General practice management of adolescents living with obesity and overweight

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Please use the Q&A box for any questions you may have. The chat function has been disabled.

Tonight’s webinar will be recorded and will be made available on the RACGP Events webpage within the next week.

Your CPD 1 hour Education Activity will be uploaded within the next 14 days.

Dr Terri-Lynne South

Terri-Lynne is the Chair of the RACGP Specific Interests Obesity Management group. She has over 25 years of experience as a healthcare practitioner, both as a GP and accredited practicing dietitian.

Terri-Lynne has a special interest in health conditions associated with excess weight and since 2021, has moved to a full-time focus on obesity and metabolic health, which grants her the time and commitment to further her life-long passion.

Acknowledgement of Country

The RACGP acknowledges the Traditional Custodians of the land and waterways in which we work and live.

We recognise their continuing connection to land, water and culture, and pay our respects to Elders past, present and future.

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Dr Shirley Alexander

Dr Shirley Alexander has practiced as a paediatrician in the UK and Australia for over 20 years. Over the past 10 years, she has been working as Staff Specialist and is the Head of Weight Management Services at the Children's Hospital at Westmead, Sydney, a multidisciplinary team helping children and young people with obesity, and their families, develop healthier lifestyle habits.

She has published broadly on topics in relation to childhood obesity and medical education and has presented at conferences locally, nationally and internationally.

Assessment and Management of Paediatric Obesity: Weight Management in the Adolescent Patient

Dr Shirley Alexander, Consultant Paediatrician, Head of Weight Management Services, Sydney Children's Hospitals Network

Acknowledgment: Professor Louise Baur, in particular for use of slide/content

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Learning outcomes

- Describe the approach to assessment of the adolescent living with obesity

- Identify strategies used in managing adolescents living with obesity

What will be covered today

- Adolescence – a time of change
- Assessment and management of obesity in adolescents
- Clinical investigations
- More intensive dietary interventions
- Pharmacotherapy
- Bariatric surgery
- Eating disorder risk and obesity management

Adolescence – a changing, challenging time

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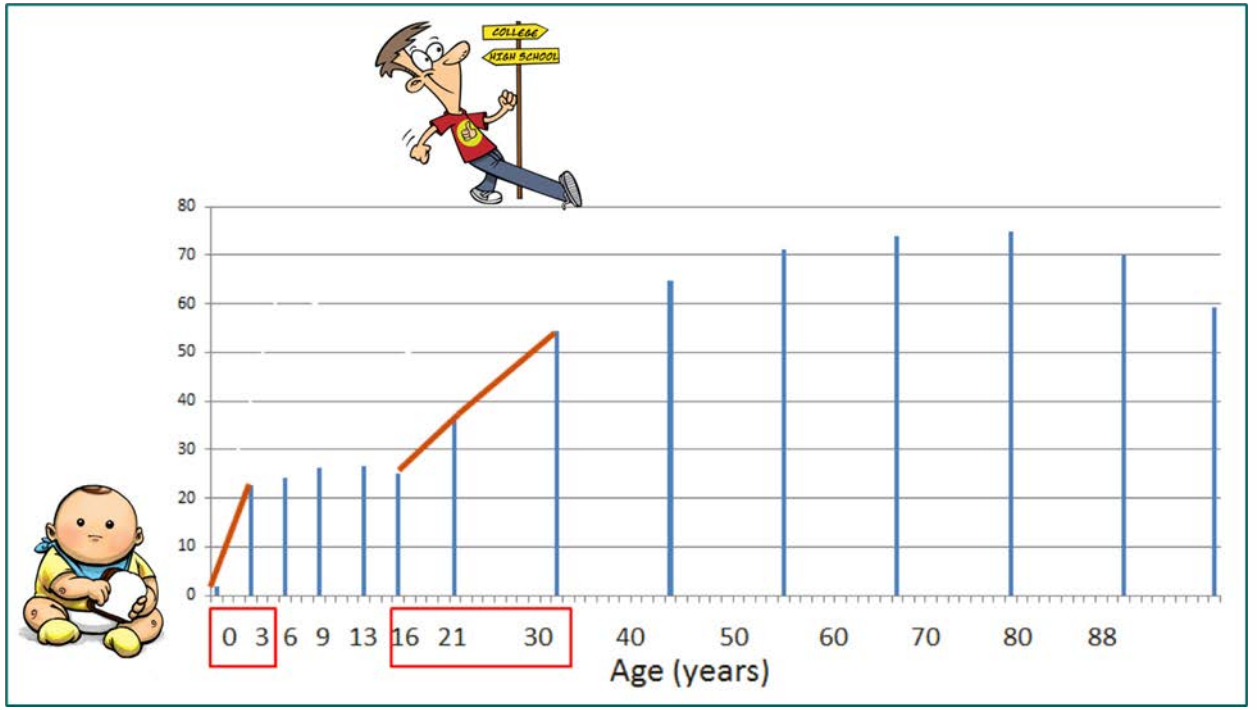
Adolescence is a vulnerable period for the development of obesity



Prevalence of overweight and obesity by age, Australia, 2011-12
Source: Australian National Health Survey 2011-2012

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Transitioning to adult life

There is a loss of structure after leaving school

- Less physical activity
- Increased alcohol and fast food
- New life priorities
- Living away from home

If healthy lifestyle habits are not achieved during adolescence it is much **harder to make changes in young adulthood**

At least 90% of adolescents with obesity remain so in young adulthood
Young adult women are **gaining weight faster** than any other age group

Assessment -history

General history

- Pregnancy details including birth weight & maternal gestational diabetes
- Early medical history
- Ethnicity

Weight history

- History of obesity - onset and development
- Previous interventions
- Current and previous dieting
- Impact of obesity on young person & family

Complications history

- Psychological effects – bullying, teasing
- Knee or hip pain
- Menstrual history (girls)
- Exercise tolerance
- Constipation, enuresis
- Sleep disturbances

Family history

- Ethnicity
- BMI of first degree relatives
- Family history of obesity, premature heart disease, diabetes, obstructive sleep apnoea, bariatric surgery, eating disorders …

HEEADSSS assessment

HEEADSSS

H – Home

E – Education

E – Eating and exercise

A – Activities and peer relationships

D – Drug use/Cigarettes/Alcohol

S – Sexuality

S – Suicide and Depression

S - Safety

Screening tool for conducting a comprehensive psychosocial history and health risk assessment with a young person

Assists in developing a rapport and identifying the young person's strengths and protective factors

Helps to identify areas for intervention and prevention

https://www.health.nsw.gov.au/kidsfamilies/youth/Documents/gp-resources-kit/gp-resource-kit-sect2-chap2.pdf

Factors specific to adolscents

- **Late nights and inadequate sleep**
- **Skipping breakfast**
- **Irregular meals and snacks**
- **Avoiding eating at school**
- **Binge eating and/or drinking**
- **High volumes of screen time**
- **High calorie takeaway and fast foods**
- **Peer pressure**
- **Bullying/teasing – school avoidance**

Psychosocial impact for children

Stigmatisation and Bullying

- Children with obesity seen as lazy, unhygienic and socially incompetent
- Victim or Bully
- Cyberbullying: 2.5 times more likely to be the victim of cyber-bullying

School issues

- Avoidance
- Poor concentration
- Academic performance

Mental health and behaviour

Increased prevalence of:

- ADHD, Oppositional Defiance Disorder
- Depression and anxiety

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Assessment – clinical examination in adolescents

Organ system	Physical findings of note
Skin	Acanthosis nigricans, skin tags, hirsutism, acne, striae, intertrigo, pseudogynaecomastia
Neurological	Benign intracranial hypertension, flat affect (depression)
Head and neck	Large tonsillar size, obstructed breathing
Cardiovascular	Hypertension (ensure appropriate cuff size), tachycardia
Respiratory	Exercise intolerance, wheeze (asthma)
Gastrointestinal	Hepatomegaly (MAFLD), abdominal pain (gallstones, reflux)
Musculoskeletal	Flat feet; groin pain and painful gait (slipped capital femoral epiphysis); lower limb arthralgia and joint restriction, knee reflexes
Endocrine	Extensive striae, hypertension, buffalo hump, pubertal staging (may use chart), reduced growth velocity
Other	Short stature, dysmorphism, developmental delay

Baur LA et al Nature Rev Gastroenterol Hepatol 2011; Steinbeck KS et al. Nature Rev Endocrinol 2018; 2013 NHMRC CPG; NICE Obesity Guideline 2014; Barlow S, Expert Committee. Pediatrics 2007; AAP Clinical Algorithm 2015

When to investigate?

