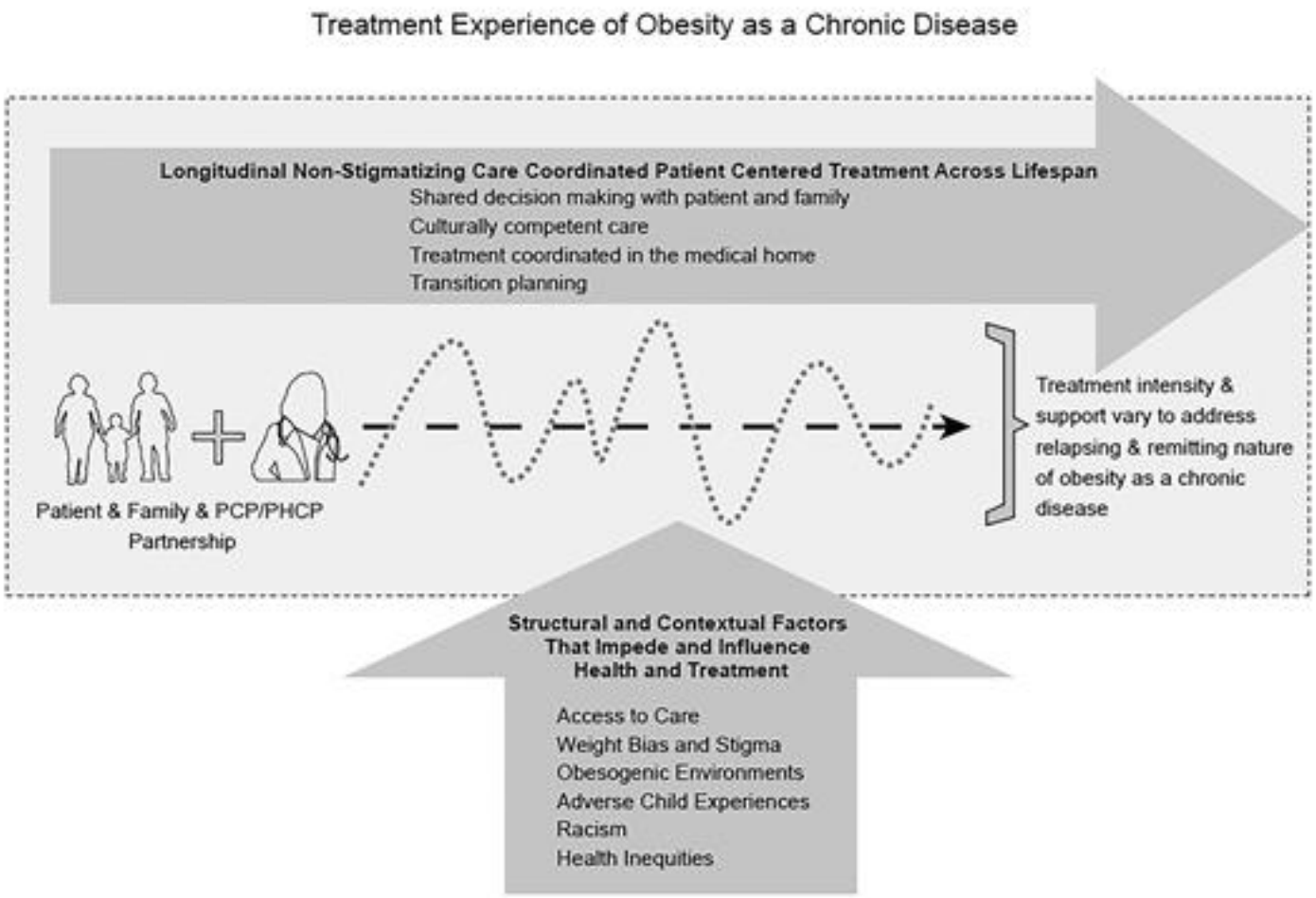
→ Reflect on the following diagram from the 2023 American Academy of Pediatrics Clinical Practice Guideline

Hampl SE et al. Pediatrics 2023

FROM THE AMERICAN ACADEMY OF PEDIATRICS | CLINICAL PRACTICE GUIDELINE | JANUARY 09 2023

Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity

Treatment experience of obesity as a chronic disease



Hampl SE et al. Pediatrics 2023

Implications?

Longitudinal care is needed

Must address chronicity

Need to buffer the structural & contextual factors that influence a person's health

Weight stigma needs to be addressed

Tackling weight stigma

- **Commonly experienced within health services - and commonly delivered by health professionals!**

- **Associated with a range of negative social, psychological and health consequences for people affected by obesity**

Pont SJ, Puhl R, Cook SR, Slusser W. Pediatrics 2017; 49: e20173034; Rubino F et al. Nat Med 2020; 26:485-497; Lister NB et al, Nature Rev Dis Primer 2023; 9:24; Nutter S et al Obes Rev. 2024 Jan;25(1):e13642 http://www.uconnruddcenter.org/weight-bias-stigma

Recommendations for tackling weight stigma within paediatric practice

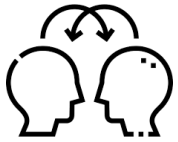
Can practitioners' role-model supportive and unbiased behaviours towards patients with obesity?

