Minding the Gaps on Nutrition

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6 September 2017

Ensuring Adequate Nutrition
Ensuring Adequate Nutrition

Minimum dietary diversity: ≥4/day
The 7 foods groups used for tabulation of this indicator are:

- Grains, roots and tubers
- Legumes and nuts
- Dairy products
- Flesh food
- Eggs
- Vit-A rich fruits & vegetables
- Other fruits & vegetables

1. Kant AK, 2004 Arimond, M et al 2004
2. Rah JH et al. Low Dietary Diversity is a predictor of child stunting JCN 2010

Ensuring Adequate Nutrition

Sandoval M et al. Development of Pinggang Pinoy DOST
Ensuring Adequate Nutrition

Sandoval M et al. Development of Pinggang Pinoy DOST

Ensuring Adequate Nutrition
Outline

- Ensure healthy and balanced diets for PWD
  - Oral motor difficulties
  - Sensory defensiveness issues
  - Behavioral feeding issues

- Enable you to handle and manage more severe cases of feeding difficulty
- Nutritional precautions and add-ons for PWDs on complementary and alternative diets (GFCF, elimination diets)

Developmental Delay:
Common Feeding Difficulties

Oral motor difficulties  Sensory defensiveness issues  Behavioral feeding issues

Developmental Delay: Common Feeding Difficulties

- Oral motor difficulties
- Sensory defensiveness issues
- Behavioral feeding issues

Oral motor Issues:
- Cerebral Palsy
- Genetic disorder
- Head injuries (brain tumor, Developmental delay)

Oral Motor difficulties
Cerebral Palsy
Oral motor difficulties
Rett syndrome

Evaluation of Aspiration

• Fiberoptic endoscopic evaluation of swallowing (FEES)
• Videofluoroscopic study (Modified barium swallow)
• Blue dye test
• Scintigraphy
• Cervical auscultation
Evaluation of Aspiration
Fiberoptic endoscopic evaluation of swallowing FEES

Gold Standard FEES

Blue Dye Test

Evaluation of Aspiration
Videofluoroscopic study
(Modified barium swallow)
Evaluation of Aspiration
Scintigraphy or Milk Scan

Evaluation of Aspiration
Cervical auscultation of swallowing

- Oro pharyngeal movements after a bolus
- Compensatory postures/maneuvers
Oral–motor development from birth to age four

When there are problems, assess the 'mechanics' of eating by looking for:

- Position and muscle tone
  - Cheeks, lips, tongue as well as the jaw stability
- Progression
  - Suckling to sucking
  - Food from a spoon
  - Cheek swallowing
  - Self feeding
  - Cup drinking (assisted/independent)

Positioning ‘the hips affect the lips’
Developmental Delay: Common Feeding Difficulties

- Oral motor difficulties
- Sensory defensiveness issues
- Behavioral feeding issues

Sensory Issues:
- Stuff mouth
- Prefer strong flavors
- Silent Aspiration?

Sensory defensiveness issues

Autism Spectrum Disorder

- Fearful of bright lights
- Upset by loud noises
- Sensation of sand or grass under foot

Hunger Strikes in Autism

Hunger Strike

- Deficient Type
- Does not eat from
- Non compensated

- Limited Variety type
- Does not adequately eat from
- Partially compensated

- Compensated

Beral G et al

Hunger Strikes of Autism

[Image of two people eating]

[Image of food on plates]
Nutrition Assessment in High Food Selectivity

Have parents count the number of foods the child eats on an average day

Get a list of the foods the child likes and eats regularly

If growth is poor, have parents keep a 3 day food record

Ask parents about concerns with feeding & their reactions

Autism Child’s Food Preferences

<table>
<thead>
<tr>
<th>Texture</th>
<th>Uniform Soft</th>
<th>Mixed textures</th>
<th>Bland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crunchy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crispy</td>
<td>Chewy</td>
<td></td>
<td>Sour</td>
</tr>
<tr>
<td>Smooth</td>
<td>Mixed textures</td>
<td></td>
<td>Bland</td>
</tr>
<tr>
<td>Purees</td>
<td>Salty</td>
<td></td>
<td>Hot/warm</td>
</tr>
<tr>
<td>Mashed Lumpy</td>
<td>Sweet</td>
<td></td>
<td>Cold</td>
</tr>
</tbody>
</table>

