Is It More Than Just “Picky Eating”?

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Conflicts of Interest

No conflict of interest to declare.

Agenda

1. Describe selective eating in autism
2. Identify reasons for selective eating in ASD
3. Highlight differences between picky eating and problem feeding
4. Identify problems associated with selective eating
5. List common nutrient deficiencies
Selective Eating in Autism

- Children with ASD more likely to avoid foods and exhibit neophobia than their typically developing siblings and children without ASD (Schreck, 2004)
- Children with ASD on average ate fewer foods (33.5 vs 54.5 foods) (Zimmer, 2012)
- 70-90% of parents who have a child with ASD report problems with food selectivity and limited intake of foods (Mulle, 2013)
- Odds of children having a feeding problem are five times greater in a child with ASD (Sharp, 2013)

Why is Selective Eating Common in ASD?

- Sensory Processing Disorder
  - Eating is one of the most sensory-rich activities!
- Oral dysphagia (refers to problems with using the mouth, lips and tongue to control food or liquid)
- Nutrient deficiencies
- Food sensitivities & other gut issues
- Certain medications

Picky Eaters vs Problem Feeders

- Most parents with children with selective eating refer to them as "picky eaters" due to the lack of terminology
- In children with ASD, they are more likely to be problem feeders
- Is there a difference?

YES!
Food Selectivity in ASD

• “Blonde Foods”
  • What do all of these have in common?
    • GREAT sensory profile
    • Highly processed
    • Extremely low fiber
    • Void of many nutrients
    • Pro-inflammatory
    • High in carbohydrates
    • Contains top allergens (milk and wheat, among others)

Problems Associated with Selective Eating

1. Increased inflammation
2. Nutrient deficiency
3. Gut issues (predominantly constipation)
4. Behavioral and cognitive issues, increased autistic symptoms

Pro/Anti-Inflammatory Foods

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<thead>
<tr>
<th>Anti-Inflammatory</th>
<th>Pro-Inflammatory</th>
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<td>Fruits, Vegetables, Legumes, Beans, nuts, etc.</td>
<td>Meats, Sugar, Refined Grains, Chemicals</td>
</tr>
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<td>Saturated &amp; Trans Fats, Omega-6a</td>
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Nutrient Deficiency in ASD

- Children with a more limited food repertoire had inadequate intakes of a greater number of nutrients including vitamin A, vitamin D, and calcium (Bandini, 2010)
- Nutrient intake is below recommended amounts for calories, protein, carbohydrates, fat, fiber, vitamin A, vitamin D, vitamin C, calcium, and iron (Attlee, 2015)
- Children with ASD aged 4 to 8 years consumed significantly fewer calories, vitamin A, vitamin C, and zinc; ages 9 to 11 years consumed less phosphorous (Hyman, 2012)
- Vitamin D therapy reversed autistic behaviors in severely deficient children
- Low vitamin D can cause fatigue and anorexia
- Vitamin D is involved in decreasing chronic inflammation
- Low levels can induce anxiety or depression
- Low levels can reduce lung capacity in asthmatics and increase severity of asthma
- Deficiency can play a role in pulling calcium from bones

Nutrient Deficiency

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Nutrient Deficiency

- **Folate**
  - Deficiency can cause irritability, impaired cognitive function, anorexia, fatigue, and GI disturbances
  - Chronic low folate impairs methylation which can cause neurological damage
  - Oral folate therapy can resolve symptoms of autism in some cases, particularly in individuals with genes that impair folate dependent enzymes (MTHFR)
  - Lower folate levels can cause increased depression symptoms in some individuals

Nutrient Deficiency

- **Vitamin B12**
  - Deficiency can cause fatigue, breathlessness, numbness, poor balance, and memory trouble
  - Chronic low B12 impairs methylation which can cause neurological damage
  - Modulates melatonin and plays large role in Circadian Rhythm
  - Look in the mouth! Symptoms can be swollen gums, tongue, or angular dermatitis

Nutrient Deficiency

- **Vitamin A**
  - One cause of autism may be a defect in a retinoid receptor protein (G-alpha protein) which is critical in language processing, attention and, sensory perception
  - Evidence suggests serum vitamin A levels in autistic children are lower
  - Vitamin A plays a major role in vision, immune function, bone formation, and health of the cells in our respiratory, intestinal, and urinary tracts
  - Deficiency alters brain waves in non-REM sleep causing sleep to be less restorative