Use appropriate language and neutral word choices e.g.

- Use “unhealthy weight”, “BMI”, “above a healthy weight”, “weight”
- Instead of “obese”, “extremely obese” or “fat”
- What language would your patient prefer you to use?

Create a safe and welcoming practice environment

- Appropriately sized chairs, blood pressure cuffs, weight scales (location?), toilets, gowns, examination couches etc
- All staff are welcoming



Have an empathetic approach to behaviour change counselling

Pont SJ, Puhl R, Cook SR, Slusser W. Pediatrics 2017; 49: e20173034; Rubino F et al. Nat Med 2020; 26:485-497; Lister NB et al, Nature Rev Dis Primer 2023; 9:24; http://www.uconnruddcenter.org/weight-bias-stigma

Implications?

Consider language & tone in discussing obesity

Consider a range of strategies for tackling weight stigma in various settings

Clinician leadership is vital

Is weight stigma embedded in your health service and influencing service planning?

What are the basic approaches to treatment of adolescent obesity?

Elements of obesity management in adolescents

Management of obesity-associated complications

Standard support for behavioural change

- *Family engagement*
- *Long-term behaviour change*
- *Increased physical activity*
- *Improved sleep patterns*
- *Developmentally appropriate*
- *Change in diet & eating habits*
- *Decreased sedentary behaviours*

Long-term weight maintenance strategies

Additional therapies

- *More intensive diets*
- *Bariatric surgery*
- *Drug therapies*

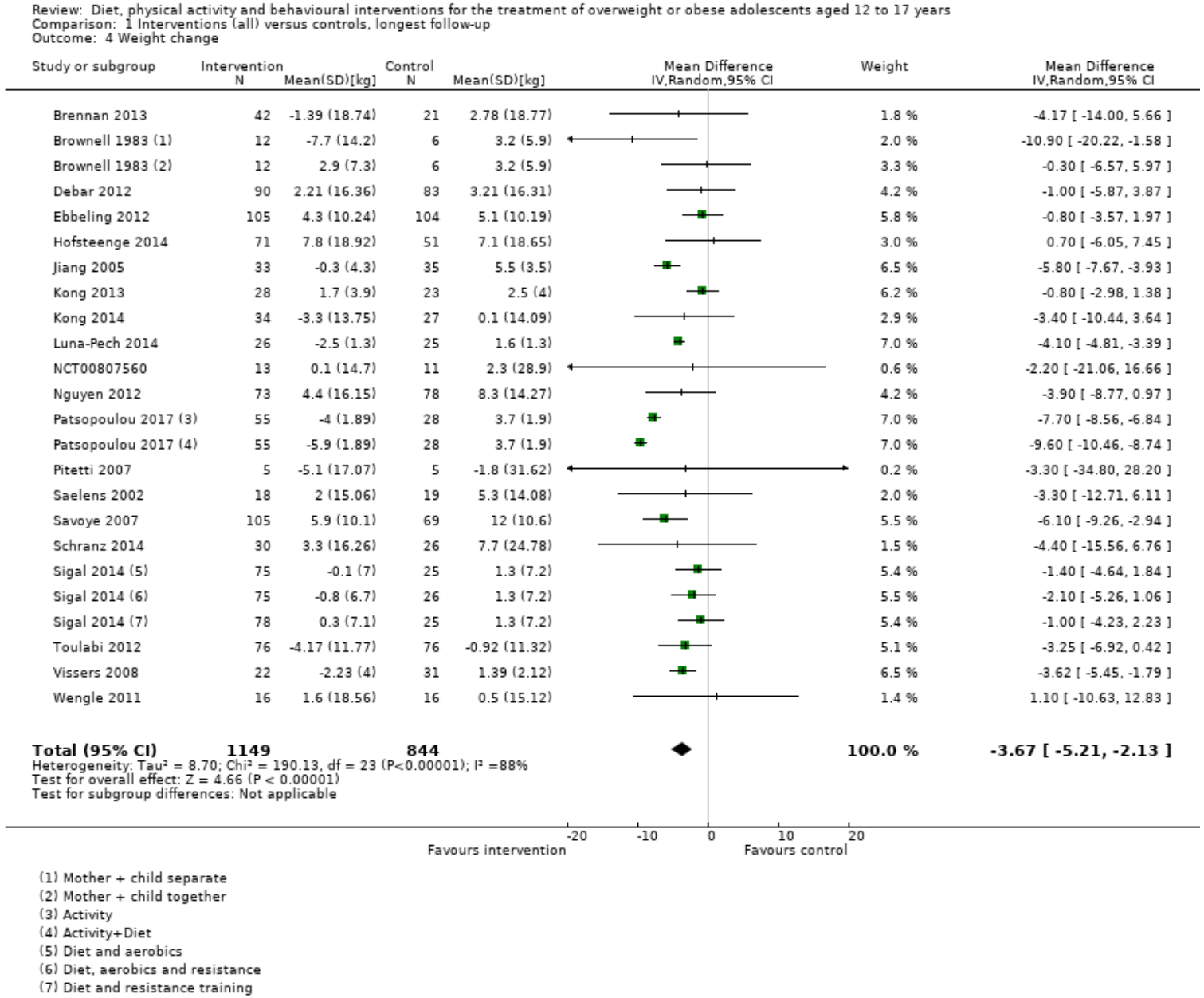
Hempl SE et al American Academy of Pediatrics Clinical Practice Guidelines; Pediatr 2023; 151:e2022060640; Baur LA et al. Nature Rev Gastroenterol Hepatol 2011;8:635–45; NICE Obesity Guideline, 2014; SIGN Guidelines, 2010; Steinbeck KS et al. Nature Rev Endocrinol 2018;14:331–44; Lister NB et al. Nature Rev Dis Primer 2023; 9:24

