Clinical Perspective: Children Case Studies

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EASO
European Association for the Study of Obesity

Introduction

- Paediatric Dietitian 5 years, 3.5y in nutrition industry, Adults 2 years
- Obesity Service Senior Dietitian 0.5WTE 3 years, CHI Temple Street Dublin
- Irish perspective
- MDT approach - physiotherapy, psychology and dietitian
- Initial MDT Ax
  - Group Intervention: 12 months, 7 week group followed by boosters at 1. 3. 9 and 12 months
  - 1:1 Intervention: appointments with MDT as needed

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Learning outcomes

- To become familiar with nutritional assessment in children with obesity
- To be aware of the importance of nutritional adequacy in children and adolescents with obesity - growth and development
- To be able to identify and discuss potential nutritional interventions for children with obesity in a range of different settings
- Awareness of communication strategies to facilitate dietary and lifestyle changes with children, young people and families/carers

Aims of nutritional management

- To meet nutrient requirements for growth and development
- To support regular eating and meal routines
- To limit sugar sweetened beverages
- Improve diet quality
- Improve relationship with food and eating, disordered eating habits
- Support management of complications of obesity – insulin resistance, dyslipidemia
- Teach self monitoring, problem solving, SMART goals
- Stimulus control
- Food label reading education, shopping tips
- Portion size education
- Food preparation/meal planning and cooking support
- Change in weight/ BMI ??
- Improved hydration, energy or gut symptoms
- Support mental health care

To meet nutritional requirements

- Balanced nutritional intake to support appropriate growth
- Nutrients we are looking out for
  - Calcium
  - Iron
  - Vit D
  - Micronutrients

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Potential Dietary approaches for 2-17 year olds

- **Macronutrient balanced, portion control - promote high fibre**
- Reduced glycaemic load
- Calorie defined plan
- Unbalanced macronutrient (high protein/low carb or low fat)
- Mediterranean diet (12 +)
- DASH - Child 1
- Meal replacement
- **Mindful eating (self regulation, hunger/satisfaction/fullness)**
- **Healthy Nutrition Guidelines targeting specific changes (sugary drinks, meal and snack pattern, portions size, increase fruit, "healthier options")**
- **Parenting/caregiver support with eating developmentally appropriate**
- Nutrition related apps or digital aids
- Time limited eating (5+)
- Intermittent energy restriction (12+)

Kirk et al, JAND 2022

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MDT Approach

- Acknowledge obesity and explain the service/treatment plan
- Open communication
- Reassure, changes can be made – team here to support family and child
- Emphasis on health behavior changes
- SMART goals
- Practical ideas- work with the child or family to agree on goals that are achievable

Weight bias and stigma are significant barriers to pediatric weight management

Kirk et al, JAND. 2022

Case 1 - Primary Care setting

1. 3 year old boy ax for concern with growth
   - Parental Concerns: increased rate of weight gain
   - PMHx: born full term, 3.8kg, no neonatal issues, breasted for 4/12, then formula.
   - No past med hx, vaccinations up to date, no regular medications
   - Social Hx: parents Polish, Dad speaks English well, Mum requires interpreter, 1 older sibling 7 years - no family history of obesity. Meeting all developmental milestones
2. Bloods: None available
3. No medications
4. Nutrition focused physical findings: regular bowel motions, no constipation, large appetite, no vomiting/diarrhea, sleep routine 8.30pm-7am. On observation - increased fat stores on stomach, arms and legs

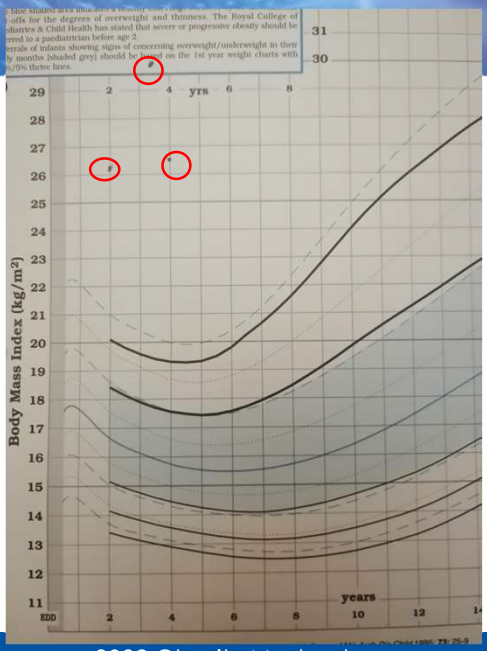
What further information do you need for nutritional assesment ?

