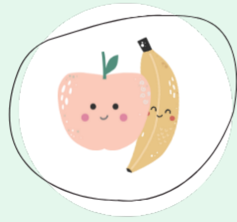
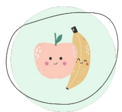


LAUREN *Gladman* DIETITIAN

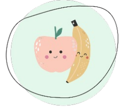
PAEDIATRIC + DISABILITY DIETITIAN

A how-to on Managing Complex Feeding Issues in Paediatrics



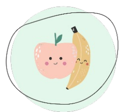
Disclosures

- I have completed paid presentations and consultation work for Abbott, Nestle, Biostime, Feeding Therapy Australia, Amyson, Stokke and NSW Health Munch & Move program



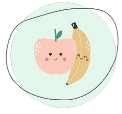
Key Objectives

1. **Develop knowledge of common feeding techniques used in complex paediatric feeding issues**
2. **Establish typical cases when each feeding technique may be used**
3. **Increase knowledge of how the dietetic role can enhance outcomes for complex feeding issues in paediatrics**



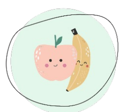
Outline

- Key objectives
- Introduction
- Complex feeding disorders, Paediatric feeding disorder & ARFID
- Dietitian role
- Feeding techniques
- Case studies



What makes a feeding issue "complex"?

- Medically complex
- Nutritionally complex
- Feeding skill disruption
- Psychosocial complexities
- Combination of the above



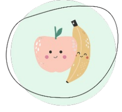
Fussy Eater vs Feeding difficulty (possible PFD)

Fussy Eater

- Growing well
- Eats a range of foods
- Asks for food / displays hunger cues
- Responds to basic nutritional strategies e.g. routine, 2 choices at snacks, ↓ milk, positive reinforcement

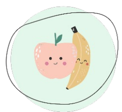
Feeding Difficulty (possible PFD)

- Poor growth
- Eats a very narrow range of foods
- Happily skips a number of meals if preferred foods not offered
- No improvement with decreased milk, routine with breaks before meals,
- New food introduction very difficult
- Force feeding
- Brand specific with food acceptance



Paediatric feeding disorder (PFD)

- ICD-10 CM in 2021
- Defined as "impaired oral intake that is not age-appropriate, and is associated with medical, nutritional, feeding skill, and/or psychosocial dysfunction"



Avoidant/Restrictive Food Intake Disorder (ARFID)

- What is ARFID?

DIAGNOSTIC CRITERIA

According to the DSM-5, ARFID is diagnosed when:

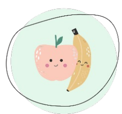
- An eating or feeding disturbance (e.g., apparent lack of interest in eating or food; avoidance based on the sensory characteristics of food; concern about aversive consequences of eating) as manifested by persistent failure to meet appropriate nutritional and/or energy needs associated with one (or more) of the following:
  - Significant weight loss (or failure to achieve expected weight gain or faltering growth in children).
  - Significant nutritional deficiency.
  - Dependence on enteral feeding or oral nutritional supplements.
  - Marked interference with psychosocial functioning.

KEY: ◎ Central Feature ✓ Included

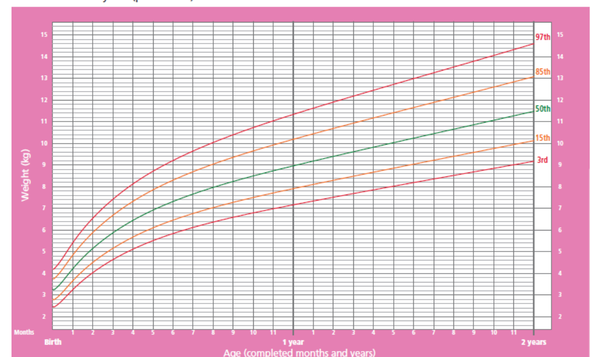
DOMAIN/POSSIBLE MANIFESTATION	ARFID	PFD
	DIAGNOSTIC CRITERIA	
NUTRITION	◎	◎
Significant weight loss	✓	✓
Significant nutritional deficiency	✓	✓
Dependence on enteral feeding or oral formula supplementation	✓	✓
PSYCHOSOCIAL	◎	◎
Food avoidance	✓	✓
Disruption in social function	✓	✓
Disruption in relationships	✓	✓
MEDICAL		◎
Cardiorespiratory compromise		✓
Aspiration		✓
Any medical disorder		✓
FEEDING SKILL		◎
Need for texture modification		✓
Use of modified feeding position or equipment		✓
Use of modified feeding strategy		✓