- **44** completed RCTs
- Behavioural change interventions
  - Mean BMI change**: -1.18 kg/m^2 (95%CI -1.67—0.69)**
  - Mean weight change**: -3.67 kg (95%CI -5.21—2.13)**
- Overall, low quality evidence
- Very few reported adverse events

RCTs, randomized controlled trials, BMI, Body mass index.
Al-Khudairy L et al, Cochrane 2017

Diet, physical activity and behavioural interventions for treatment of adolescents with obesity

Weight outcomes
Longest follow-up



Al-Khudairy L et al, Cochrane 2017

CLINICAL PRACTICE GUIDELINE Guidance for the Clinician in Rendering Pediatric Care

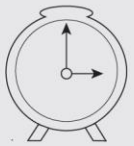
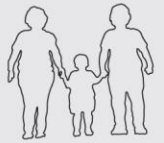
American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity

Pediatrics. 2023;151(2). doi:10.1542/peds.2022-060640

Intensive Health Behavior and Lifestyle Treatment (IHBLT)

WHO:	WHEN:	WHAT:	WHERE:	DOSAGE:	FORMAT:	CHANNEL:
						
Patient and family in partnership with a multidisciplinary treatment team*	Promptly for child or adolescent with overweight or obesity	Health education and skill building on multiple topics  Behavior modification and counseling	Healthcare setting  Community-based setting with linkage to medical home	Longitudinal treatment across 3-12 months with ideally ≥ 26 contact hours	Group,  Individual, or  Both	Face-to-face (strongest evidence)  Virtual (growing evidence)

* PCPs and/or PHCPs with training in obesity as well as other professionals trained in behavior and lifestyle fields such as dietitians, exercise specialists and behavioral health practitioners

Findings from a just-published RCT of two different dietary interventions, with intensive behavioural support in adolescents with moderate obesity*

Aim: To determine the effect of two novel diet therapies, delivered as part of an intensive behavioural weight management intervention, in adolescents with metabolic complications associated with obesity

The diet therapies were a very low energy diet followed by:

i) intermittent energy restriction; or

ii) continuous energy restriction

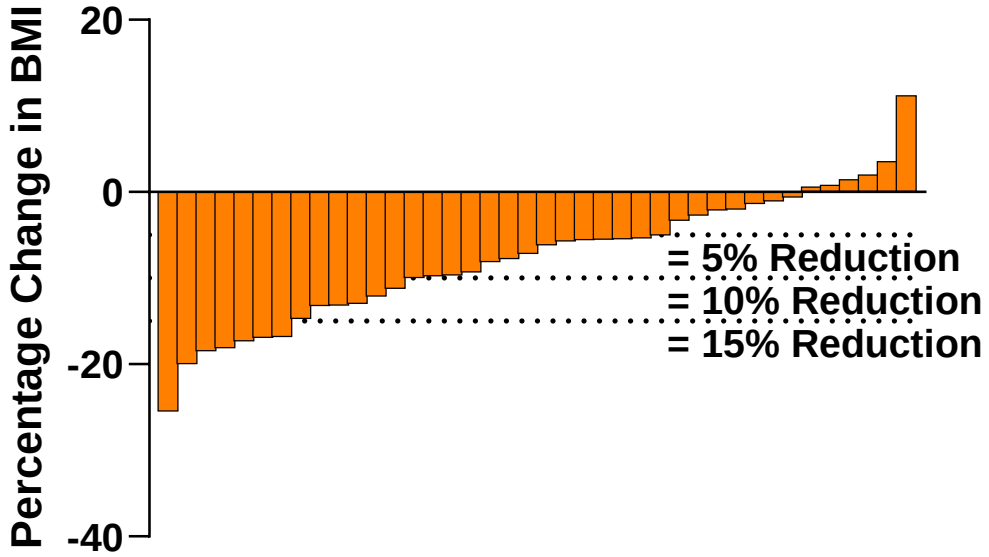
At baseline in 141 participants:

- Mean BMI 35.4 kg/m2
- Mean Weight 100.4kg
- BMI as % of 95th centile for age – 130%

