Assessment and Management of paediatric obesity

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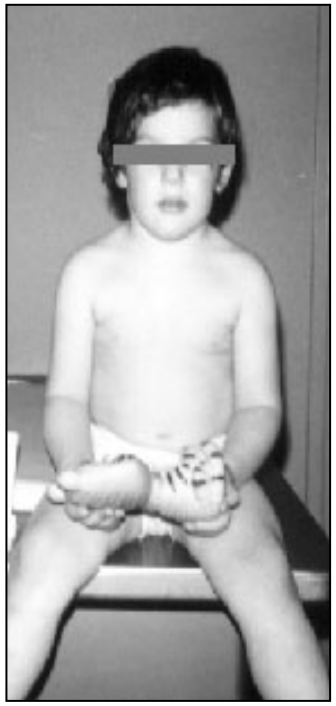
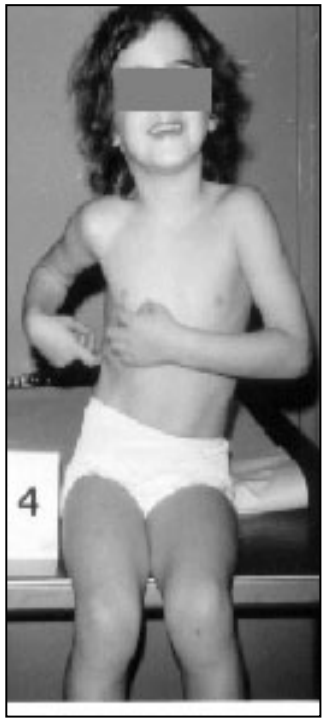
The importance of routine growth assessments in identifying possible obesity

QUESTION 1: Can you *see* risk? Are these children affected by underweight, healthy weight, overweight or obesity?



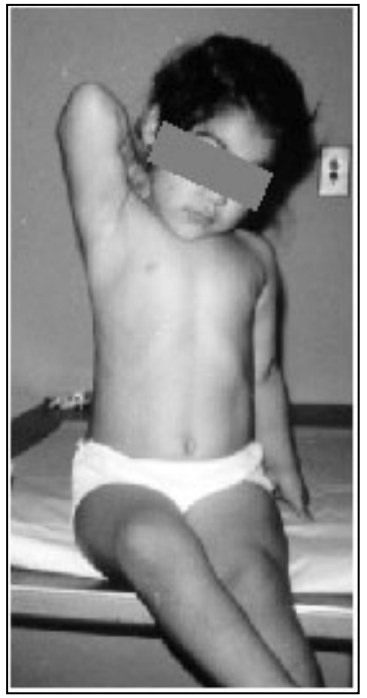
Case A: 3 y 3 weeks

a. Underweight?
b. Healthy weight?
c. Overweight?
d. Obesity?



Case B: 4 y 4 weeks

a. Underweight?
b. Healthy weight?
c. Overweight?
d. Obesity?



Case C: 4 y

a. Underweight?
b. Healthy weight?
c. Overweight?
d. Obesity?

Photos from UC Berkeley Longitudinal Study, 1973; AND http://www.cdc.gov/GROWTHCHARTS/

Healthy Profession.
Healthy Australia.

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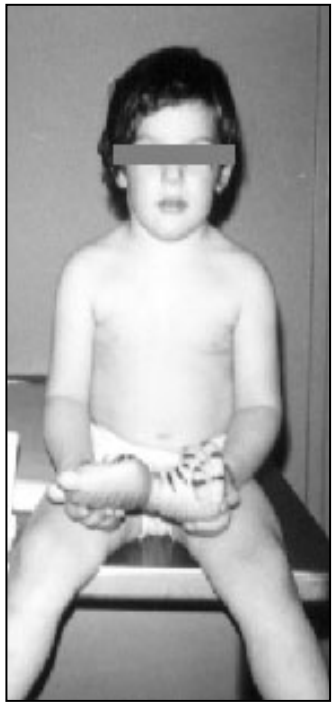

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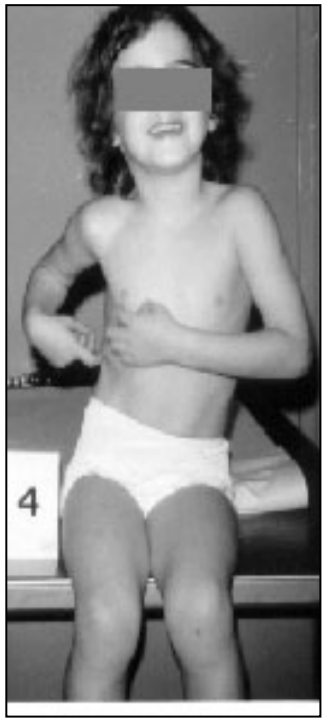
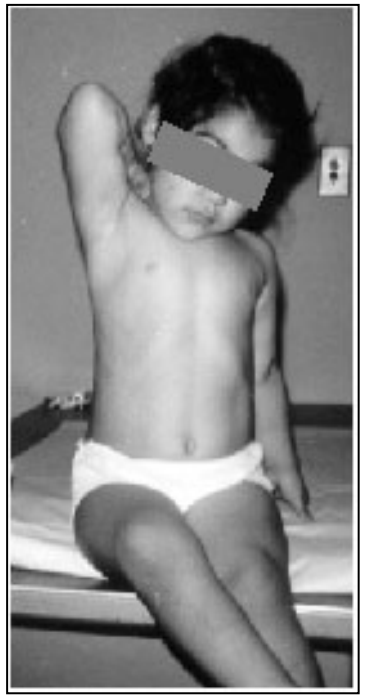