Feeding Matters welcomes all families with children who struggle to eat and the professionals who serve them. Information and support is inclusive of all diagnoses related to feeding difficulties. If your family has an ARFID diagnosis, you too can find helpful information within the Feeding Matters community.

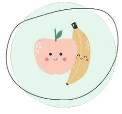
FEEDINGMATTERS.ORG



Dietitian Role

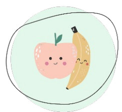


- Growth Assessment
  - Charts
  - Body composition
- Dietary assessment
  - For this population the food, drink, nutrients consumed
  - Complex feeding assessments will need a focus on environment and psychosocial aspect of eating
  - Identify nutritional gaps



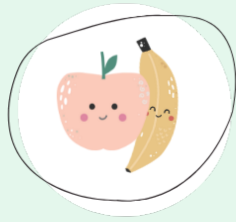
Dietitian Role

- Children with feeding difficulties are at greater risk of nutritional deficiencies
  - These need to be identified and where possible prevented, risk minimisation
  - Energy most common deficiency
  - Inadequate fibre almost universal in paediatric feeding disorders – rarely reported
  - >80% CP tube fed and oral had multiple biochemical markers proving deficiency (Skelton et al 2006)
  - 10-15% risk of iron deficiency in GDD and ASD population in south west Sydney (Sidrak et al 2014)



Dietitian Role (continued)

- Prioritize and fill nutritional gaps
- Oral nutritional support in order to optimise their growth and nutritional intake
  - High energy eating or ONS drinks or both
- Supplement with vitamins and minerals when appropriate
- If oral nutrition support is ineffective, enteral nutrition support may be considered as an additional or alternative therapeutic management strategy



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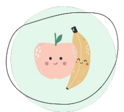
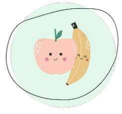
Feeding Techniques