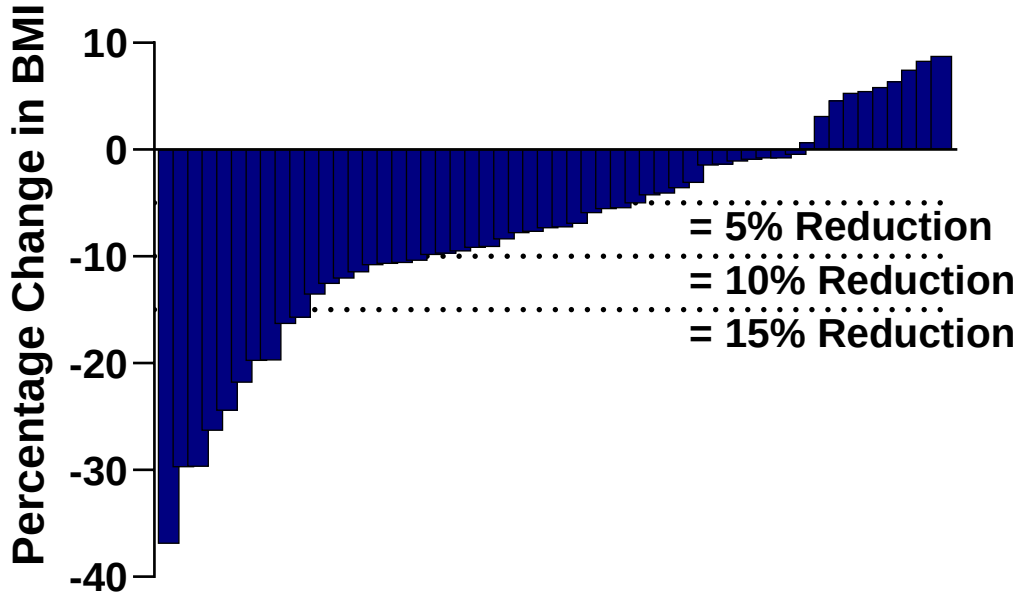
*Lister NB, Baur LA et al. JAMA Pediatr. 2024 Aug 26. doi: 10.1001/jamapediatrics.2024.2869
*Jebeile H, Baur LA et al. JAMA Pediatr. 2024 Aug 26. doi: 10.1001/jamapediatrics.2024.2851

What happened at 52 weeks? Individual changes in BMI as a percentage of the 95th centile for age

Intermittent energy restriction



Continuous energy restriction



PLUS improvements in insulin resistance, LFTs, dyslipidaemia, high BP

*Lister NB, Baur LA et al. JAMA Pediatr. 2024 Aug 26. doi: 10.1001/jamapediatrics.2024.2869
*Jebeile H, Baur LA et al. JAMA Pediatr. 2024 Aug 26. doi: 10.1001/jamapediatrics.2024.2851

Comments

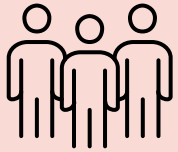
- **In practice, moderate to high intervention intensity is required for delivery of these interventions → this is a major challenge**

Franlin et al Clinical Obesity 2023;13(2):e12567; De Amicis Nutrients 2022;14(14):2897; Epstein JAMA 2023;329(22):1947-1956.

Back to considering how to deliver behavioural change support in real-life clinical settings

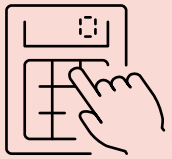
There are barriers to providing behavioural treatment in real-life clinical settings – most evidence does not cover such patients

Barrier



- Poverty
- Culturally & linguistically diverse patients
- Learning disabilities & developmental disorders
- Low literacy
- Family in crisis
- Psychiatric disorders

PLUS, in many regions



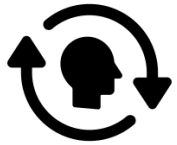
- Services are often poorly resourced

- Services may not be publicly funded

- Health professionals may be inadequately trained

Minshall GA, Davies F, Baur LA. Behavioral Management of Pediatric Obesity. In: Ferry RJ Jr (Ed). Management of Pediatric Obesity and Diabetes. New York: Humana Press; 2011;
Jackson-Leach R et al. Clinical Obesity 2020;10:e12357; McMaster C et al. J Paediatr Ch Health Health 2021

Implications?



Support for behaviour change is foundational – including in provision of bariatric surgery

But how can this be provided within current health systems in most countries?

Adaptations are needed for people living with social disadvantage, neuro-atypical children/ families, people in crisis, low literacy families, migrant families

What about severe obesity in adolescents? Role of bariatric surgery?