Case B: 4 y 4 weeks



Case C: 4 y

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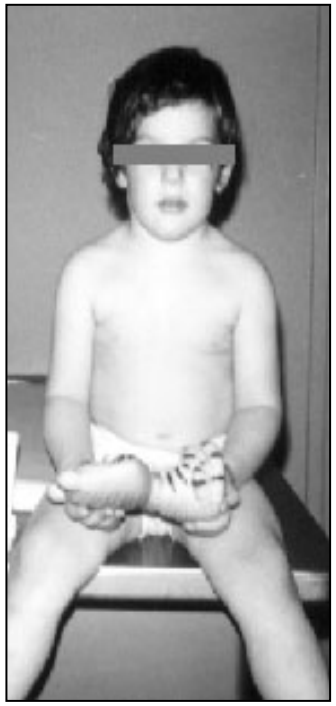
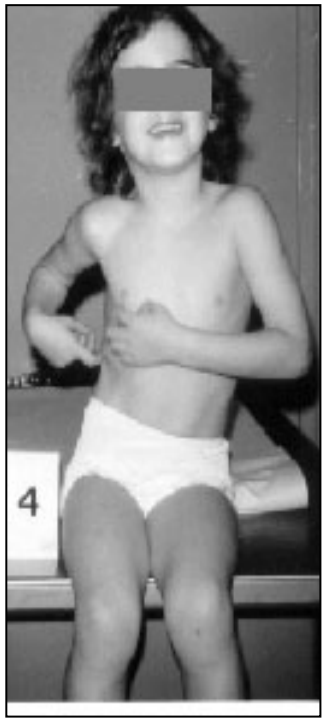


Case A: 3 y 3 weeks

BMI >95th centile

Obesity



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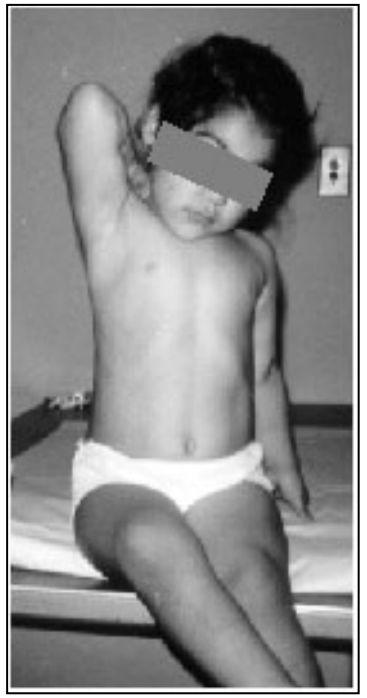

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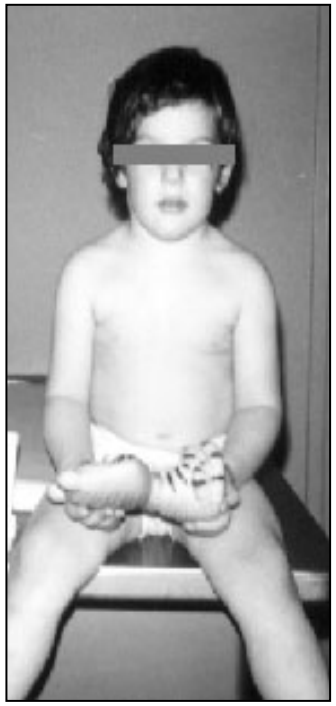

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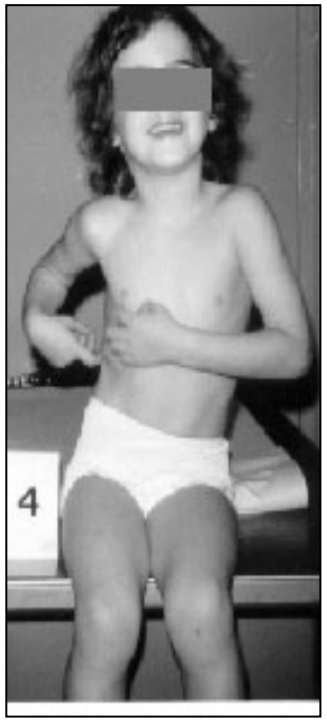
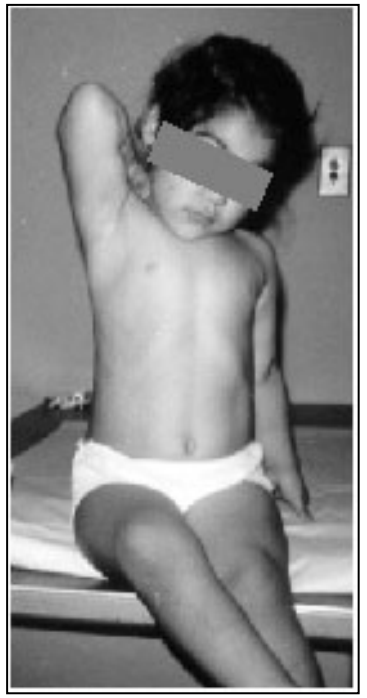