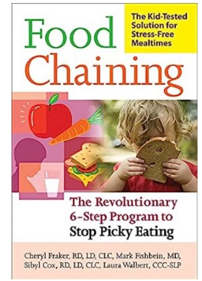


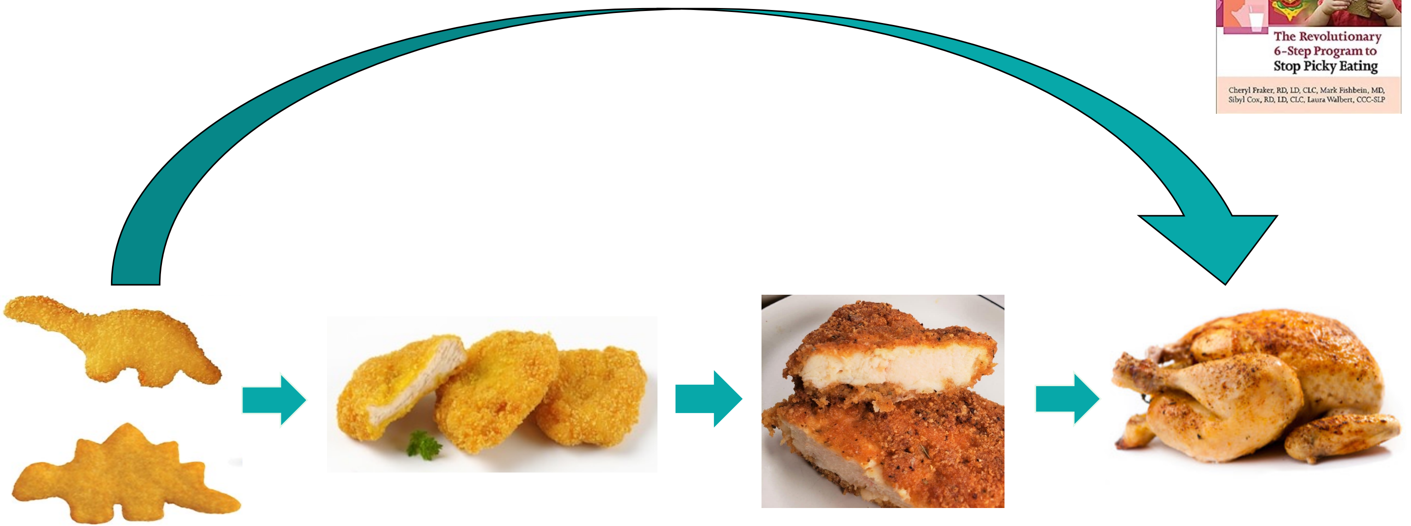
Food Chaining™ / Linking

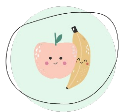


Food Chaining ™ / Linking

Food Chaining credit to Cheri Fraker & Laura Walbert

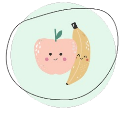






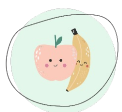
High Energy density intake

- Used to reduce volume of food/formula required to meet needs
- Increase the energy in food by;
  - Using additional fats, protein, full fat dairy, cheese, avocado,
  - Reduce focus on Fruit and Veg, serve these after high energy foods have been eaten
- Increase concentration of feed by adjusting the dilution of powdered supplements
- Select high caloric density oral nutrition support drinks



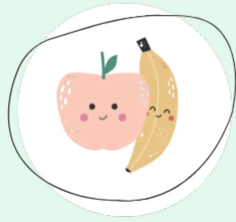
Gradual Exposure

- Used to introduce new or disliked foods slowly and gently
- Start with small serves and small tastes in a non-pressured, responsive-feeding environment
- Starting with a more “predictable” food such as canned or dried fruits can help
- Offering new foods with a desired food can help accelerate the process
- Strategic and planned, not haphazard



Hunger Provocation / Tube weaning

- Concept of tube feed or oral formula reduction to test if the response to the “calorie deficit” will be to eat more food
- Non-standardised feeding technique
  - Individualise the feeding recommendations, timing, foods and supports
- Criteria:
  - Safe swallow, medically stable
  - Typically requires adequate recent growth
  - Having strong foundations such as regular mealtimes, responsive feeding education established and parent confidence with what foods to serve



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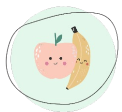
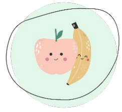
Case Studies



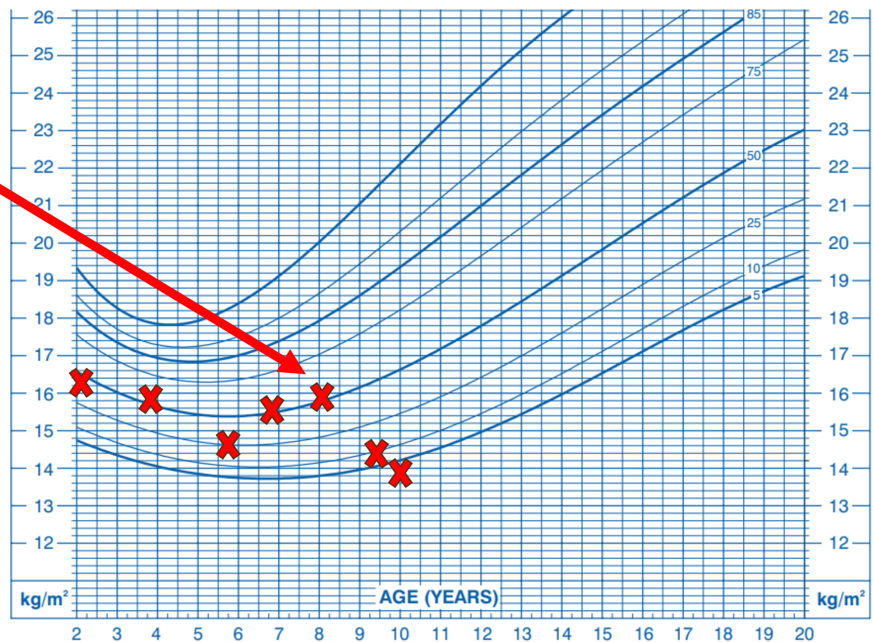
Case Study 1 – Harry – ADHD medications & appetite