Age: adolescents > younger children

Severe obesity (esp. central obesity)

High risk family history:

- 1st and 2nd degree relatives with heart disease, type 2 diabetes (incl. GDM), dyslipidaemia, sleep apnoea etc

High risk ethnic group:

- Indian sub-continent, Mediterranean & Middle-Eastern, Maori & Pacific Islander, Aboriginal & Torres Strait Islander, probably east Asian

Clinical suggestion of co-morbidities

- Including PCOS evaluation in females with irregular menses over 2 years post menarche and/or signs of hyperandrogenism (hirsuitism, acne)

What to investigate?

Initial fasting blood tests (others dependent upon results)*:

- Glucose
- Liver function Tests (ALT, AST)
- Lipids (TG, HDL cholesterol, LDL cholesterol)
- Insulin (guidelines vary in recommendations), $HbA1_C$

Additional nutritional status tests:

- Iron studies, Vitamin D, Vitamin B12

Others:

- TSH – initial presentation, reduced growth velocity, short stature, goitre
- Reproductive hormones

Consider referral for sleep assessment

- Symptoms suggestive of OSA, poor school performance

Other investigations

When do you order an oral glucose tolerance test?

- Only 4% of obesity clinics in US undertook OGTT in all children with obesity
- Severe obesity, risk factors/complications

Other investigations that MAY be warranted:

- Liver ultrasound, Hip xrays (peripubertal – knee/hip pain)

When to repeat?

- Variable, 6-12 monthly

What are the aims of treatment?

They could be:

Reduction in weight and weight-related outcomes

Change in weight gain trajectory

Improvement in obesity-associated complications

Change in markers of future health/psychological/social complications

Note the potential for mismatch between the views of the young person, the family, the clinicians… and what may be possible/available!

Steinbeck KS et al. Nature Rev Endocrinol 2018;14:331–44.

Elements of obesity management in adolescents

Management of obesity-associated complications

Standard weight management

- *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

Dietary interventions

Specialised dietary interventions

- Very low energy diets
- Intermittent fasting
- Low carbohydrate diets
- Higher protein diets

- Should be done under expert dietitian supervision
- Not all sustainable
- Need to ensure nutritionally complete

Modified Very Low Energy Diets (mVLEDs) in adolescents

Strict eating pattern aiming for <800kcal/day (3350kJ), typically <50g CHO

Supervised by a dietitian

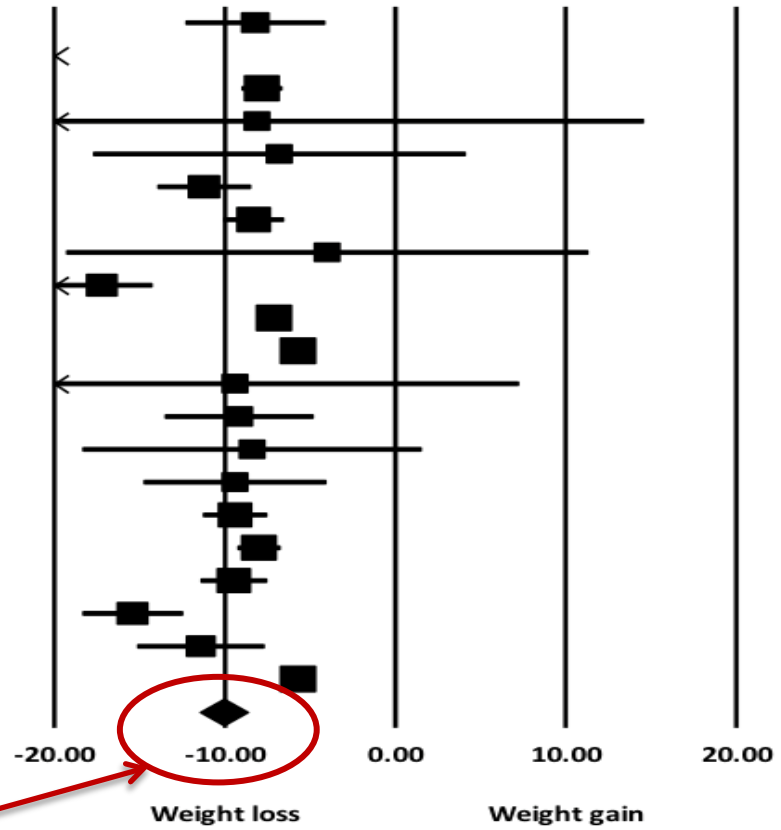
+

Why in adolescents?

- Potential greater *initial* weight loss
- Potential to reverse type 2 diabetes in adults
- Increasing interest in bariatric surgery for adolescents (VLED as part of pre-op preparation)
- May be an alternative to bariatric surgery in some

Systematic review of Very Low Energy Diets (VLEDs) in children and adolescents

- Meta-analysis of 20 studies reporting mean weight change immediately post VLED intervention (3-20 wk duration)
- Graph shows difference in means (95% CI) for each study
- Details of adverse events were limited



Mean weight loss of 10.1 kg across all 20 studies

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Andela S at al. Efficacy of very low-energy diet programs for weight loss: A systematic review with meta-analysis of intervention studies in children and adolescents with obesity. Obesity Reviews 2019; 20: 871-882.

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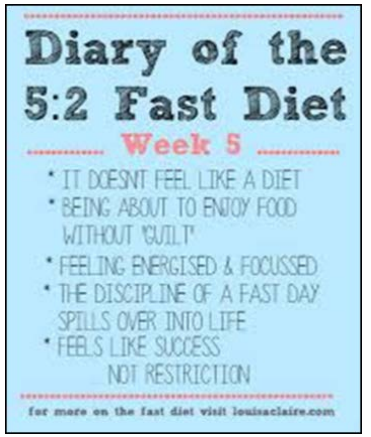
Intermittent fasting / alternate day fasting / 5:2 diet

All incorporate “fasting” days and “feeding” days

“Fasting days”: complete fast OR modified fast (i.e. 25% EER, 500kcal/ day, 600kcal/ day etc)

“Feeding days”: ad libitum OR ad libitum with some guidelines – i.e. healthy eating guidelines

Created to increase adherence to dietary restriction protocols
(Varady & Hellerstein AJCN 2007; 86: 7-13)



Increased protein diet and Low carbohydrate diet

Include protein rich food at every meal and snack

Choose mostly grain based breads and cereals

2 pieces of fruit daily

< 50g of carbohydrate per day

Carbohydrate free vegetables encouraged

100g cheese per day – full fat preferred

Set meal and snack times to avoid grazing pattern of eating

Eat breakfast everyday

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Obesity pharmacotherapy

- A small, although growing, number of anti-obesity medications approved for use in adults
- Few approved for use with youth – more in the US than most other jurisdictions
- Most use is off-label
- FDA-approved: orlistat (also approved in Australia), phentermine, liraglutide
- *Not FDA-approved but off-label use “commonly prescribed by trained providers”: metformin, topiramate, exenatide, lisdexamfetamine
- GLP-1 receptor agonists will change adolescent obesity management practice in the next few years