Case B: 4 y 4 weeks

BMI 10th centile

Healthy weight



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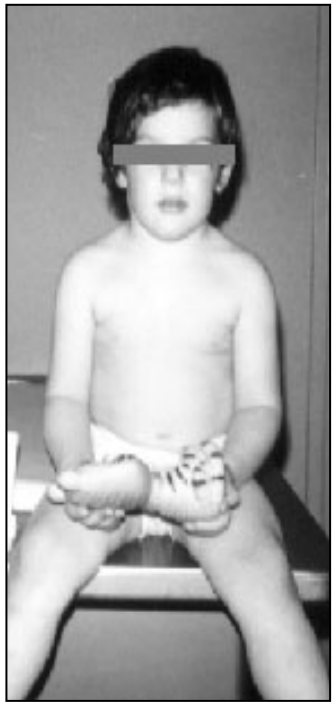

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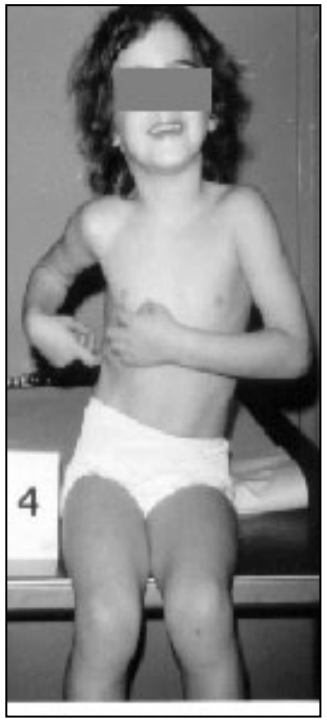
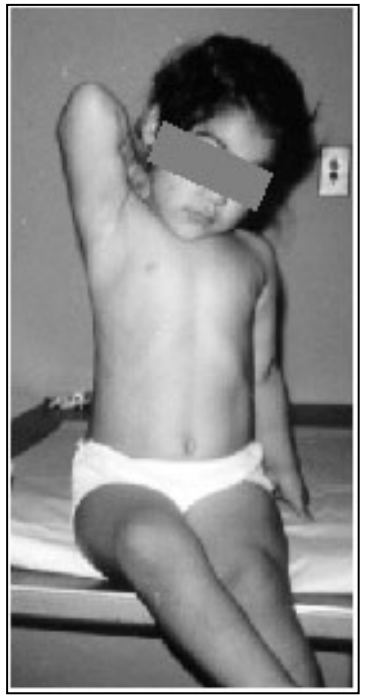


Case B: 4 y 4 weeks

BMI 10th centile

Healthy weight



Case C: 4 y

BMI 85th-95th centile

Overweight

Photos from UC Berkeley Longitudinal Study, 1973; AND ***http://www.cdc.gov/GROWTHCHARTS/***

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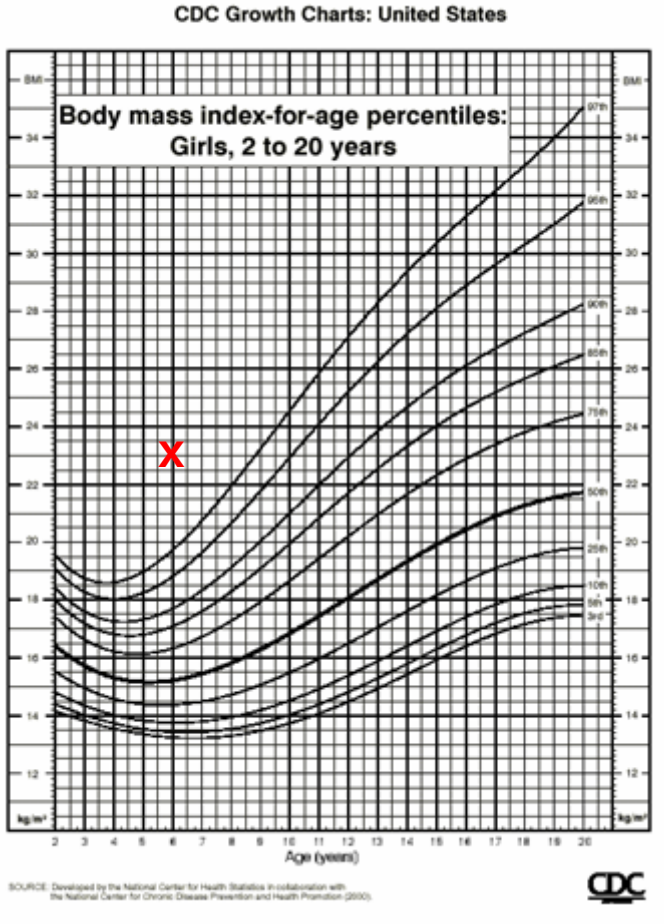
Recognising the child with overweight or obesity