- 10-year-old boy with ADHD
- Has been taking short acting Ritalin for the past 12 months which has coincided with a drop in appetite:
  - Weight loss: 11%
  - BMI category: underweight
  - MUAC Z-score: moderately undernourished
- Parents report he has lost weight and lost interest in meals, however they are happy that the medication is showing significant benefits to him academically and his behavior is improving



BMI Chart

ADHD diagnosis and medication started



Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

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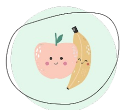

Case Study 1 – Harry – ADHD medications & appetite

Diet History BEFORE

- 70g yoghurt pouch
- School: 20g chips + occasional banana
- Afternoon: Toast/bread and 2 minute noodles
- Family dinner: like vegetables best, finds meats difficult
- Occasional ice cream

Diet History AFTER

- Pre-run snack Banana
- 2 eggs with toast OR Egg & bacon bread roll
- 250g yoghurt highest cal
- School: 2 bread rolls with protein – 1 at each break. Education re eat to the clock
- After school: Dairy drink + carb (slice, cake, biscuits, bar, chips, banana)
- Dinner: Family dinner with added fats, less veg. Often had 2 serves
- 200ml Oral nutrition support drink

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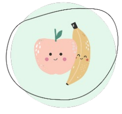
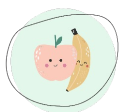


Case Study 1 – Harry – ADHD medications & appetite

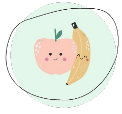
- Key Issues
  - Undernourished
  - Low appetite
  - Inadequate caloric intake
  - Repetitive food intake / limited variety

- Feeding Techniques
  - Food chaining / linking
  - High energy density intake
  - Individualized meal planning



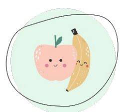
Case Study 1 – Harry – ADHD medications & appetite

- Outcomes
  - Significantly increase caloric intake
  - Improvements in weight, BMI and MUAC Z-score
  - Increased calcium, iron and protein intake from foods
  - Improved dietary variety
  - Reduced mealtime stress



Case Study 2 – Elle – ASD & Sensory Processing Disorder (SPD)

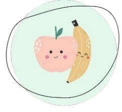
- 8-year-old girl with ASD and SPD. Attends a mainstream school with some support and is in year 2
- Elle accepts a narrow range of predominantly dry and crunchy processed / packaged foods
- She is constipated which causes frequent tummy pain and distress; she has required a laxative for over 2 years
- Growth assessment: optimal growth
- Mother reports eating and toileting to be the most stressful things in Elle's life. Limitations in both are impacting her ability to make friends and connections at school and she is very tired in the afternoons and on weekends
- Elle has never had nutritional blood pathology completed



Case Study 2 – Elle – ASD & Sensory Processing Disorder (SPD)

Diet History:

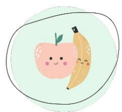
- Breakfast: white bread as toast, occasionally with peanut butter
- Lunch box: portion packets of pretzels, Oreos, plain potato chips, Cruskits or rice thins
- Dinner: pasta with cheese and butter, plain boiled rice or 2 Minute Noodles served with chicken nuggets, sausages or fish fingers
- 1–2 cups of milk with or without flavours through the afternoon



Case Study 2 – Elle – ASD & Sensory Processing Disorder (SPD)

- Gradual Exposure

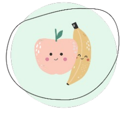
Week	Milk / Oral nutritional supplement combination
Week 1	30ml ONS + 210ml normal milk
Week 2	60ml ONS + 180ml normal milk
Week 3	90ml ONS + 150ml normal milk
Week 4	120ml ONS + 120ml normal milk
Week 5	150ml ONS + 90ml normal milk
Week 6	180ml ONS + 60ml normal milk
Week 7	220ml ONS