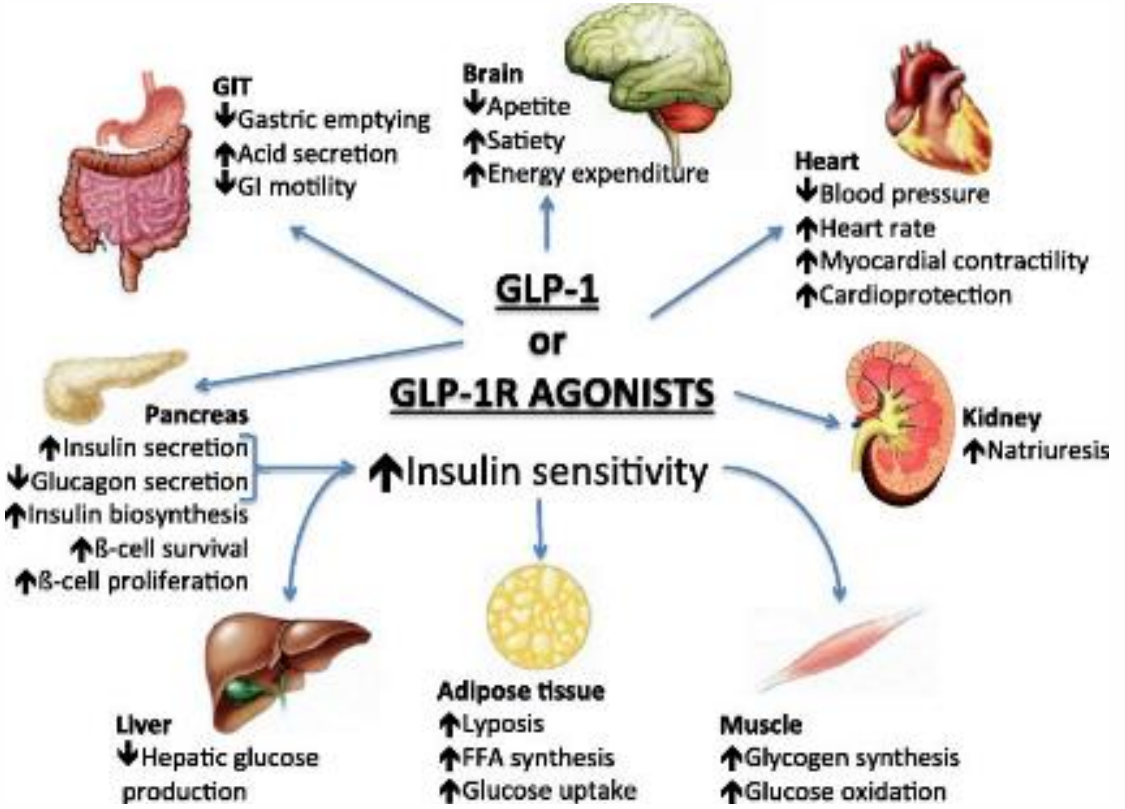
Jebeile H et al. Lancet Diab Endocrinol 2022

Metformin

- Suppresses hepatic glucose production
- Three RCTs in adolescents with obesity and insulin resistance:
    - improvements in weight, BMI, subcutaneous abdominal adipose tissue, fasting insulin but not insulin sensitivity (Kay 2001, Freemark 2001, Srinivasan 2006)
- When do we use metformin?
    - Clinical evidence of insulin resistance eg acanthosis nigricans, PCOS, significant hyperinsulinism
- How do we use it?
    - As an adjunct to lifestyle intervention
    - Dosage graded up, with meal
    - Slow or extended release preparations
        - May assist with compliance
        - May reduce potential side effects
    - Warn young women about fertility – counsel re contraception
    - No guidelines as to optimal treatment
    - Side effects – nausea, abdo pain, vit B12 def, lactic acidosis

Glucagon-like peptide-1 (GLP1) receptor agonists

- Increase postprandial insulin, reduce glucagon secretion, delay gastric emptying, induce weight loss
- Used as a second-line treatment for type 2 diabetes, and for reducing the risk of CVD events in people with T2DM and CVD
- Liraglutide (*Saxenda*) – daily subcutaneous
- Semaglutide (*Ozempic*) – weekly subcutaneous
- Side-effects include nausea, vomiting, diarrhoea



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ORIGINAL ARTICLE FREE PREVIEW

Once-Weekly Semaglutide in Adolescents with Obesity

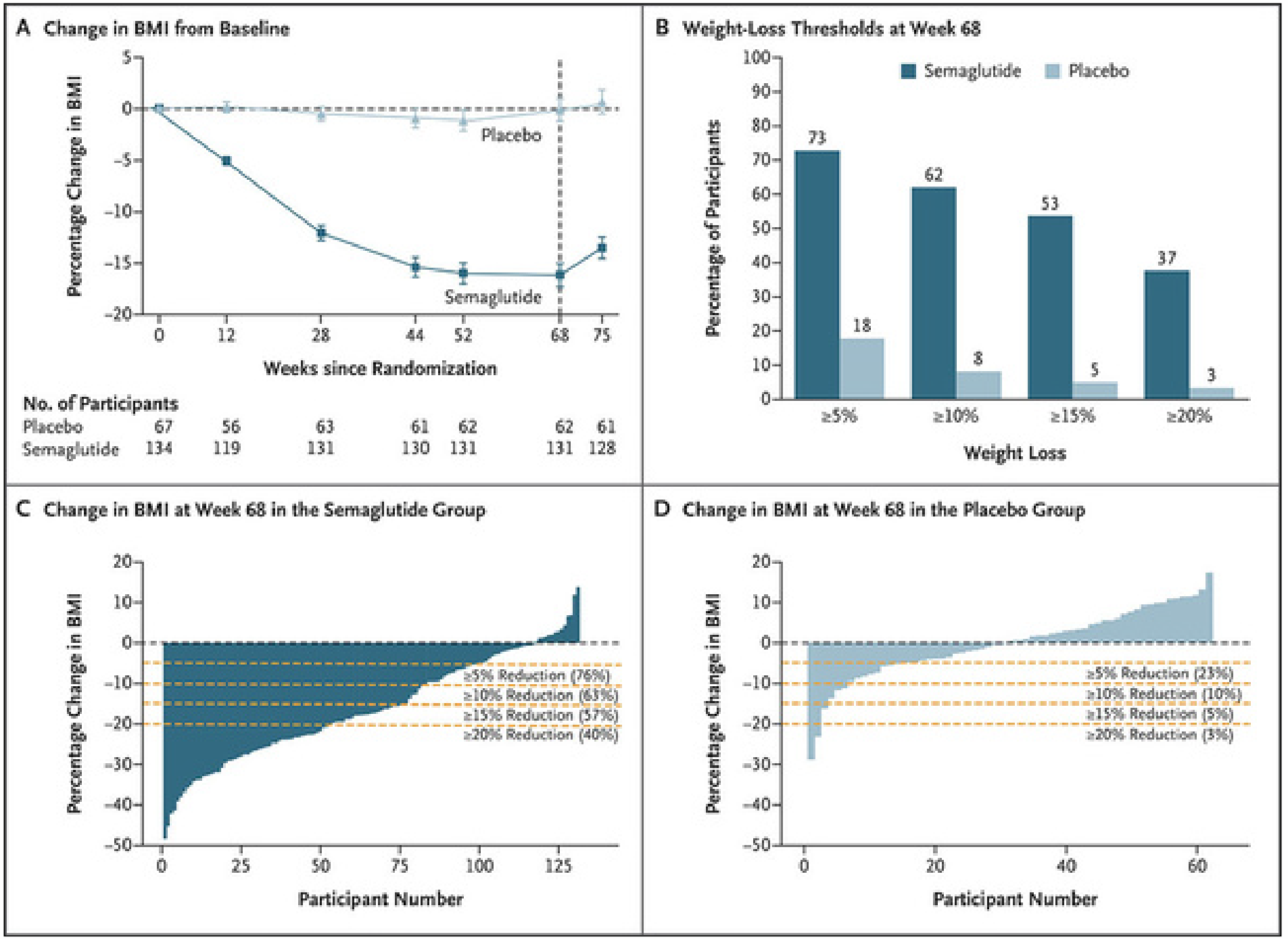
Daniel Weghuber, M.D., Timothy Barrett, Ph.D., Margarita Barrientos-Pérez, M.D., Inge Gies, Ph.D., Dan Hesse, Ph.D., Ole K. Jeppesen, M.Sc., Aaron S. Kelly, Ph.D., Lucy D. Mastrandrea, M.D., Rasmus Sørrig, Ph.D., and Silva Arslanian, M.D. for the STEP TEENS Investigators*