- → **Routinely measure height & weight**
- **Plot on a BMI for age chart**
- **Example:**
  - Girl aged 6 years
  - Weight 33 kg
  - Height 120 cm
  - BMI 22.9 kg/m^2



- **Above 95th centile for age**
- **Patient's BMI is in the obesity range ("well above the healthy weight range")**

http://www.cdc.gov/GROWTHCHARTS/

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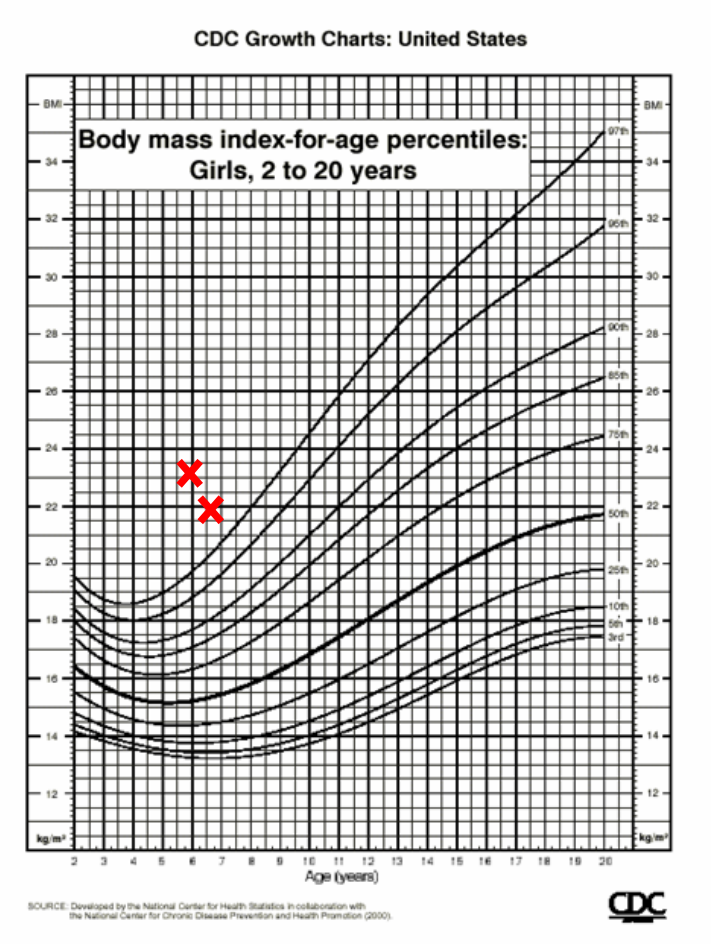
Recognising the child with overweight or obesity

Same child 6 months later after family-focused lifestyle intervention

Weight <u>unchanged</u>

Height ↑ 3 cm

→ Weight maintenance may have an important impact on BMI in growing children



http://www.cdc.gov/GROWTHCHARTS/

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What about central fat distribution?

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Waist circumference; Waist:height ratio

- Central fat distribution associated with increased cardio-metabolic risk – children, adolescents & adults

Waist:height ratio

- Easy to calculate
- Values >0.5 (for people >6 y) associated with increased cardio-metabolic risk

McCarthy HD. Int J Obes 2006; 30: 988–992; Garnett SP et al. Int J Obes 2008; 32, 1028–1030

Waist circumference; Waist:height ratio

- Central fat distribution associated with increased cardio-metabolic risk – children, adolescents & adults

Waist:height ratio

- Easy to calculate
- Values >0.5 (for people >6 y) associated with increased cardio-metabolic risk

- *"Keep your waist to less than half your height"*

McCarthy HD. Int J Obes 2006; 30: 988–992; Garnett SP et al. Int J Obes 2008; 32, 1028–1030

Practice points

- Measure height and weight routinely
- Plot BMI on a BMI for age chart
- Waist:height ratio
  - Useful for almost all age groups

How do I raise the issue in my practice?

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Scripted scenario 1

Case

- Sam is a 7 year old boy who presents to the general practice with a hand injury
- His BMI-for-age places him in the ‘well above a healthy range’ range
- The general practitioner talks to Sam’s father

Scripted scenario 1

Dialogue

GP: I have noticed that Sam is a big boy for his age – does he eat a lot of junk food at home?

Father: My family are all big. If we stop him from playing his X-Box and eating his snacks, he gets cranky. He only eats because he's hungry. Are you telling us we're bad parents?

GP: No but I think you need to cut out all the junk food & soft drinks at home & he needs to start exercising every day.

Father: Like to see you try and get him to do exercise! We aren't getting rid of the coke & potato chips or else what would I eat? No way!

GP: I am writing a referral to see a dietitian. I want you to see them as soon as possible.

Father: I'm not going to see any diet person!