Nutrient Deficiency

- **Zinc**
  - Zinc deficiency can cause loss of appetite, impaired immune function, delayed growth
  - Helps eliminate toxic mercury from brain tissue
  - Low zinc impairs a protein that removes heavy metals from the body
  - Infantile zinc deficiency may epigenetically contribute to the development of autism (Yasuda 2011)

Nutrient Deficiency

- **Vitamin B6**
  - Cofactor for serotonin and dopamine (can cause decreased appetite and fatigue)
  - Supplementation trials with B6 result in better eye contact, speech, and fewer self-stimulatory behaviors
  - Deficiency impairs conversion of omegas (ALA to EPA and DHA)
  - Deficiency can cause cognitive impairment

Nutrient Deficiency

- **Magnesium**
  - Cofactor for neurotransmitters that affect social reactions and emotion
  - Common for individuals with ASD to be low
  - Low levels may cause low energy and fatigue
  - Deficiency can induce anxiety and emotional hyper-reactivity
  - Physical and emotional stress may increase urinary magnesium excretion
Nutrient Deficiency

- Iron
  - Low iron can cause fatigue & anemia (loss of appetite)
  - Deficiency can cause pica (eating non-food items)
  - Deficiency can have cognitive, social, and emotional effects
  - Iron deficiency can cause negative outcomes on psychomotor and behavioral development in infants and young children and increase autistic behavior

- Fiber
  - Constipation (!!!)
  - Bloating
  - Intestinal dysbiosis
  - Yeast overgrowth
  - Increased likelihood of obesity
  - Development of chronic disease

Identify Nutrient Deficiencies

- Important to test nutrients inside the cell vs outside the cell to show functional deficiency
- Test a wide range of nutrients to ensure comprehensiveness
- SpectraCell tests 35 different micronutrients and shows deficiencies and borderline deficiencies
- Identify deficiencies and correct them with a dietitian or physician

Common Medications in ASD

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<th>Nutrient Depletions</th>
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<tr>
<td>Antibiotics</td>
<td>B Vitamins, Calcium, B6, Magnesium, Zinc</td>
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<tr>
<td>SSRIs (Risperidone, Venlafaxine, etc.)</td>
<td>Vitamin B6, B12, Folate, Zinc</td>
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<tr>
<td>Anti-Convulsants (Valproic Acid, Topiramate, etc.)</td>
<td>Vitamin D, Calcium, Folate, Zinc</td>
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<tr>
<td>Antacids (Pepcid, Zantac, Prevacid, etc.)</td>
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Medications

- Many medications used in autism or ADHD/ADD can cause loss of appetite
- Some medications can cause nutrient depletions, and long-term use could cause deficiency
- Antibiotics can cause many gastrointestinal issues due to their effect on the bacteria in the gut

Problems Associated with Selective Eating

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Gastrointestinal (GI) Issues

• Children with autism are eight times more likely to have chronic GI problems
• GI problems include (but not limited to)
  • Constipation
  • Diarrhea
  • Food sensitivities, intolerances, and allergies
  • Impaired digestion
  • Bloating
  • Increased intestinal permeability (leaky gut syndrome)
  • Intestinal dysbiosis
  • Yeast overgrowth (most common: Candida)

Self-Limitation

• Children with autism may have undiagnosed food sensitivities or intolerances causing gastrointestinal pain, constipation, diarrhea, migraines, or eczema
• Some children can make the connection between foods and the way they feel, therefore they self-limit
• Depending on severity of ASD or lack of self-awareness, they may not be able to communicate or describe their discomfort, or may possibly accept it as "normal"

Food Intolerance Testing

• Mediator Release Test (MRT)
  • Tests IgG, IgA, IgM, T-Cell, and other immune response
  • Does not test IgE (allergies)
  • …to be continued in next presentation

Closing Remarks

1. Identify if your child is a picky eater or a problem feeder
2. Consider which nutrients your child may be missing
3. Get your child tested for nutrient deficiencies, food sensitivities, or other tests that could help your child
4. Always have an individualized approach!