The AAP algorithm for the treatment of children and adolescents with obesity

TREATMENT

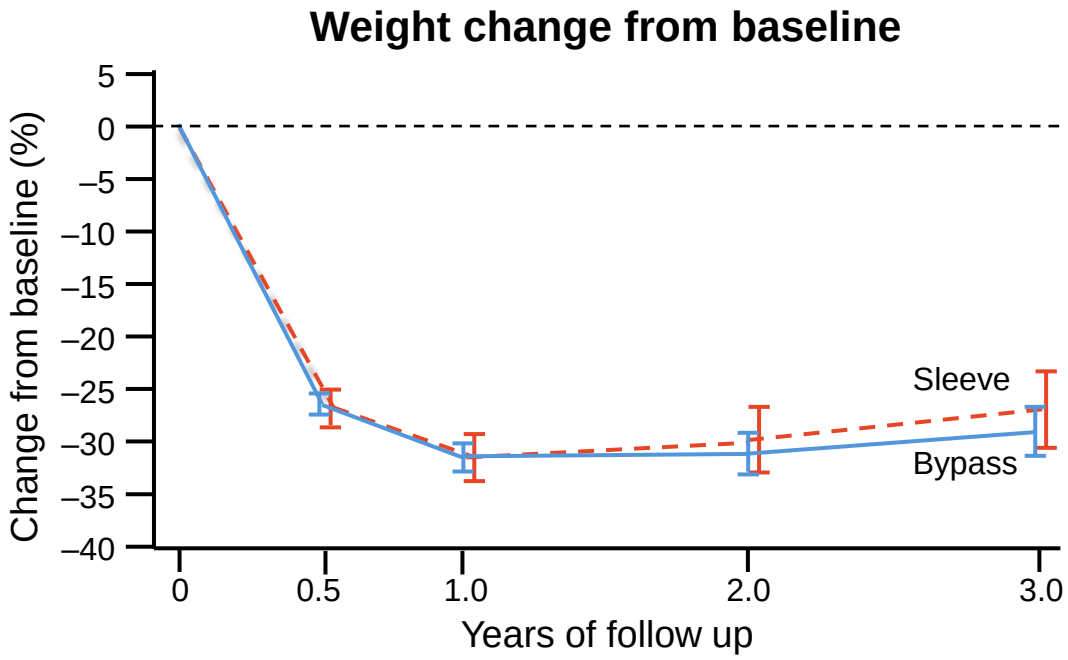
P&PHCPs *should* treat overweight/obesity & comorbidities concurrently (KAS 4) following the principles of the **medical home** and the **chronic care model,** using a **family-centered** and **non-stigmatizing** approach that acknowledges obesity's **biologic, social, and structural drivers**.(KAS 9)

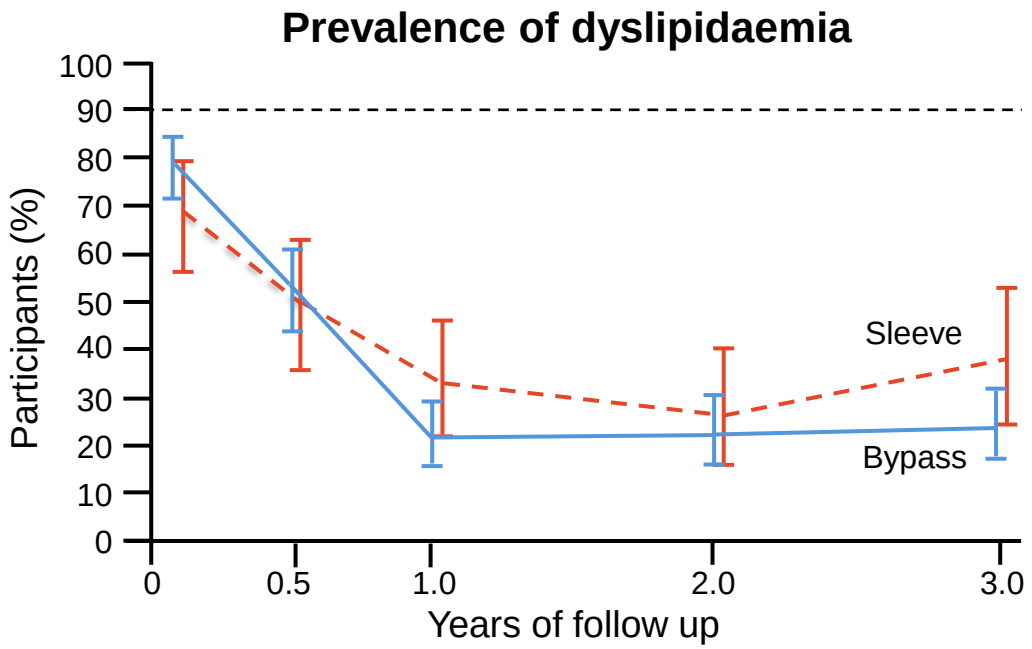
Components of Comprehensive Treatment	Overweight			Obesity		
	<6y	6 to <12y	≥12y	<6y	6 to <12y	≥12y
Motivational Interviewing[f] (KAS 10)	✓	✓	✓	✓	✓	✓
Intensive Health Behavior and Lifestyle Treatment[g] (KAS 11)	⚖	✓	✓	⚖	✓	✓
Weight Loss Pharmacotherapy[h] (KAS 12)						✓
Offer referral to Comprehensive Pediatric Metabolic & Bariatric Surgery programs[i] (KAS 13)						✓[i]

Hampl SE et al. Pediatrics 2023

Teen-Longitudinal Assessment of Bariatric Surgery (Teen LABS)

- **Prospective enrolment of 242 adolescents undergoing bariatric surgery in 5 US centres**
- **Largely Roux-en-Y gastric bypass or sleeve gastrectomy**



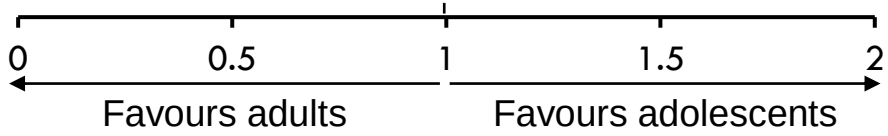


95% remission in type 2 diabetes at 3y

Inge TH et al. New Engl J Med 2016;374:113–23.