GP: [Writes the referral anyway]

Scripted scenario 1

Feedback

- What did the GP do well?
- How did Sam’s father react to the discussion about Sam’s weight?
- What was the outcome?
- Suggestions or comments for improvement?

Scripted scenario 2

Dialogue

GP: We measure all children's weight & height as part of our routine care to check their growth and development. When Sam arrived we recorded his weight adjusted for height & noted that he is above a healthy weight range. I would like to show you Sam's height & weight chart compared to other children his age.

Father: My family are all big. We can't stop him from playing his X-Box; he gets cranky. He only eats because he's hungry. Are you telling us we are bad parents?

GP: It can be difficult to manage kids his age and I am not blaming you. What I would like to do is offer you a few changes to consider that will help stop Sam gaining weight, so he can live a healthy life and avoid the health risks that overweight can cause.

Father: So do I have to see some diet person and then she will fix it?

Scripted scenario 2

Dialogue

Father: Not interested, thanks. I am too busy and my wife won't have anything to do with diet food.

GP: That's fine, the time may not be right for the family to make changes now. I would like you to take the fact sheet with you, and this copy of Sam's BMI-for-age chart. Please come back and talk to me if you have any questions.

Father: Sure, that sounds like a good idea.

GP: [Sets up patient recall in clinical software and documents interaction in patient notes]

8 Healthy Habits: Core messages for anticipatory guidance developed by NSW Health, for use anywhere

See this and other resources at:
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Available for free in English and in Arabic, Burmese, Chinese (simplified and traditional), Farsi, French, Hindi, Karen, Korean, Nepali, Swahili, Thai and Vietnamese

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Scripted scenario 2

Suggestion for dealing with parents not interested in making changes

GP: As I'm sure you're aware, there are more factors than what we eat and drink – you said it's hard to get him off the X-Box? What I'd like to suggest is we look at a few family lifestyle changes first. These are things you can do which apply to your whole family. Once you get the hang of these, we can involve other health professionals if we need to, but let's start small and make changes that the whole family can keep doing.

Father: So all of us have to change?

GP: Yes the whole family has to make some changes – these are some healthy lifestyle messages that you can consider. Sometimes families find these a little challenging to do but if you keep up with them you will all have better control over yours and your families weight and health. (Hands him the *8 Healthy Habits* diagram).

Father: I guess we could try some of these

Practice points

- Use routine growth assessments to sensitively raise the issue of growth and potential obesity
- Take care with language
- Seek permission to discuss
- Simple first steps

What should I look out for in history and examination?

…after all, anthropometry is just a screening tool

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 **...**

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Physical examination – many body systems potentially affected by obesity