Semaglutide – a GLP-1 receptor agonist

- Given as once-weekly SC injection
- FDA had approved use of semaglutide 2.4 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 semagutide in adolescents with BMI >95th centile for age

N=201 participants, randomised in 2:1 ratio active drug to placebo



Weghuber D et al.
NEJM 2022

Bariatric surgery

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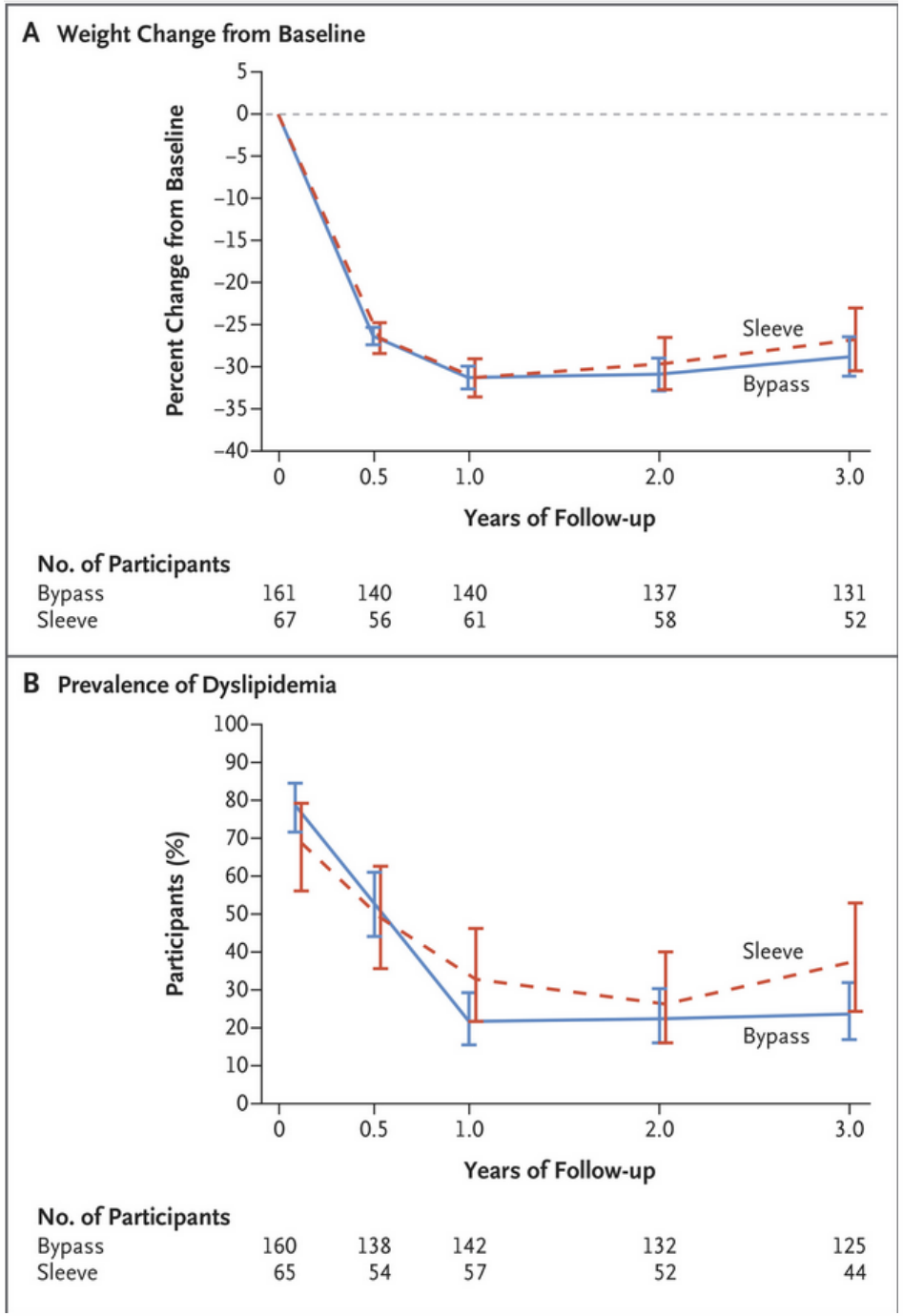
Inclusion criteria

- Age 15 years or more
- Puberty Tanner stage 4 or 5, skeletal maturity
- BMI >40 kg/m^2, or >35 kg/m^2 with severe co-morbidities
  - Co-morbidities include diabetes, OSA, MAFLD ….
- Persistence of obesity despite involvement in multidisciplinary program of lifestyle and pharmacotherapy for 6 months
- Patient and family motivated and understand the need to participate in post-surgical therapy
- Adolescent able to give informed consent

Teen-Longitudinal Assessment of Bariatric Surgery



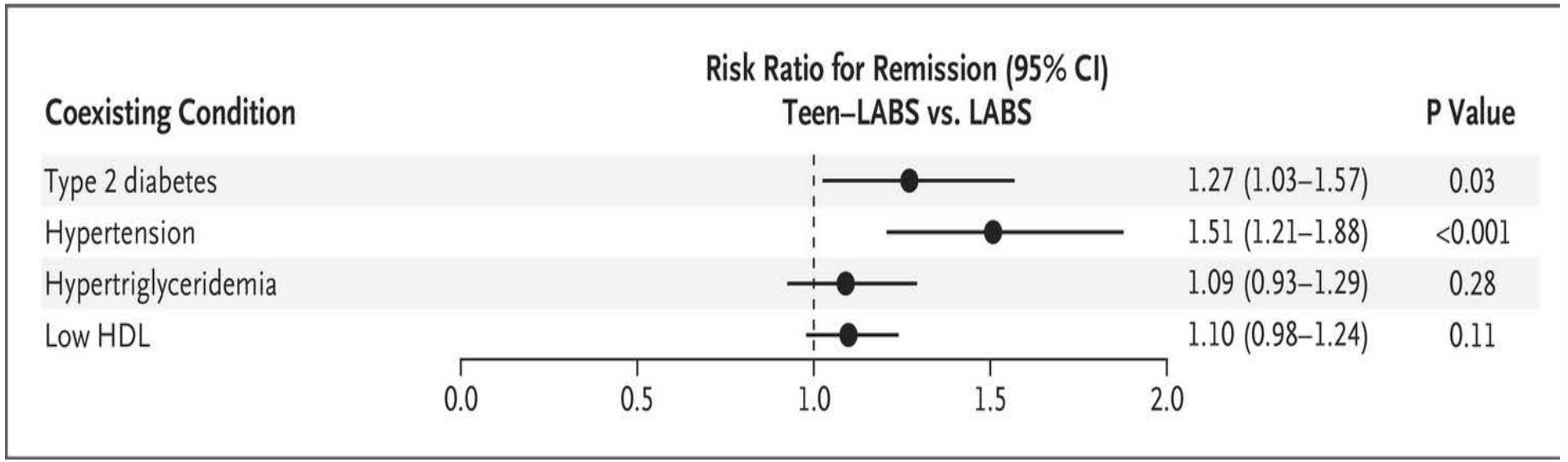
Teen-LABS

Prospective enrolment of 242 adolescents undergoing bariatric surgery in 5 US centers. Largely Roux-en-Y gastric bypass or sleeve gastrectomy. Weight change and dyslipidemia outcomes at 3y shown.