Teen-LABS vs LABS: 5-year outcomes of gastric bypass in adolescents vs adults

Coexisting condition	Risk ratio for remission (95% CI) Teen-LABS vs LABS	P value
Type 2 diabetes	1.27 (1.03–1.57)	0.03
Hypertension	1.51 (1.21–1.88)	<0.001
Hypertriglyceridaemia	1.09 (0.93–1.29)	0.28
Low HDL	1.10 (0.98–1.24)	0.11



Other outcomes in adolescents:

- **More frequent abdominal reoperations than in adults**
- **Adherence to nutritional supplementation decreased with time**
- **5-year all-cause mortality similar in adolescents and adults (1.9% vs 1.8%)**
  - **2 of 3 deaths in adolescents due to substance use**

CI, confidence interval; HDL, high density lipoprotein.
Inge TH et al. New Engl J Med 2019;380:2136–45.

Implications?

Bariatric surgery should be considered for mid- and older adolescents with severe obesity and complications …

… in the context of multidisciplinary adolescent care

Be aware of safety concerns – re-operations, non-adherence to nutritional supplementation, potential long-term psychological harms

What about severe obesity in adolescents? Role of pharmacotherapy?

Re-looking at the AAP algorithm for the treatment of children and adolescents with obesity

TREATMENT

P&PHCPs *should* treat overweight/obesity & comorbidities concurrently (KAS 4) following the principles of the **medical home** and the **chronic care model,** using a **family-centered** and **non-stigmatizing** approach that acknowledges obesity's **biologic, social, and structural drivers.**(KAS 9)

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Hampl SE et al. Pediatrics 2023

Obesity pharmacotherapy

A small, although growing, number of obesity management medications are approved for use in adults

Fewer obesity management medications are approved for use with youth, with more in the US than most other jurisdictions

Obesity management medications in adolescents often used "off-label"

GLP-1 receptor agonists (liraglutide, semaglutide…) are starting to change adolescent obesity management practice – these are already approved for use in USA and Europe

Costs and availabilities are major barriers in many countries

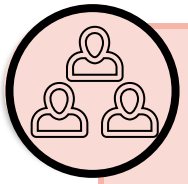
GLP-1, glucagon like peptide.

Jebeile H et al. Lancet Diab Endocrinol 2022; Lister NB et al. Nat Rev Dis Primer 2023

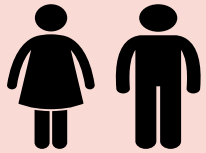
ORIGINAL ARTICLE FREE PREVIEW

Once-Weekly Semaglutide in Adolescents with Obesity

Daniel Weghuber, M.D., Timothy Barrett, Ph.D., Margarita Barrientos-Pérez, M.D., Inge Gies, Ph.D., Dan Hesse, Ph.D., Ole K. Jeppesen, M.Sc., Aaron S. Kelly, Ph.D., Lucy D. Mastrandrea, M.D., Rasmus Sørrig, Ph.D., and Silva Arslanian, M.D. for the STEP TEENS Investigators*