- Anthropometry, growth history, weight, height, BMI, waist circumference, BIA - plot on appropriate charts
- Day to day routines
- Screen time
- Usual diet history, meal routine, meal providers, fluid intake, portion sizes, eating setting - together at table/on the go/screens/speed of eating
- Recent change in routines/ change in where meals provided/ when noticed increased weight gain?
- Any previous attempts to make lifestyle changes

Anthropometry

Age	Weight (centile)	Height(centile)	BMI (Centile) Z score
Birth	3.8kg (50th-75th)		
13 months	14.5kg> 99.6th	not recorded	
18 months	19kg >>99.6th	not recorded	
24 months	24kg >>99.6th	97cm (99.6th)	26.3 kg/m2 Z: +5.475
3 y 6 months	40.2 >>99.6th	114.9cm 98th	30.4 >99.6th Z +5.623

- Estimated energy, protein and fluid requirements for age (SACN 1171kcal/day or 81kcal/kg/day, protein RNI 14.5g/day, fluid: 2000ml/day



Day to day routine

Activity - active around the house, plays
Screens – 3-4 hours per day

6. Diet history: see next slide

Loves veg and fruit

Increase in appetite in last months noticed by parents, always ate well

Mum provides meals at home, no recent change in childcare/routine

Nutritional intake/Diet Hx

Breakfast	1 slice toast + 2 x frankfurters, or cereal + milk or sandwich or yoghurt + sweet bread roll water	Water
Snack	fruit	
Lunch	red meat/chicken/fish with potatoes and veg gravy/soup sauce and fruit (Mum trying to use lean meat)	2 x 8 oz bottles toddler formula milk per day
Snack	chocolate/crisps	
Dinner	-Drinking yogurt with bread roll with waffle plain or with jam/toasty with ham or jam	
Supper	fruit and milk	Waking at night and given 1-2 bottles toddler formula milk

Targeted Diet history

What other questions/information may be useful?

- Portion size of meal - ask to describe using hand,images, slices, mls
- Intake of crisps, chocolate, cakes, biscuits, sweets, jellies, sugar sweetened drinks
- Milk intake - volumes and frequency
- Intake of dairy - full or low fat
- Fruit and vegetable intake - frequency and portion size
- Iron containing foods
- Fluid intake
- Wholegrain intake
- Salt added to meals
- Cooking methods
- Appetite/hunger/satiety

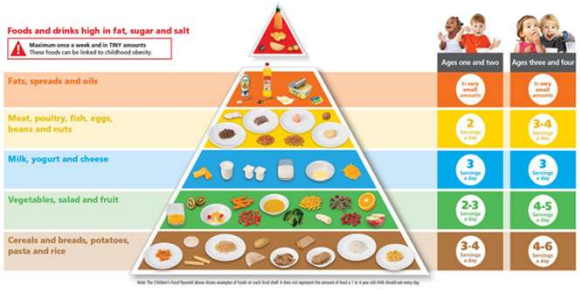
Identify nutritional issues to address

- Toddler formula intake
- Portion sizes likely large for age
- Fruit and vegetable intake low
- Suitable snacks - reducing chocolate, cakes, biscuits, sweets, sugar sweetened beverages

Discuss/agree plan - parents

1. Limit toddler milk at night, swap to low fat milk as option during day (Calcium req 3 portions/day)
2. Increase fruit and vegetables - offer in place of cakes/chocolate/biscuits and increase portion at main meals
3. Increase water intake
4. Discussion on general reduction in portion size