Note: 95% remission in type 2 diabetes at 3y

Inge TH et al. New Engl J Med 2016; 374:113-123

5 year outcomes of gastric bypass in adolescents as compared with adults (US: Teen-LABS vs LABS)



Other outcomes in adolescents:

- Abdominal reoperations more common than in adults
- Adherence to nutr. supplementation decreased with time
- 5 year all-cause mortality similar in adol. and adults (1.9% vs 1.8%) – 2 of 3 deaths in adolescents due to substance use

Inge TH et al. New Engl J Med 2016; 374:113-123

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Bariatric surgery in adolescents

- An effective treatment for mid- and older adolescents with severe obesity with complications
- Expensive and not readily available in the public health system
- Be aware of *safety concerns* – potential for re-operations, non-adherence to nutritional supplementation, potential longer-term psychological harms

SIGN Guidelines 2010; NICE 2014; Styne DM et al, JCEM 2017; Bolling CF et al 2019

Eating disorder risk in weight management

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Obesity and eating disorder risk

- Core eating disorder risk factors are often present in adolescents with obesity: poor self-esteem, body dissatisfaction, depression
- Dieting/dietary restraint is a risk factor for eating disorders in the *general* population of adolescents and is associated with binge eating
- Adolescents presenting to eating disorder units may have a history of overweight or obesity

Ho M, et al. Effect of a prescriptive dietary intervention on psychological dimensions of eating behavior in obese adolescents. Int J Behav Nutr Phys Activity, 2013; 10:119

Garnett SP et al. J Clin Endocrinol Metab 2013; 98:2116-25.

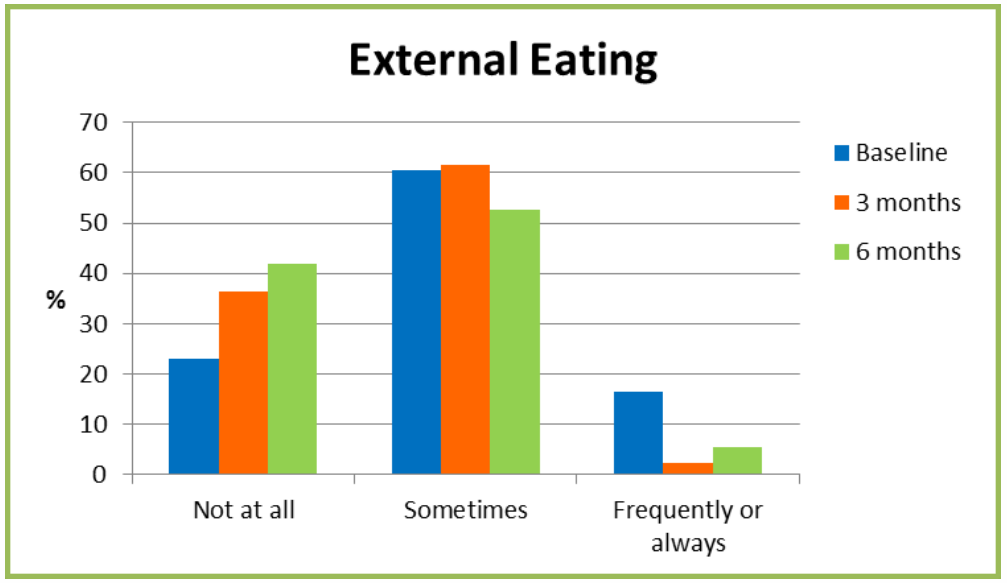
What if the treatment I provide inadvertently triggers an eating disorder?

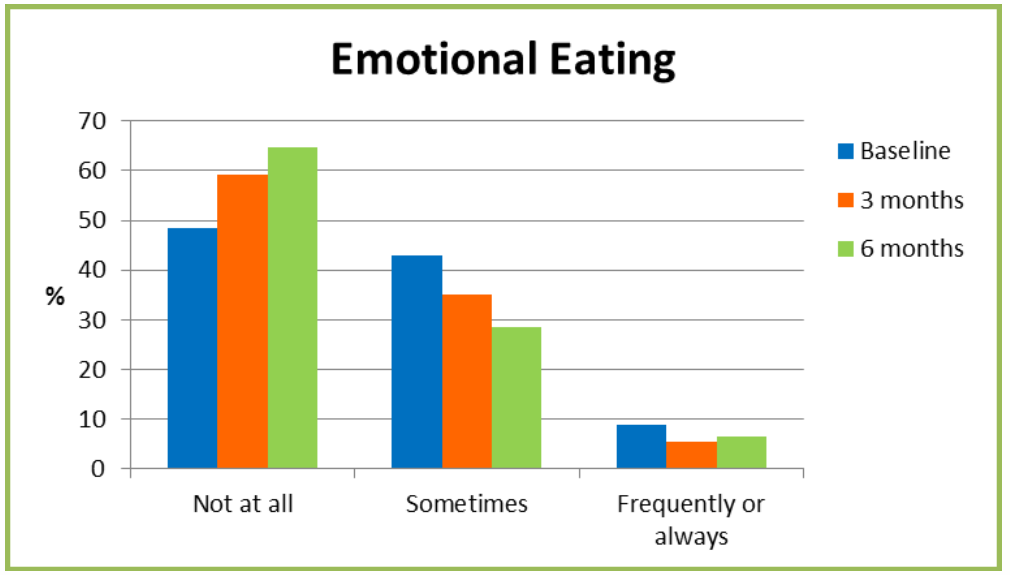
Clinical trial that measured disordered eating outcomes: the RESIST trial

- Randomised controlled trial looking at two different types of dietary intervention – higher protein/lower GI vs “standard” hypocaloric diet
- 109 adolescents (10-17 years) with obesity and insulin resistance
- External eating (hunger and responsiveness to external food cues), emotional eating and dietary restraint were assessed using the Eating Pattern Inventory for Children (0, 3 and 6 months)

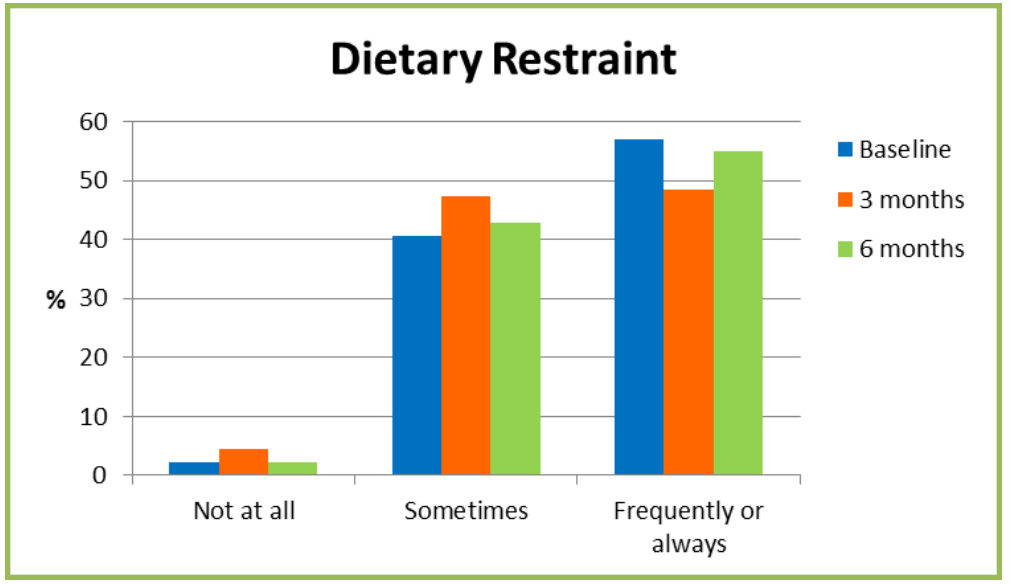
Ho M, et al. Effect of a prescriptive dietary intervention on psychological dimensions of eating behavior in obese adolescents. Int J Behav Nutr Phys Activity, 2013; 10:119

Garnett SP et al. J Clin Endocrinol Metab 2013; 98:2116-25.





- *External and emotional eating* reduced significantly from 0 to 3 months; levels maintained to 6 months
- *Dietary restraint* unchanged from 0 to 6 months



Ho M, et al. Effect of a prescriptive dietary intervention on psychological dimensions of eating behavior in obese adolescents. Int J Behav Nutr Phys Activity, 2013; 10:119

Garnett SP et al. J Clin Endocrinol Metab 2013; 98:2116-25.