Best time of day to eat?
Factors that affect eating?
Supplemental nutrition used?
When did selective eating begin?
High Selectivity – What to Do

Mild to Moderate Food Selectivity
• >15 foods consumed
• Not eliminating entire types of food, texture or consistency

• Make sure growth is adequate
• Give parents general feeding guidelines
• If parental anxiety is high, more frequent follow up

Feeding principles to promote responsive feeding practices

• Avoid distraction
• Adopt a neutral attitude
• Use a feeding schedule that encourages appetite
• Limit duration
• Use age-appropriate foods
• Systematic novel food introduction
• Encourage independent feeding
• Tolerate age-appropriate mess
High Selectivity – What to Do

Severe Food Selectivity:
• < 15 foods consumed
• Eliminating almost entire types of
• Food, texture or consistency
• Poor growth or medical condition

- Anchor Foods
- Supplement as needed
- Systematic exposure to new or rejected foods
  - 4 Senses, Desensitization exercises, spice routine, food chaining, OT referral
- Feeding guidelines
- Behavioral intervention


Food Chaining

Food Selectivity

1. Make a list of all the foods the child likes and dislikes

2. Look for common characteristics of those foods
   - Texture, flavor, color

3. Find other foods with similar characteristics to the foods liked

Fraker, et.al, Food Chaining, 2007
Short Term and Long Term Goals

Short term goals
- 1 new food at a time
- Increasing texture in food by 10%
- Eating the same foods as the rest of the family at least once a week
- At least 1 meal a day without crying or tantrums

Long term goals
- Eating 40-50 foods regularly
- Eating 2 to 3 servings of vegetables a day
- Pleasant meal times with positive conversation

Developmental Delay:
Common Feeding Difficulties

• Oral motor difficulties
• Sensory defensiveness issues
• Behavioral feeding issues

Behavioral expression:
• Food fixation
• Abnormal parental feeding practices
• Trigger event at outset
• Anticipatory gagging

Children with Developmental Disabilities
Behavioral feeding issues

Severe behavioral feeding difficulties:
Two primary concepts for remediation

• Increase motivation through induced hunger
  - Option to change eating habits
• Temporary calorie restriction during meal
  - Reward acceptance of new food with bite of favorite
• Use in-meal time-outs to decrease food refusals and unwanted behavior
Principles of nutritional support

Nutritional intervention should increase in stepwise manner in respect to severity of underlying condition and impairment of nutritional status.

Children with Developmental Disabilities
Indications for nutrition support
Children with Developmental Disabilities
Indications for nutrition support

- Inability to consume greater than 80% of caloric needs by mouth
- Inadequate feeding skills
- Total feeding time > 4 hours per day for a neurologically impaired child

Nutrition Care Plan
Choose formula type and Composition

- Expressed breastmilk
- Blenderized natural foods
- Nutritional supplement
Nutrition Care Plan
Choose formula type and Composition

<table>
<thead>
<tr>
<th></th>
<th>POLYMERIC 30 cal/oz</th>
<th>SEMI-ELEMENTAL 20 cal/oz</th>
<th>ELEMENTAL 20 cal/oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>whole proteins</td>
<td>small peptides</td>
<td>amino-acids</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>glucose polymers, maltodextrin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fats</td>
<td>LCT or LCT &amp; MCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osmolarity</td>
<td>300</td>
<td>300 - 450</td>
<td>300 - 600</td>
</tr>
<tr>
<td>Indications</td>
<td>Multiple</td>
<td>Malabsorption, (allergy)</td>
<td>Severe malabsorption, (multiple allergies)</td>
</tr>
<tr>
<td>Advantages</td>
<td>Palatable, more affordable</td>
<td>More easily digested and absorbed</td>
<td>Non-allergenic immunomodulatory</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Require intact GIT</td>
<td>Less palatable, more expensive</td>
<td>More expensive, bad taste, hyperosmolar</td>
</tr>
</tbody>
</table>