Provide written plan and resources -
HSE resources
Food pyramid 1-4 years



Review /onward referral to Dietitian

Intervention:

- Food pyramid and food portion sizes of different foods for ages discussed, images and examples provided. "me sizes portions" using hand/fist/palm as guide
- Managing changes in portion sizes – using smaller plates
- Discussing hunger and satiety cues, eating in absence of hunger – habit/comfort/boredom - engaging in activity or task, connecting with child after meal/snack
- Low fat dairy encouraged
- Food labelling education to support food choices
- Support education with cooking - reduce processed meat and food intake
- Activity - encourage
- Nutritional Adequacy - Vit D supplementation - local guidance DOH HSE: 5µg/day from Oct- March

Age	**Weight (centile)**	**Height(centile)**	**BMI (Centile) Z score**
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24 months	24kg (>99.6th)	97cm (99.6th)	26.3 kg/m2 Z: +5.475
3 y 3 months	40.2kg (>99.6th)	114.9cm (98th)	30.4 Kg/m^2 >99.6th Z: + 5.623
4 y	37.4kg (>99.6th)	118.5 cm (>99.6th)	26.6kg/m^2 Z: +4.965

Case 2

1. 14 year old female

Reason for referral: attended GP and noted BMI >99.6th centile, raised cholesterol levels

Parental Concerns: Limited diet variety, eating large volumes of foods often

HPC: Attended GP due to illness, weight discussed and referral to Dietitian /Obesity MDT

PMHx: ASD, sensory issues limiting diet variety, previous referral to CAMHS for support with ASD and disturbed body image

SHx: Attending mainstream school with supportive measures - time out room/access to ASD unit/ accommodations. Episodes of bullying at school.

2 siblings, 1 older 16y old male, 1 younger 9 year old female.

Family history obesity - Mum

2. Biochemistry: GP bloods, glucose normal ranges, Total Cholesterol above reference range 5.0 (ref 2.0-4.4mmol/L), LDL: 3.2mmol/L (ref 0.0=2.8mmol/L)

3. Medications: ASD medication - Risperidone

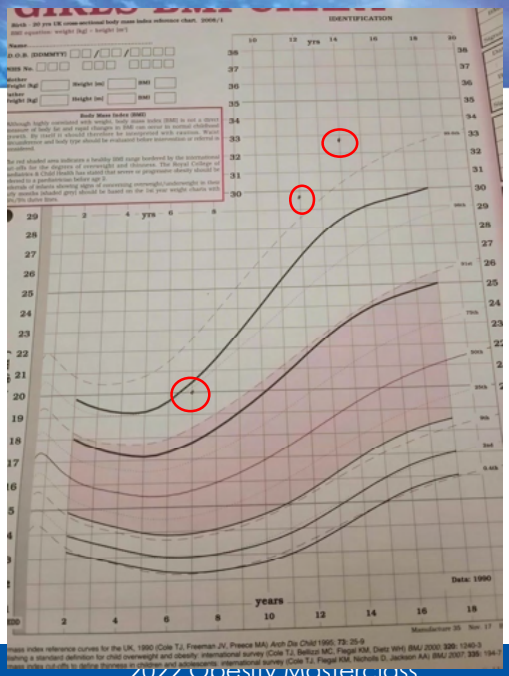
What further information do you need?

- Anthropometry, growth history weight, height, BMI, waist circumference, BIA - plot on appropriate charts
- Day to day routines, weekday weekends
- Screen time
- Sleep
- Nutrition focused physical findings
  - Appetite
  - Mood
  - Bowel habits
  - Gut sumptoms
- Usual diet history, meal routine, meal providers, fluid intake, portion sizes, eating setting - together at table/on the go/screens/speed of eating
- Teenager: Caffeine, takeaway, eating out with friends, food preparation
- Hunger + fullness cues