Systematic review findings

- **AIM:** To assess the impact of weight management interventions, with a dietary component, conducted in children and adolescents with overweight or obesity on:
- Eating disorder risk
- Depression
- Anxiety
- Body image
- Self-esteem
- Dietary restraint

Search strategy

Inclusion criteria	Exclusion criteria
• **Weight management interventions** with a **nutrition component** • **Age <18 years, BMI >85th percentile** • Studies which involved a pre- to post-assessment of: **Eating disorder risk, depression, anxiety, body image, self esteem** • Validated assessment tool • Pre-post studies, non-randomised controlled trials and randomised-controlled trials	• Interventions targeting prevention of increased body weight or the treatment of eating disorders • Bariatric surgery, pharmacotherapy, online interventions • Languages other than English

No limits on age, duration of intervention or follow-up, year of publication

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Eating disorder risk

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]

[1]The University of Sydney, Children's Hospital Westmead Clinical School, Westmead, Australia

[2]Institute of Endocrinology and Diabetes and Weight Management Services, The Children's Hospital at Westmead, Westmead, Australia

[3]School of Psychology and Public Health, La Trobe University, Melbourne, Australia

Correspondence

Summary

This review aimed to investigate the impact of obesity treatment, with a dietary component, on eating disorder (ED) prevalence, ED risk, and related symptoms in children and adolescents with overweight or obesity. Four databases were searched to identify pediatric obesity treatment interventions, with a dietary component, and validated pre-post intervention assessment of related outcomes. Of 3078 articles screened, 36 met inclusion criteria, with a combined sample of 2589 participants aged

30 studies

- Diagnosed eating disorders
- Global eating disorder risk
- Bulimic symptoms
- Binge eating
- Emotional eating
- Drive for thinness
- Eating concern
- Dietary restraint

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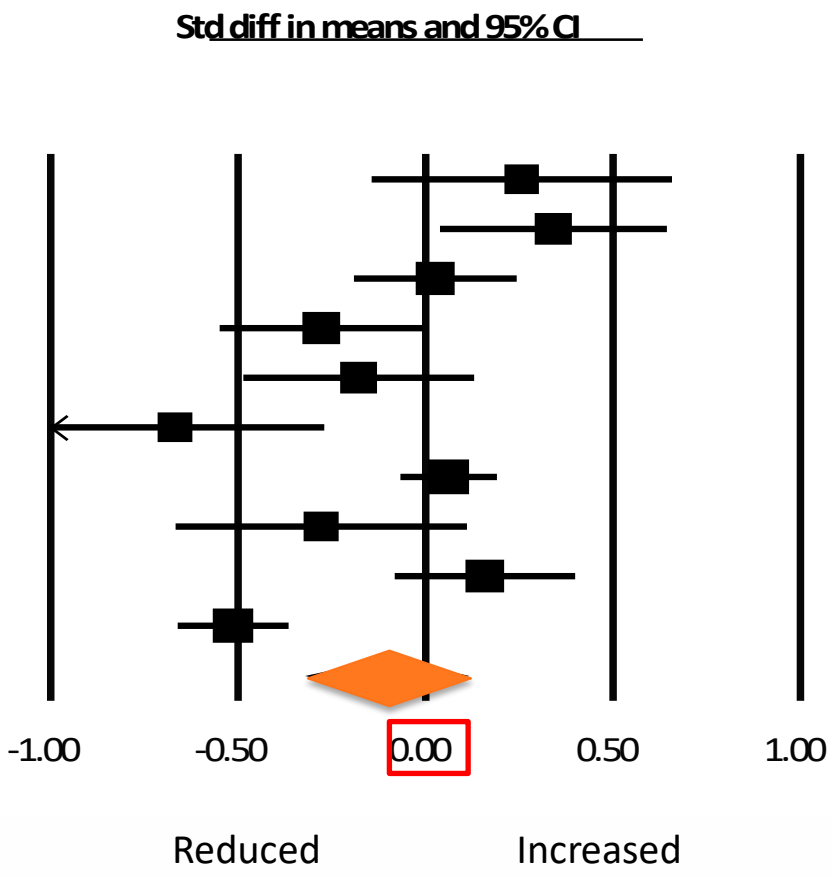
No change in eating disorder risk/disordered eating, pre-post intervention

Study name	Outcome	Statistics for each study		
		Std diff in means	Standard error	p-Value
Fennig et al. 2015	Combined	0.257	0.204	0.207
Edwards et al. 2006	ED risk - ChEAT	0.341	0.153	0.026
Follansbee-Junger et al. 2010	ED risk - ChEAT	0.026	0.110	0.812
Croker et al. 2012	ED risk - ChEAT	-0.278	0.137	0.043
Tyler et al. 2016 - IG1	ED risk - ChEAT	-0.178	0.156	0.253
Tyler et al. 2016 - IG2	ED risk - ChEAT	-0.668	0.202	0.001
Goldschmidt et al. 2014	ED risk - ChEDE	0.062	0.065	0.339
Kotler et al. 2006	ED risk - EAT	-0.278	0.197	0.158
Bonham et al. 2017	ED risk - EAT-26	0.159	0.122	0.193
Braet et al. 2006	ED risk - EDE	-0.513	0.075	0.000
		-0.104	0.104	0.317



Standardised mean difference (SE) -0.10 (0.10), p=0.317

9 studies, 6 tools

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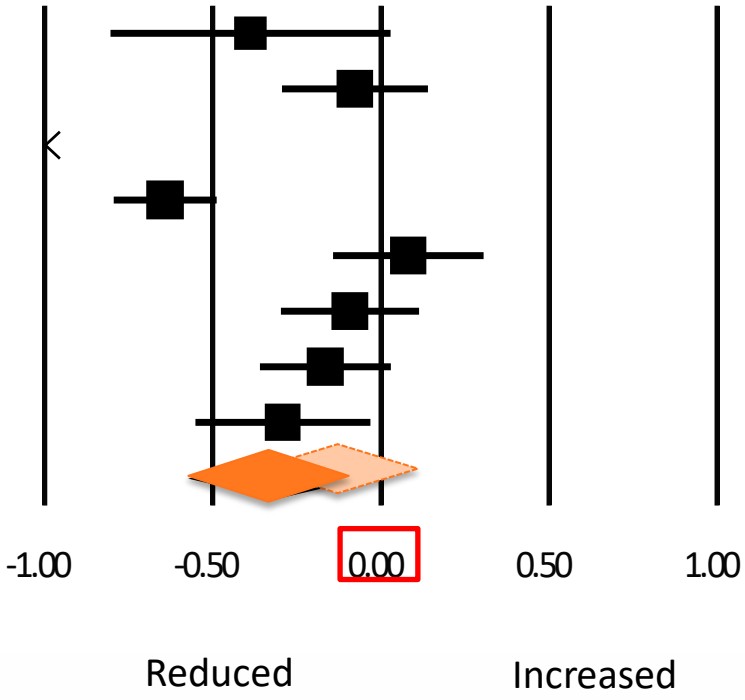
Jebeile H et al. Obesity Rev 2019; 20:1287-98

Reduced eating disorder risk/disordered eating, baseline to follow-up

Study name	Outcome	Statistics for each study		
		Std diff in means	Standard error	p-Value
Levine et al. 2001	ED risk - ChEAT	-0.388	0.212	0.067
Follansbee-Junger et al. 2010	ED risk - ChEAT	-0.077	0.110	0.483
Shomaker et al. 2017	ED risk - ChEDE	-2.388	0.525	0.000
Braet et al. 2006	ED risk - EDE	-0.642	0.077	0.000
Epstein et al. 2001	ED risk - KEDS	0.082	0.113	0.471
Estabrook et al. 2009 - IG2	ED risk - KEDS	-0.092	0.104	0.376
Estabrook et al. 2009 - IG3	ED risk - KEDS	-0.165	0.098	0.092
Estabrook et al. 2009 - IG1	ED risk - KEDS	-0.292	0.132	0.027
		-0.313	0.125	0.012