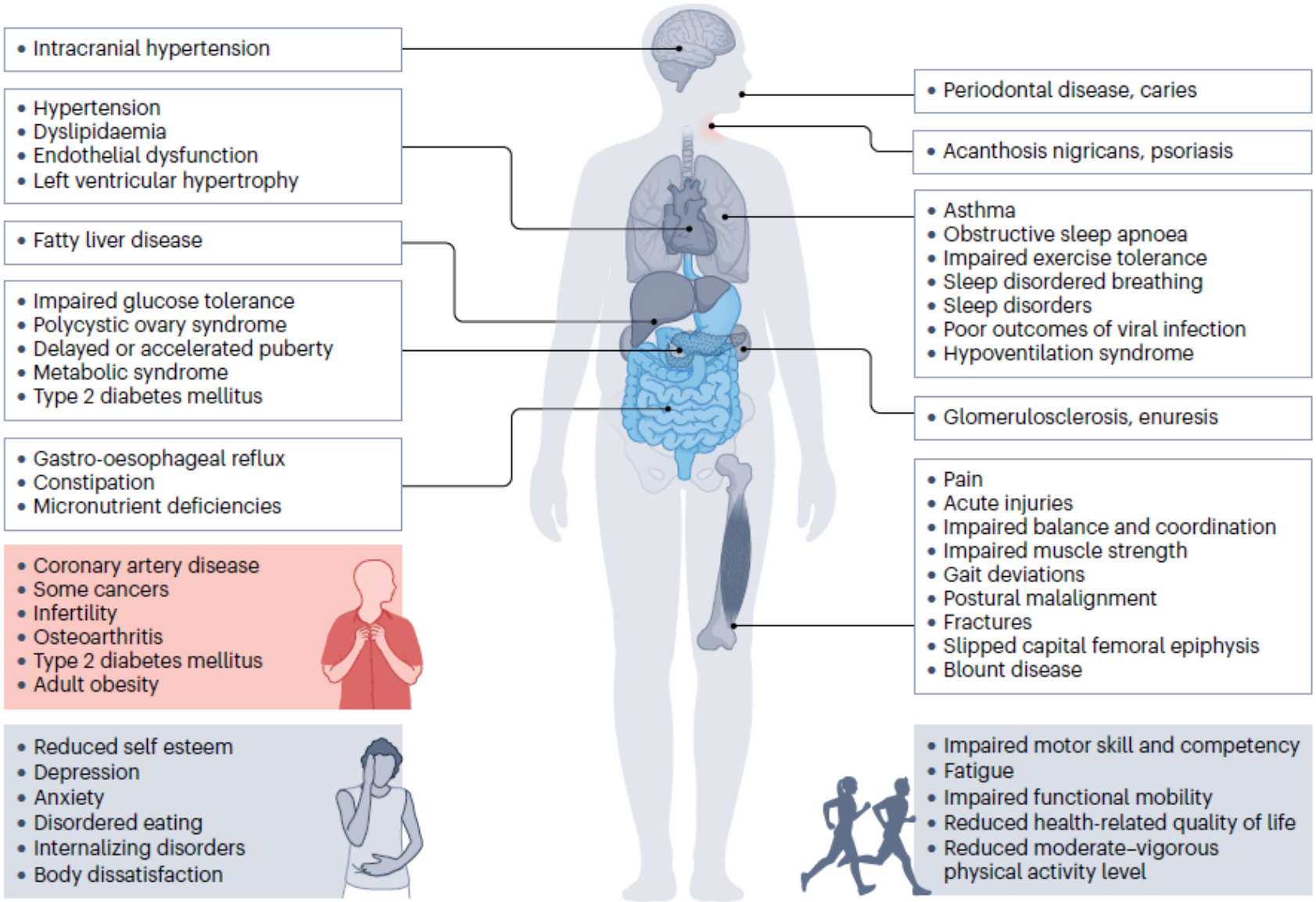
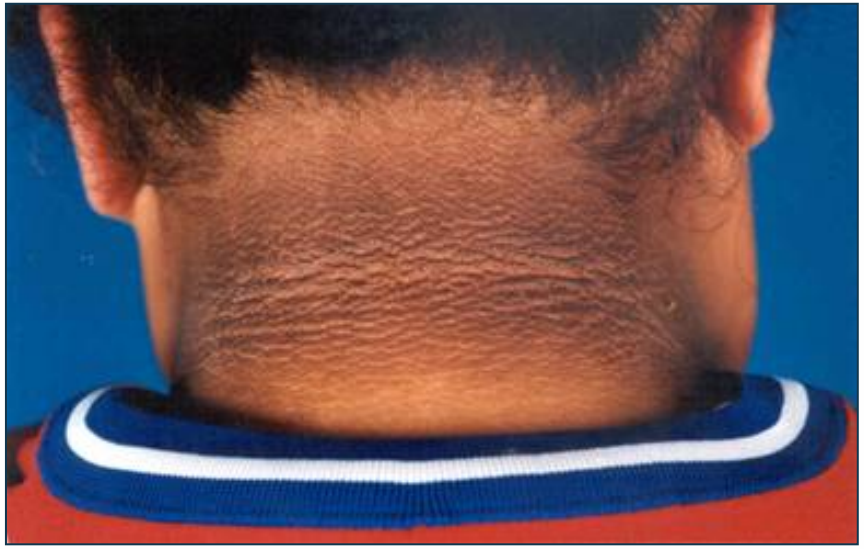


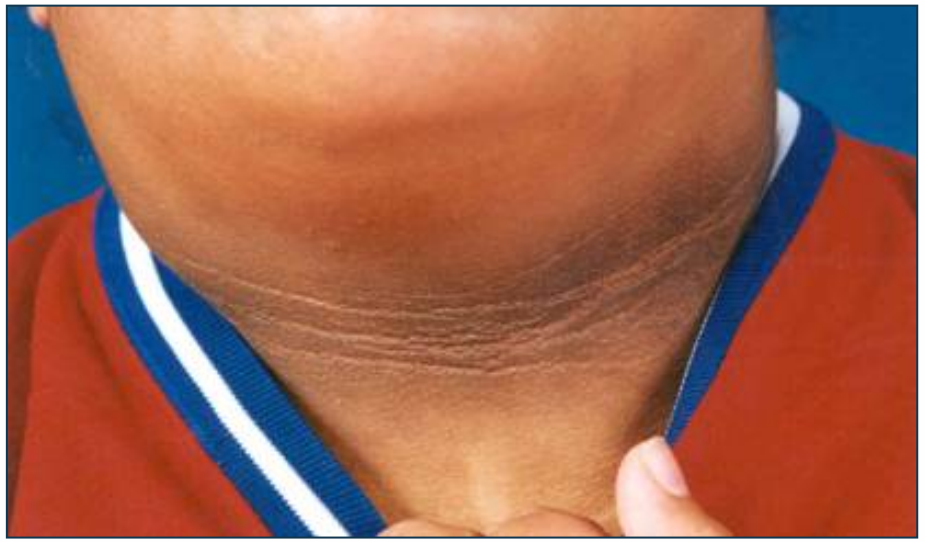
Fig. 2 | Childhood obesity comorbidities. Obesity in children and adolescents can be accompanied by various other pathologies. In addition, childhood obesity is associated with complications and disorders that manifest in adulthood (red box).