- N=201 participants
- Randomised in 2:1 ratio active drug to placebo

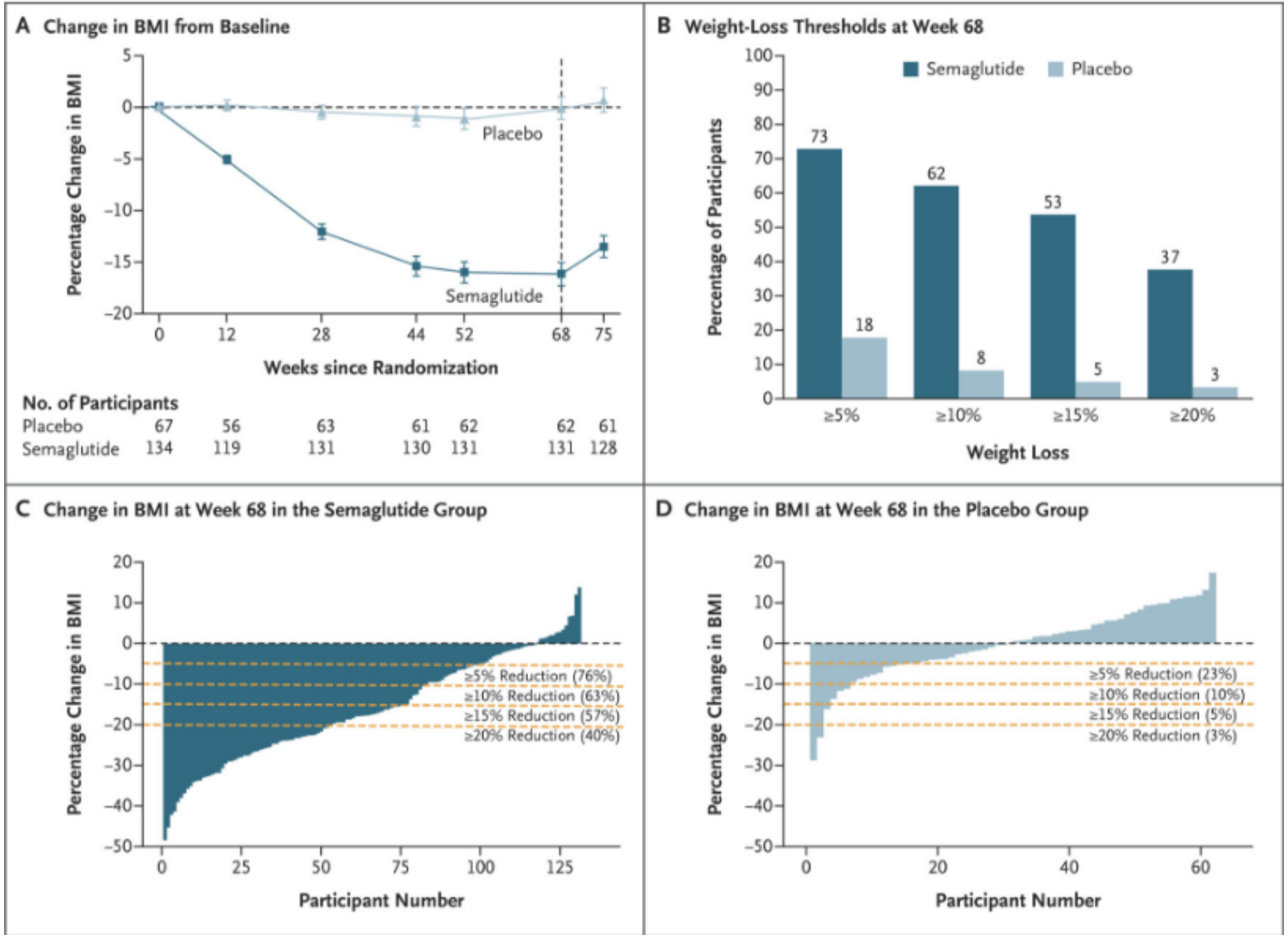


Semaglutide – a GLP-1 receptor agonist

- Given as once-weekly SC injection
- FDA had approved use of semaglutide 2.4mg SC for long-term weight management in adults

The Semaglutide Treatment Effect in People with Obesity (STEP) TEENS trial assessed the efficacy and safety of once-weekly semaglutide 2.4mg SC in adolescents with BMI >95th centile for age

N, number of participants; SC, subcutaneous; GLP-1, glucagon like peptide; FDA, food and drug administration; BMI, body mass index.
Weghuber D et al. NEJM 2022



Weghuber D et al. NEJM 2022

Implications?

Obesity management medications will – eventually! - be part of routine provision of therapy for adolescents with moderate to severe obesity

Costs and availabilities are currently major issues

Long-term outcomes?

More evidence needed for: maintenance therapy, pre-treatment for surgery, post-surgery treatment, combination therapy….

What about eating disorder risk when treating obesity in adolescents?

Concerns expressed by obesity clinicians

When should I be concerned about treating obesity in a person at higher risk of an eating disorder?

What if the treatment I provide inadvertently triggers an eating disorder?

Should I avoid standard weight management in such people? But if I do, don't they deserve access to some sort of obesity treatment?

Is dietary restraint necessarily a bad thing in an obesity-conducive environment?

Systematic reviews of psychological outcomes in child & adolescent obesity treatment

REVIEW ARTICLE

Pediatric OBESITY | WILEY

Pediatric obesity treatment, self-esteem, and body image: A systematic review with meta-analysis

Megan L. Gow[1,2] | Melissa S.Y. Tee[3] | Sarah P. Garnett[1,2] | Louise A. Baur[1,4] | Katharine Aldwell[2] | Sarah Thomas[2] | Natalie B. Lister[1,2] | Susan J. Paxton[5] | Hiba Jebeile[1,2]

Received: 15 February 2019 | Revised: 25 March 2019 | Accepted: 31 March 2019
DOI: 10.1111/obr.12866

PEDIATRIC OBESITY/TREATMENT

WILEY obesityreviews

Treatment of obesity, with a dietary component, and eating disorder risk in children and adolescents: A systematic review with meta-analysis

Hiba Jebeile[1,2] | Megan L. Gow[1,2] | Louise A. Baur[1,2] | Sarah P. Garnett[1,2] | Susan J. Paxton[3] | Natalie B. Lister[1,2]

JAMA Pediatrics | Original Investigation

Association of Pediatric Obesity Treatment, Including a Dietary Component, With Change in Depression and Anxiety
A Systematic Review and Meta-analysis

Hiba Jebeile, MNutrDiet; Megan L. Gow, PhD; Louise A. Baur, PhD; Sarah P. Garnett, PhD; Susan J. Paxton, PhD; Natalie B. Lister, PhD

Special Article

Pediatric weight management, dietary restraint, dieting, and eating disorder risk: a systematic review

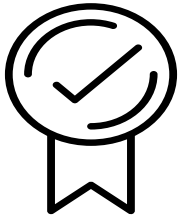
Eve T. House, Megan L. Gow, Natalie B. Lister, Louise A. Baur, Sarah P. Garnett, Susan J. Paxton, and Hiba Jebeile

Structured professionally-run obesity treatment in children and adolescents is associated with:

- **Reduced prevalence of eating disorders, and disordered eating behaviours**
- **Reduced symptoms of depression and anxiety**
- **Improvements in body image and self-esteem**

Jebeile H, et al. Obesity Reviews 2019; Jebeile H, et al. JAMA Pediatrics. 2019; Gow ML, et al. Pediatric Obesity 2020; House ET et al. Nutr Rev 2021

Professionally supervised programs for weight management appear psychologically safe – Why?