Standardised mean difference (SE)
-0.31 (0.13), p=0.01

6 studies, 4 tools

Jebeile H et al. Obesity Rev 2019; 20:1287-98

Follow-up of up to 36 months from baseline

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Change in eating disorder risk factors

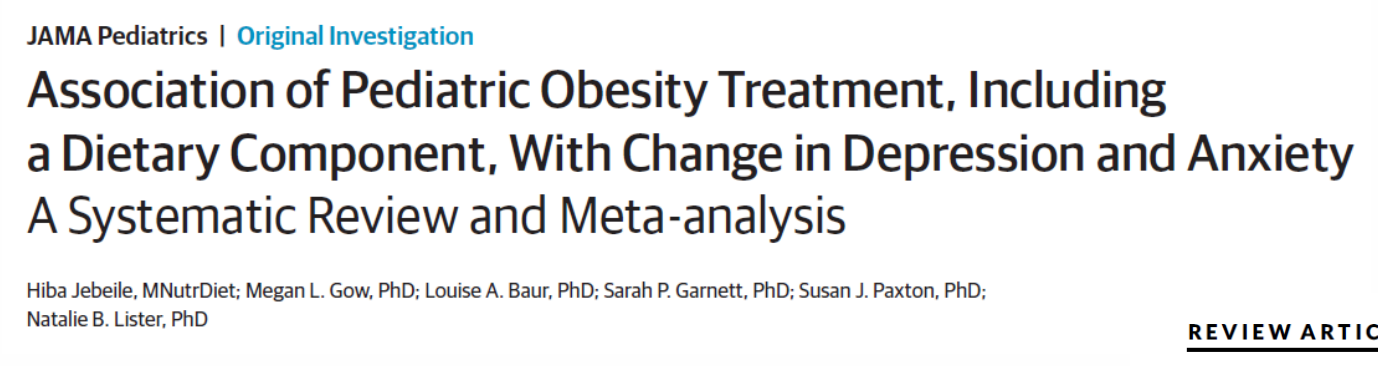
Outcome	Change post-intervention	Change at latest follow-up
Global eating disorder risk (disordered eating or attitudes)	No change	Reduced
Bulimic symptoms	Reduced	No change
Binge eating	Reduced	Reduced (1 study)
Emotional eating	Reduced	Reduced
Drive for thinness	Reduced	Reduced
Eating concern	No change	Reduced

Jebeile H et al. Obesity Rev 2019; 20:1287-98

Our other systematic reviews:

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

- Reduced symptoms of depression and anxiety
- Improvements in body image and self-esteem

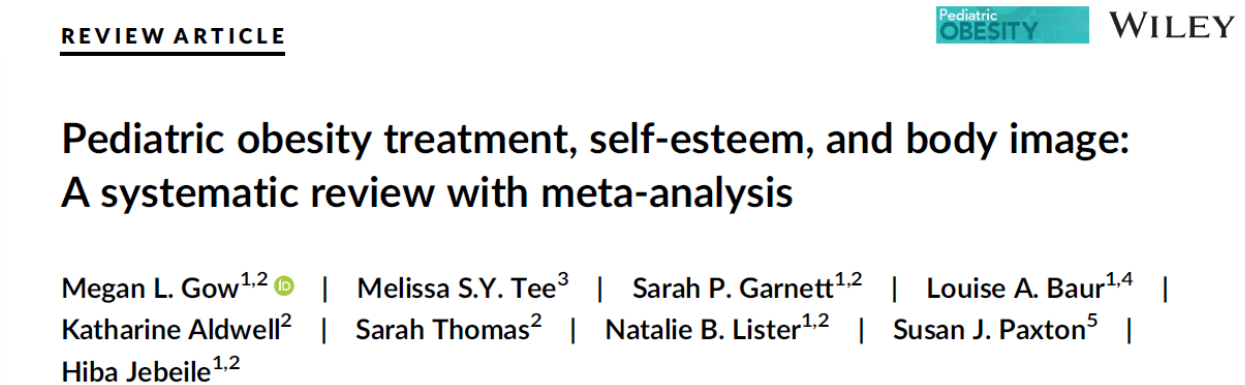


JAMA Pediatrics | Original Investigation

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



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]

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Professionally supervised programs for weight management appear psychologically safe

Risk is expected to <u>reduce</u> for *most* participants. It's possible that *some* may develop worsening pathology

- respectful, **supportive environment**
- A **structured and moderate dietary intervention** – regular mealtime routines, availability of healthy foods
- **Support for behaviour change** e.g. dietitian, exercise specialist, paediatrician, counsellor/psychologist, nurse …
- **Frequent and extended contact** with a trained health professional
- **Monitoring during intervention is important – may help to identify developing risk**
  - Binge eating (+/- compensatory behaviours)
  - Excessive weight loss
  - Obsessive behaviours

Longer-term data are needed

Eating Disorders In weight-related Therapy
The EDIT Collaboration

Global collaboration, established 2020

We are using innovative large/ complex data analytic approaches* with multiple obesity treatment trials (adult and paediatric) to examine risk for adverse events during and after behavioural weight management

Led from the University of Sydney

Funding: Australian National Health & Medical Research Council Ideas Grant 2021-2024

Contact: Natalie.lister@health.nsw.gov.au

* n>25 trials; individual participant data meta-analysis; behaviour change taxonomy – breaking complex interventions down into their smallest component parts

What should I do in my clinical practice?

- Take time to engage with the young person
- Be developmentally aware – enable autonomy
- Where possible, work in or with a multi-disciplinary team
- Involve family for support
- Promote a safe, inclusive and supportive clinical environment
- Provide a high quality multi-component intervention that includes a structured diet
- Frequent regular supportive contact
- If possible baseline screening, and regular monitoring, for depression & eating disorders, and referral on/co-manage, as needed
- Tackle weight stigma

What should I not do in my clinical practice?

Don’t:

- **Label, lecture, or have power struggles**
- **Act like a parent or teacher**
- **Endorse unsafe behaviours**
- **Make assumptions/pretend to understand what they mean**
- **Rely on information from another source – check with the young person directly**
- **Try to be cool**

8 Healthy Habits: Core messages for anticipatory guidance developed by NSW 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

Healthy Profession.
Healthy Australia.

Healthy Habits for adolescents

1. Eat breakfast every day
2. Take lunch from home rather than buying from the school canteen
3. Drink water or low fat milk and avoid sugary soft drinks and fruit juice
4. Choose take away food carefully – go for lower fat options such as sandwiches and grilled meats. Avoid hot chips and other fried foods and anything with lots of cheese
5. Go for two fruit and five vegetable serves per day. Experiment with vegetables to find ones that are acceptable
6. Reduce small screen use by 25% – the adolescent to decide how they will do this
7. Walk part of the way to school and back and plan two walks on the weekend
8. Ask the adolescent what physical activity they might enjoy and negotiate with the family around this
9. Encourage activity with friends rather than internet contact
10. Encourage parents to reduce nagging about weight – they need to provide a good weight loss environment and model healthy behaviours, but the adolescent makes the choices

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Steinbeck: Australian Family Physician August 2007

How can we facilitate behaviour change / intrinsic motivation?

Motivation: Medical v's personal

STEALTH INTERVENTIONS

- Where physical activity/reduced inactivity or diet changes are "side effects" of the intervention

Try to identify target behaviours that are motivating in themselves

- Environmental Sustainability/Climate Change
- Cause-Related Fundraising
- Animal Protection
- Food Safety

- Benefits of social interaction, sense of purpose and belonging, avoidance of personal failure, emotional involvement

Interventions – what do adolescents think about weight management programs?