Lister NB et al. Nature Rev Dis Prim 2023; 9:24

Acanthosis nigricans

- Thickened pigmented skin
- Flexures, base of neck
- May be indicative of insulin resistance
- Especially in patients with pigmented skin

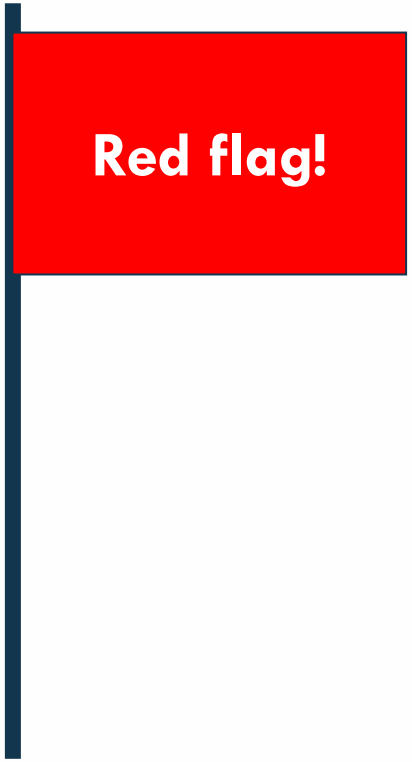




Photos per courtesy Dr S Srinivasan, The Children's Hospital at Westmead, Sydney

Clinical examination – findings requiring further assessment

- Short stature
- Abnormal physical stigmata
- Developmental disability
- Visual disturbance or headache



Practice points

- Use clinical history and examination to further assess whether a high BMI is associated with health problems

How can I tackle weight stigma in my practice?

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Tackling weight stigma

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

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Recommendations for tackling weight stigma within a practice

- Can medical 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” or “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 etc
  - All staff are welcoming
- Have an empathetic approach to behaviour change counselling

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* 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

Practice points

- Think about the language and tone you use
- Consider how you can provide a safe and welcoming environment for people with obesity

What are the basic approaches to treatment?

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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

Interventions for treating children and adolescents with obesity: an overview of Cochrane reviews*

- 6 separate reviews:

<6y: 7 trials	Mean BMIz reduction -0.3
6-11y: 70 trials	Mean BMIz reduction -0.06; BMI reduction -0.53kg/m^2
12-17y: 44 trials	Mean BMI reduction -1.18kg/m^2
Parent only interventions in 5-11y: 20 trials	Similar effects to parent-child interventions
Surgery: 1 trial	
Drugs: 21 trials	

- Small reductions in body weight status for most behaviour change interventions. Multicomponent behaviour change interventions may be beneficial

Modest to moderate outcomes for behavioural interventions dependent upon age groups

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**Ells L et al. Int J Obesity 2018; 42:1823-1833*

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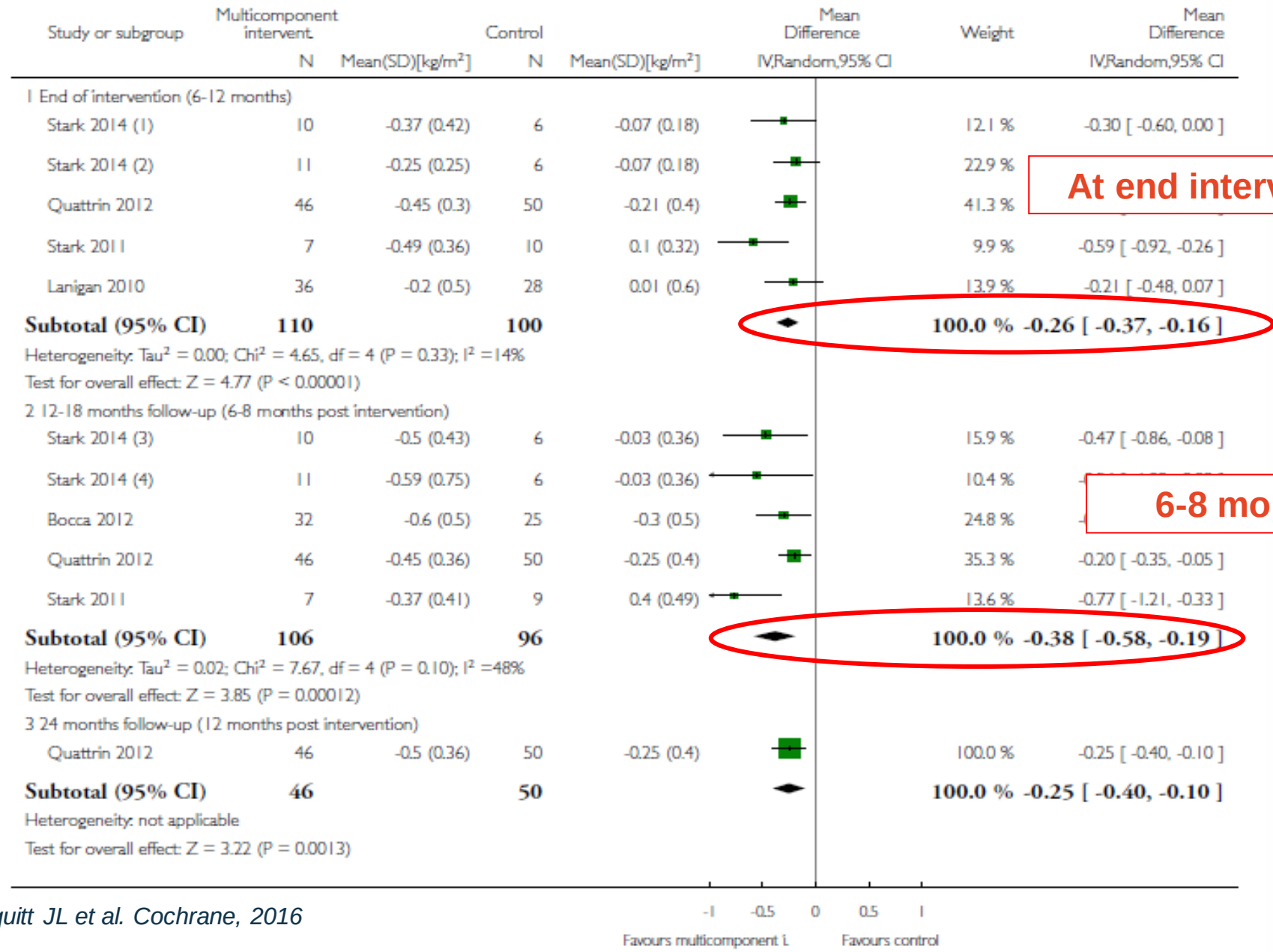
Multicomponent interventions vs control; ≤6 y; change in BMI z score