Before and After PEG

Hi, I’m Alexa and I’m seven. I LOVE being around people, listening to them talk and tell me stories. I cannot speak but look into my eyes and you’ll hear my voice. Rett Syndrome has taken almost everything, but not my family and friends who LOVE me dearly.

Visit our website: www.careforrett.org.uk
Like us on facebook.com/careforrett
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- Enable you to handle and manage more severe cases of feeding difficulty
- Nutritional precautions and add-ons for PWDs on complementary and alternative diets (GFCF, elimination diets)

<table>
<thead>
<tr>
<th>Diet</th>
<th>Nutrients at Risk</th>
<th>General Nutrition Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFCF</td>
<td>Fluid, energy &amp; protein. macro/micro nutrient deficiencies, low fiber</td>
<td>Soy, almond milk\nSupplement nutrients at risk\nFeeding schedule to encourage hunger</td>
</tr>
<tr>
<td>No gluten (wheat, barley, rye)\nNo casein (milk, dairy products)</td>
<td>Phosphorus, Calcium and Vitamin D, Iron, Zinc, Vit B, folic acid</td>
<td></td>
</tr>
<tr>
<td>Vegetarian diets</td>
<td>Lower BMI, Iron, Zinc, Vit B deficiency</td>
<td>Ensure adequate Ca intake (dairy, fortified foods, supplements)\nEvaluate caloric density of foods\nFood record with Nutritionist</td>
</tr>
<tr>
<td>Elimination diets in ADHD (sugars, sweeteners, preservatives, colorants)</td>
<td>Iron, Zinc, Mg, Omega 3 fatty acids</td>
<td>Suppment nutrients at risk\nOmega3 fatty acid supplementation</td>
</tr>
<tr>
<td>Diet</td>
<td>Nutrients at Risk</td>
<td>General Nutrition Intervention</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fear of feeding</td>
<td>Fluid, calories and other nutrients depending on severity and fear</td>
<td>Supplemental formula if not eating solids, systematic offering of foods refused, feeding schedule to encourage hunger, behavioral health intervention</td>
</tr>
<tr>
<td>High Food Selectivity</td>
<td>Vitamins &amp; minerals at risk dependent on type of food refusal</td>
<td>Systematic offering of foods refused, increase variety in diet, supplement nutrients at risk, high calorie foods/supplement if poor growth, feeding schedule</td>
</tr>
<tr>
<td>Limited Appetite</td>
<td>Calories, possibly protein, Vitamin D, Fe and other nutrients</td>
<td>Feeding schedule to encourage hunger, supplemental formula/high calorie foods with poor growth, parental education, supplement nutrients at risk, behavioral intervention if needed. Will vary with subcategory</td>
</tr>
</tbody>
</table>

**Vitamin/Mineral Supplementation**

- If no additional calories needed
  - chewable children’s complete (w/iron)
  - One teaspoon liquid vitamin
  - 1 - 2 scoops powdered multivitamin
  - Gummy vitamins – with iron, rarely minerals
- If additional calories needed
  - 1-2 glasses/day of polymeric formula provide ~ 50% or more of DRI for each nutrient
Summary

• Present an approach to making the diagnosis
  • Oral motor difficulties
  • Sensory defensiveness issues
  • Behavioral feeding issues
• Explain the common feeding issues in children with developmental disabilities
• Provide you with knowledge required to manage more severe cases of feeding difficulty