- ✓A non-stigmatising, **supportive environment**
- ✓A **structured and moderate dietary intervention**
- ✓**Support for behaviour change**
- ✓**Frequent and extended contact** with health professionals

BUT some individuals may be at higher risk of developing an eating disorder – how can they be identified and supported and treatment personalised?

Are there elements of obesity treatment that may put some people at higher risk of an eating disorder? (e.g., regular weighing, calorie counting….)

Implications?

For most adolescents with obesity, *professionally delivered obesity therapy* is psychologically safe

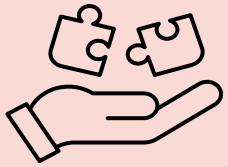
However, how do we identify those who are at higher risk of eating disorders, depression etc., – and how should treatment be modified?

My personal suggestions:

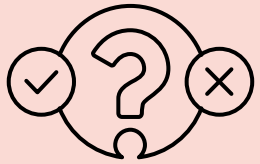
- Work to decrease **weight stigma** in your clinic
- Where possible, work with **a clinical psychologist** OR ensure *all* staff (medical, nursing, allied health) have **basic mental health and eating disorders training**
- Where possible, **monitor eating disorder and depression risk**
- Frequent **regular contact** by a youth-friendly clinician
- Include **a broad range of outcomes**

Final comments

- Models of care for adolescent treatment need to be developed for different types of health systems
- How do we best tackle **weight stigma** in healthcare settings?



- How do we best provide treatment for **higher risk groups, including neuro-atypical people, migrants/ refugees, people living with social disadvantage, people in crisis**…



- How can **metabolic & bariatric surgery and pharmacotherapy** be made available to those who need them most?
- How do we **identify adolescents at higher risk of eating disorders or depression** and modify treatment accordingly?

Acknowledgements

Funding: Australian National Health & Medical Research Council grants – Investigator, Project, Ideas …

My amazing students & colleagues in:

- **The University of Sydney: Boden Initiative, Charles Perkins Centre …**
- **The Children's Hospital at Westmead: Obesity Research Group; Weight Management Services**
- **The Fast Track Trial group**
- **The EDIT Collaboration**
- **NSW Ministry of Health**
- **The World Obesity Federation**

Thank you!

www.editcollaboration.com

https://www.worldobesity.org/

Example of one country's resource for clinicians/ young people

Address healthy eating, activity, screens and sleep. In line with national guidelines.

8 Healthy Habits: Core messages for anticipatory guidance developed by New South Wales Health, for use anywhere

See this and other resources at:
pro.healthykids.nsw.gov.au

Available in English and in Arabic, Burmese, Chinese (simplified and traditional), Farsi, French, Hindi, Karen, Korean, Nepali, Swahili, Thai and Vietnamese

Available for free in 13 community languages

Baseline characteristics of the adolescents

	All participants (n=141)	Intermittent energy restriction (n=71)	Continuous energy restriction (n=70)
Age, y, median [range]	14.8 [12.9-17.9]	14.8 [12.9-17.9]	14.8 [12.9-17.8]
Sex, Female, n (%)	70 (49.6)	36 (50.7)	34 (48.6)
Anthropometry , mean (SD)			
- **Weight, kg**	100.42 (16.50)	97.71 (15.09)	103.09 (17.61)
- **BMI, kg/m^2**	35.39 (4.17)	34.83 (3.91)	35.95 (4.40)
- **BMI % 95th centile**	130 (15)	128 (14)	132 (16)
Cardiometabolic profile, n %			
- **Insulin resistance** (fasting insulin (pmol/L)/glucose(mmol/L) ratio >20)	84 (91.3)	40 (90.9)	44 (91.7)
- **SBP percentiles** (or proportion with SBP >95%ile)	17 (12.1)	10 (14.1)	7 (10)
- **DBP percentiles** (or proportion with SBP >95%ile)	17 (12.1)	10 (14.1)	7 (10)
- **Dyslipidaemia** HDL <1.03mmol/L and/or TG ≥1.7mmol/l	60 (42.6)	31 (43.7)	29 (41.4)
- **Elevated liver enzymes** ALT &/or GGT ≥1.5 upper limit of 30U/L	37 (27.0)	24 (34.3)	13 (18.8)
- **Elevated fasting glucose** of 5.6–6.9 mmol/L	11 (8.0)	5 (7.0)	6 (8.6)

Hampl SE et al. Pediatrics 2023

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