At end intervention (6-12 mo.)

6-8 mo. post intervention

Colquitt JL et al. Cochrane, 2016

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But there are barriers to providing behavioural treatment in real-life clinical settings

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

Some practical recommendations

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Changes in food intake

- Follow national nutrition guidelines
- Meal patterns:
  - Regular meals; eat together as a family; decreased portion sizes; eat breakfast
- Dietary intake:
  - Nutrient-rich foods that are lower in energy and GI; increased vegetable (*and possibly* fruit) intake; healthier snack food options; reduction in sugary drinks; drink water
- Whole-of-family lifestyle change:
  - Includes engagement of the person who buys and cooks the food; role modelling of parents vital
- Involvement of a dietitian, especially re prescribed menu plans and diet

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

Physical activity & sedentary behaviours

- Increased physical activity
  - Aim for increase in incidental or unplanned activity eg walking or cycling to/from school, household chores, playing with friends /family…
  - Organised exercise programs and sports
  - Choose activities that are fun & likely to be sustainable
  - Explore access to recreation equipment or spaces
- Addressing screen time
  - Aim to limit TV and other recreational small screens (in various forms) to <2 hours per day
  - TV out of the bedroom
- Parental involvement & role modelling crucial
- Involvement of an exercise professional (exercise scientist or physiotherapist) where available

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

Sleep behaviours

- Regular sleep routines
  - Bedtime routines
  - Sleep time and wake times
- Address screen behaviour
  - TV out of the bedroom
  - Limit screen exposure prior to sleep time
- Parental involvement & role modelling crucial

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

Some key behavioural change strategies

- Goal setting
  - Both behaviours and weight can be targeted; may require ++ session time to plan and review
  - Example: *I will not buy any cookies or soda drinks during the weekly shopping. To make this easier, I will leave the children at home and shop on my own. If the children ask for junk food, then I will offer fruit instead."*

- Stimulus control
  - Modifying or restricting environmental influences
  - Example: *not eating in front of the TV; not having TV in bedrooms; using smaller plates and spoons; not storing unhealthy food choices in the house*

- Self-monitoring
  - Detailed recording of a specific behaviour
  - Examples: *Food diary, TV use diary, daily pedometer measurement of physical activity, weekly weighing (in treatment-seeking families being reviewed regularly by a health professional)*

Baur LA et al Nature Rev Gastroenterol Hepatol 2011; Epstein LH et al Pediatrics 1998; 101:554-570; Dietz WH & Robinson TN. NEJM 2005; 352:2100-2109; Saelens BE & McGrath AM. Child Health Care 2003; 32:137-152.

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Keep on supporting your patients

- What fits your skill-set and practice, and local resources?
- Frequent regular follow-up initially
- Role of phone coaching, SMS reminders
- Role of practice nurse
- Referral to other therapists e.g. dietitian, clinical psychologist, exercise professional, medical…
- Chronic Disease Management plan?
- Monitor, monitor, monitor – behaviours, plus weight (in those who are treatment-seeking)
- In some states there will be additional free services eg in NSW - Go4Fun (7–13 year-olds), Get Health Service (phone coaching for adults)

Practice points

- Use the “8 Healthy Habits” and related resources in your routine practice
- Consider how you can ensure frequent regular follow-up and monitoring – yourself, your practice, other health professionals?
- Identify local referral pathways
- Age, severity and comorbidities will determine need for engagement of other health professionals

NEXT WEEK there will be coverage of some other important issues:

- Assessment and management of obesity in adolescents
- Clinical investigations
- Pharmacotherapy and bariatric surgery
- Eating disorder risk and obesity management

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/
- US Centers for Disease Control - Overweight and obesity: http://www.cdc.gov/obesity/index.html

Q&A

Thank you for watching

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