Case Study 2 – Elle – ASD & Sensory Processing Disorder (SPD)

- Key Issues
  - High stress mealtimes
  - Inadequate iron and fibre intake – child is fatigued and chronically constipated
  - Repetitive food intake / limited variety and highly processed foods

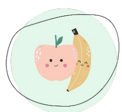
- Feeding Techniques
  - Food chaining / linking – selectively using processed fruit and vegetables to assist including missing food groups
  - Aiming for individualized nutrient testing and supplementation
  - Use of oral nutrition supplements to assist in meeting nutrition goals (iron, fibre, vitamins and minerals)
  - Gradual exposure – supplement transition from full cream milk



Case Study 2 – Elle – ASD & Sensory Processing Disorder (SPD)

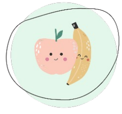
Diet History (**after 3 months**):

- Breakfast: white **iron-fortified** bread as toast, **alternate** with peanut butter
- Lunch box**: ½ cup iron-fortified cereal**, portion packets of pretzels, plain sweet biscuit, plain potato chips, rice thins, **Corn thin, chickpea snacks, lentil chips**
- **Afternoon Tea: 200ml ONS with fibre 1.0cal/ml**
- Dinner: **lentil/chickpea/wheat** pasta with cheese and butter, plain boiled rice or 2 Minute Noodles served with chicken nuggets, sausages or fish fingers
- **Supper: 200ml ONS with fibre 1.0cal/ml**
- **Plans to introduce processed Fruit and Vegetables next eg canned fruit, vegetable chips**

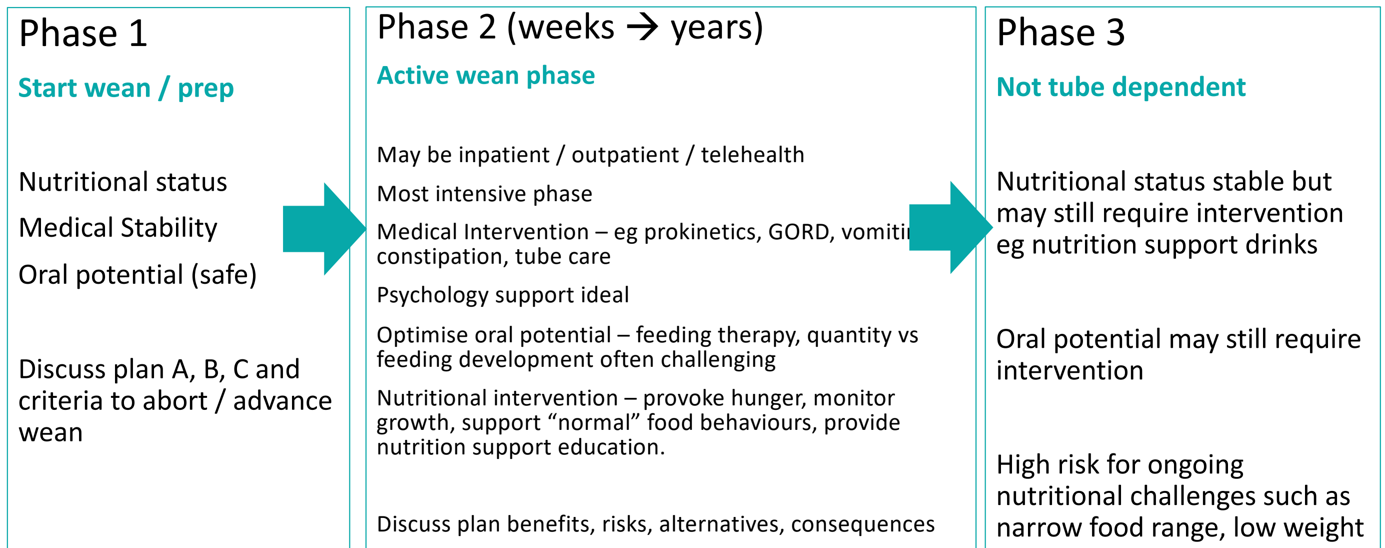


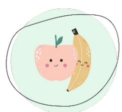
Case Study 3 – Sam – Transitioning from tube to purees & thin fluids