Anthropometry

Age	Weight Kg (centile)	Height(centile)	BMI (Centile) Z score
7y	32 (91st-98th)	126.5 (75th-91st)	20 (91st-98th) z:1.918
12y	72.5 (>99.6th)	156cm (75-91st)	29.8 (>99.6th) z:2.839
14 y	91kg (>>99.6th)	166.2cm (75th-91st)	32.9 (>99.6) Z:2.995

Estimated Nutritional requirements for age: SACN 2342kcal/day, 42kcal/kg/day, fluid: 2.5L



Day to day routine

4. Nutrition focused physical findings:
   - occasional stomach cramps and constipation
   - BO 1-2/week, Bristol stool chart Type 5-6, visible adiposity

Sleep: 12/1.30am - 6.30/7am school days, often tired, difficult to wake

Activity: walks to school if weather allows - 5-10 mins, walks at lunchtime in school around yard, slow pace. No other physical activity, enjoys reading

Screens - on in morning at home, Mum tries to limit in afternoon - phone in room and TV in evenings.

6. Diet history: see next slide
Sensory issues related to food intake - can't tolerate soft/smooth/wet textures

Diet History

Breakfast Time:7.30/8am	rarely eats before school, good day 1 x dry white toast	Water 100ml
Snack 10.30	nothing in school, at home/weekends may have 1 x toast or slim bagel with spread	
Lunch: 12.30/1pm	Dislikes eating in school, Mum sends with ham sandwich and 1 piece fruit crunchy apple or pear, often comes home or eats half, rarely eats fruit Shop in school - may buy crisps/coke/energy drink (most days)	Cola/energy drink/water 250ml
Snack at home: 3.30/4pm	Hungry ++ Potato waffle x2 + chicken goujons x 3-4, or buy sausage rolls with friends or wrap with chicken goujons	water or no added sugar squash
Dinner: 6/6.30pm	Plain pasta, occasional with cheese grated over, plain frozen cheese pizza - has tried to make pitta/wrap pizza at home - dislikes, potato waffle or chips + chicken goujons. Corn on cob x 1-2 per week	
Supper – late night	Crisps - large bag/ chocolate bar/toast/ occasional dry cereal - frosted flakes or coco pops. Somedays up late and eat again later 11.30/midnight	rarely, sips water

Diet hx additional

Weekends: Takeaway with family - Chinese - eats battered chicken, rice + chips

With friends: may buy energy drink - sugar and caffeine containing, occasional crisps but doesn't like eating when out of house

Meal prep: Mum has attended slimming programs and cooks from basic ingredients, tries to include veg and offer fruit but patient refuses to taste

Previously ate sandwich/crackers in school but since secondary school will rarely eat in school

What other nutritional information could you gather?

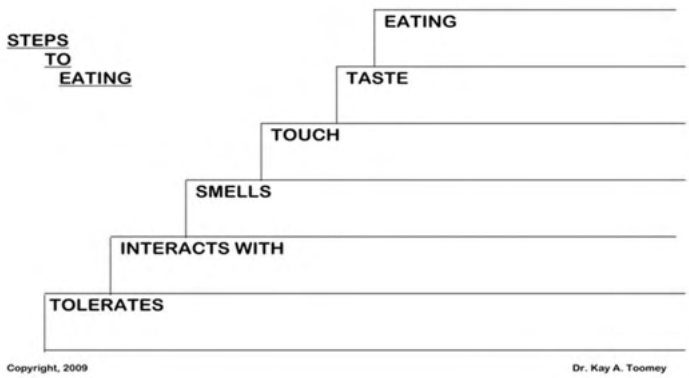
Targeted Diet history

- Portion size of main meal - ask to describe using hand,images, slices, mls
- Nutrients – FFQ?
  - Calcium - milk/cheese/yoghurt - 5 portions/day for teens
  - Fruit + Veg intake - aim 5-7 portions/day
  - Iron sources - red meat/eggs/dried fruit or nuts/fortified cereals
  - Fluid intake
  - Fibre intake
  - Fish (Omega oils)
  - Caffeine - energy drinks/tea/coffee
- Understanding eating patterns
  - Why not taking breakfast? Time? not feeling well? unsure what to have? Anxiety before school
  - Why not eating in school - conscious of eating? food available? "fit in with crowd"
- Explore food sensory issues - how?