- Enjoy participating with peers and meeting new people
- Liked: practical aspects – cooking and activity
- Disliked: writing down goals, repetition, time-consuming
- Enablers: goal setting
- Barriers: time constraints, lack of motivation
- Unrealistic expectations – problems with perceptions versus actual outcomes
- Coming to terms with the cyclical nature of behaviour change
- Main message – being active, healthy eating and reducing sedentary behaviour

Nguyen B et al Health Prom Int 2015

Final comments

It is important to address excessive weight gain affecting health in adolescents:

needs to be done in a sensitive, developmentally appropriate way

Useful elements of interventions include: structured intervention, a supportive clinical environment, frequent therapist contact

Appropriate interventions can produce significant positive outcomes:

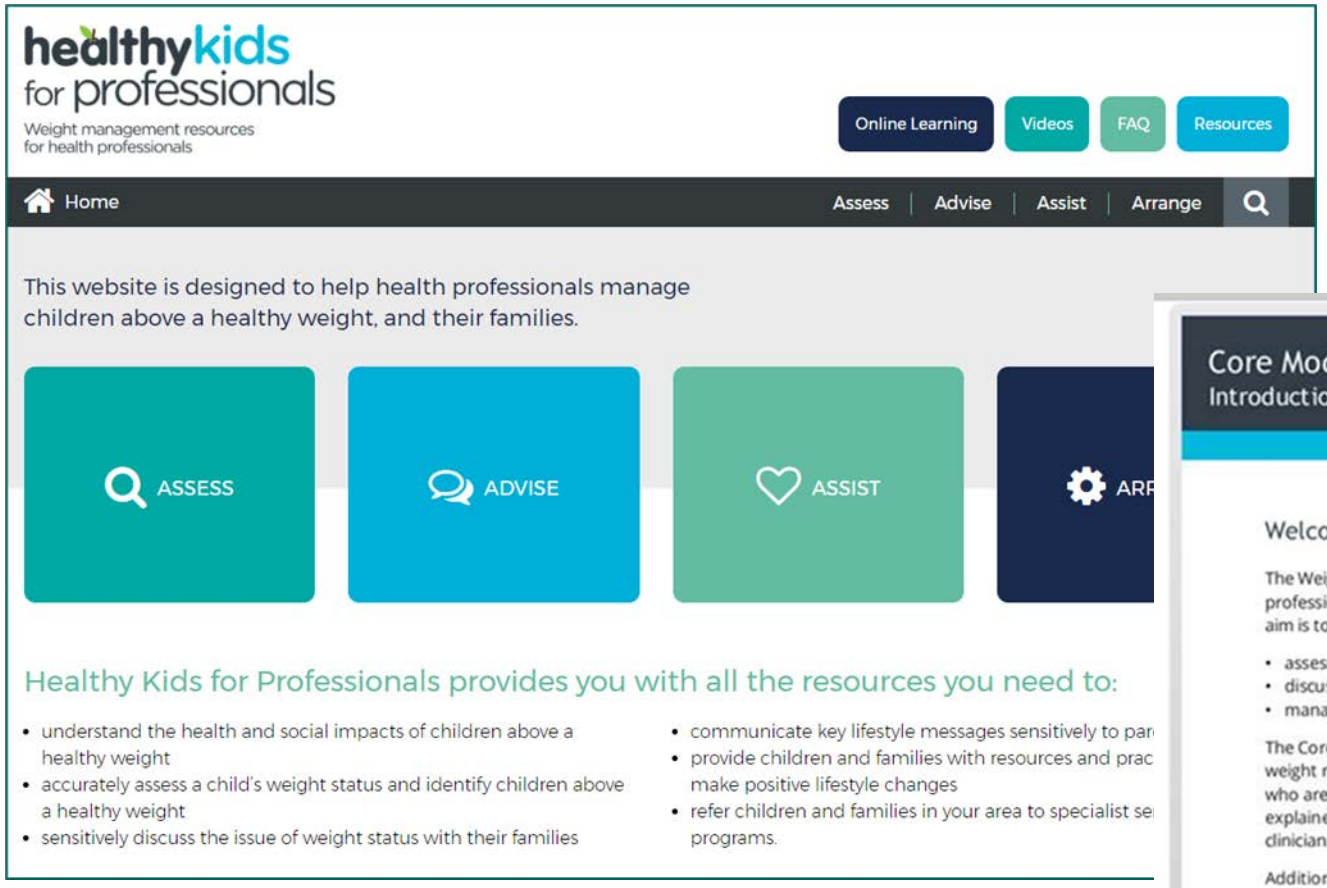
Weight and metabolic

Depression and eating disorder: risk improve for most participants following professionally administered weight management treatment

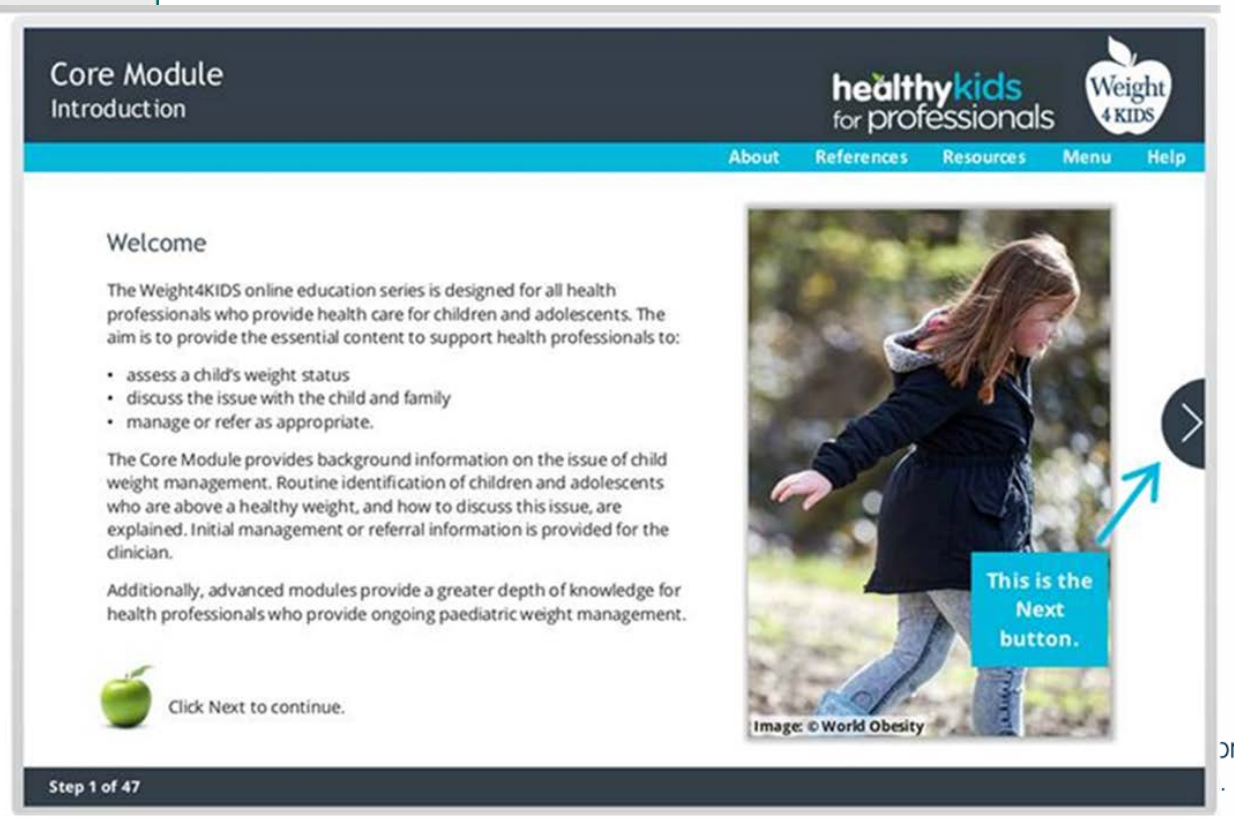
Just as with any chronic condition in adolescence, transition to adult care should be planned

We still need to understand how do we identify young people with outlying psychological risk?

Resources



http://pro.healthykids.nsw.gov.au/



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Useful resources

- CDC BMI for age charts: www.cdc.gov/growthcharts
- Healthy Kids for Professionals: http://pro.healthykids.nsw.gov.au/
- World Obesity Federation: https://www.worldobesity.org/
- The Obesity Society - Obesity on-line: www.obesityonline.org
- US Centers for Disease Control - Overweight and obesity: http://www.cdc.gov/obesity/index.html