- 3-year-old girl with a neurological disorder and global developmental delay
- Has been nil by mouth and gastrostomy fed using ONS powder made up to 1.0 kcal/mL since 12 months of age
- Pump Fed overnight for 14 hours
- Growth is optimal
- This week her MBS and Speech Pathologist has shown she can now eat smooth puree and drink thin fluids. Her speech pathologist has recommended a specific cup for fluids
- The family are hoping to work towards Sam's tube being removed



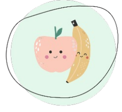
Case Study 3 – Sam – Transitioning from tube to purees & thin fluids





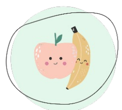
Case Study 3 – Sam – Transitioning from tube to purees & thin fluids

- Key Issues
  - Safe for oral intake
  - Family request for wean
  - Tube fed
  - Texture modified diet (puree)
- Feeding Techniques
  - Multi-disciplinary team approach to feeding
  - High energy density intake of solids, higher concentration oral nutrition supplement to enhance appetite
  - Individualized feed routine and meal planning



Case Study 3 – Sam – Transitioning from tube to purees & thin fluids

- Outcomes
  - Increased oral intake and progressive reduction in reliance on tube feeding with
  - Still aiming to completely tube wean if possible
  - Oral intake texture and skills to match her developmental age
  - Ongoing optimal growth.



Polling Questions

What is likely to be the best strategy to encourage intake at school for children with a low appetite?

1. Ask the classroom teacher to help them
2. Send all of the childs preferred foods in a large lunchbox for them to select from
3. Offer daily canteen
4. Send an ONS drink and small amounts of preferred foods, discuss or write down a specific plan to support decision making at school e.g. eat 2 things every time the bell rings

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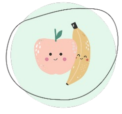
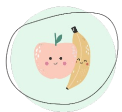


Polling Questions

During a tube wean, what is an essential first step?

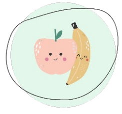
1. Safe swallow and caregiver engagement
2. Medical stability and regularly eats a favourite food
3. Ability to eat 20% of nutrition needs
4. Optimal growth



Polling Questions

Why is concentrating powdered ONS formula a feeding technique that assists in complex paediatric tube feeding?

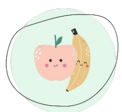
1. Limiting volume of feeds can give scope for increased interest in food and time off tube feeding to participate in developmental activities unhindered by feeding equipment
2. Increases growth rate by increasing nutrition in equal volume
3. Concentration can reduce volume and therefore assist in the management of common digestive issues including GORD, gagging and vomiting
4. Concentrating ONS can give more flexibility to the routine to allow opportunities for oral intake if tube weaning is a feeding goal
5. All of the above



Polling Questions

A dietitians role in complex paediatric feeding can include

1. Swallow assessment and feeding therapy
2. Growth assessment, dietary assessment and food ideas to fit with the MDT goals
3. Education regarding responsive feeding techniques and laxative doses
4. Developmental assessment due to concerns the child has features consistent with Autism

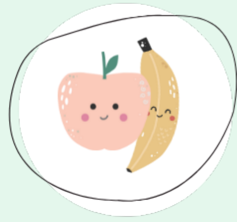


Remember

- Prioritizing nutritional goals will help develop the best plan and select the most suitable feeding technique
- Individualized plans essential in complex pediatric feeding
- ONS and vitamin and mineral supplements are commonly needed in this population
- Nutrition goals will guide the recommendations in the plan
- Feeding techniques are our tools
- Best practice guidelines not available (yet)

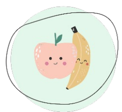
PAEDIATRIC + DISABILITY DIETITIAN

LAUREN Gladman DIETITIAN



PAEDIATRIC + DISABILITY DIETITIAN

Questions?



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