Food sensory issue

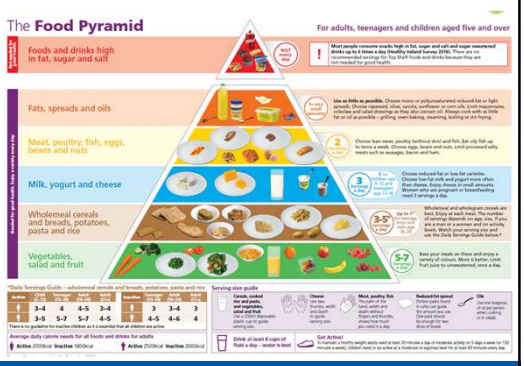
- Understand current reaction to textures
  - Tolerate at table
  - Tolerate on plate
  - Tolerate taste but not chew/swallow?
- Explore accepted textures, tastes, smells, sounds
- Explore unaccepted textures tastes, smells, sounds
- Understand previously eaten foods
- List of currently accepted foods – all
- Identify any foods of accepted texture/taste/smell that could be trialled

Food sensory & Steps to eating



Nutritional issues to address:

- Meal and snack routine - long gaps without eating leading to eating large quantities later in day and late at night
- Nutritional adequacy
  - low intake of calcium,
  - Fruit and Vegetables vitamins and minerals,
  - Low fibre intake,
  - fluid - estimated requirement of 2-2.5L/day
- High intake of processed meats and snack foods
- Constipation management - fluid and fibre, ? probiotic
- Sugar sweetened and caffeine containing drinks
- Very limited variety in diet
- ?Impact of medication on weight
- Low intake of unprocessed protein sources



Agreeing/making a plan

- Understand patients motivation/ if have made attempts to change in past/if aware of any food based dietary guidelines ?in school
- What does patient or parent feel is main area to work on
- Medication – do parent/patient feel medication has impacted weight gain?
- Is this an issue for them?
- Age: at this age teen needs to be on board and engaging with making a plan so working with teen with parent support
- Motivational Interview and Behavioral change
- Consider where parent/family are at
  - Likely aware of weight, ask if have made any changes already
  - Ask if they see any areas that feel could/should change
  - Ask if you can offer some suggestions
  - Ask if you can give rationale/ background for suggested change
  - Explain aim to start with 1-3 manageable SMART goals

Onward referral -

- Link further with psychology to support with body image
- Link with SLT/OT/Psychology to support plan for accepting new food textures
- Dietitian can not manage/change food sensory issues alone – MDT Approach
  - Can advise on nutritional adequacy
  - Request nutritional bloods
  - Recommend supplementation

SMART Goals

Intervention put in place:

1. To have wholegrain or 50:50 bread for BF in morning or dry wholegrain cereal
2. To increase fluid intake - water or sugar free squash or diet caffeine free drink aiming for 2L/day. Pt agreed to bring water bottle and refill in school
3. To taste crunchy fruit/salad or veg at home - dinner or supper 3 days per week
4. To start taking multivitamin containing calcium daily
5. Discussion on processed foods, portion sizes and agreed to Mum providing family meal alongside accepted food
6. Discussion around eating in absence of hunger - particularly evenings, ?other need ?habit ?consider other actions or activities that could distract

Review

- Bringing water bottle to school – drinking 2 L per day
- Taking Multivitamin
- Eating BF 4-5 days per week
- Has tasted some new vegetables
- Noticed slight improvement in bowel motion frequency
- Next step – understand what worked well with goals, what was a barrier/challenge
  Devise next SMART goals

Learning outcomes

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- Awareness of communication strategies to facilitate dietary and lifestyle changes with children, young people and families/carers

Thank you!!

- Thank you to all the MDT, Admin, Coordinator,patients and families at the W82GO, Child and Adolescent Obesity Service, Childrens' Health Ireland, Temple Street, Dublin
- Questions

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