



Eating and Nutrition

Problem

Up to three-fourths of children with autism spectrum disorders (ASDs) are reported to have problems related to eating. These include

- Restricted range of food texture, color, taste, or temperature
- Rituals around food presentation
- Eating or putting nonfood items in their mouths (pica)
- Compulsive eating
- Mouth packing
- Volitional emesis, gagging, and rumination (emesis and re-swallowing)
- Feeding refusal or failure to advance textures, related to textural sensitivity or rigidity in accepting new foods

Medical Factors to Consider

Children with ASDs may have reasons other than behavioral issues for eating problems, including

- Gastroesophageal reflux and discomfort
- Dental pain
- Oral motor dysfunction affecting textures comfortably handled
- True food allergies or intolerance
- Lactose intolerance
- Significant constipation

Discomfort from nausea or pain can result in refusal of food the child ate prior to those symptoms because of a temporal association with that food.

Pica may be associated with

- Iron deficiency
- A delayed developmental level (Infants explore by mouthing items.)
- Obsessive behaviors and anxiety

With persistent pica, monitor lead levels; be aware of other toxic ingestions and parasites in the face of acute illness, as well as potential for bezoars and perforations; implement a behavioral program to decrease pica in consultation with an autism behavioral specialist.

Additional Reasons for Feeding Problems in Children With Autism Spectrum Disorders

- Persistence of feeding difficulties because of delayed development
- Obsessions related to food presentation, texture, color, or flavor
- Anxiety with change or things that are new
- Possible sensory differences in taste, texture, and smell perception and associated food avoidance
- Learned behavioral patterns

Nutritional Needs in Children and Adolescents With Autism Spectrum Disorders

- Physiologic needs are the same as other children for basic macronutrients and micronutrients.
- Rare cases of severe nutritional deficiencies like rickets (vitamin D), scurvy (vitamin C), and impaired vision (vitamin A) have been reported with severe food aversions.
- Lower ferritin and vitamin D levels have been reported.
- Children who are given supplements may take in greater than recommended amounts of some nutrients. Excessive intake of nutrients may have positive and negative side effects. Some examples of nutrients with known deficiency and excess states are listed in the Table on page 3.
- During well-child visits, the pediatrician should review diet and supplements.

Medical Evaluation of Feeding Problems

- History and physical examination guide laboratory studies.
- Perform allergy workup as indicated by history. (See “Gastrointestinal Problems” in the Clinician Fact Sheets section of this toolkit for workup of constipation, diarrhea, bloating, and emesis.)
- Arrange for nutritional consultation for assessment of calories and adequacy of intake (deficiency and excess).
- Child should receive speech and/or occupational therapy evaluation and intervention for oral motor dysfunction or sensory restriction.

Interventions for Feeding Problems

- A thorough history of eating behaviors and mealtime routine is critical.
- Prevention is more efficient than remediation! Anticipatory guidance is important. Begin counseling families in the context of routine care when problems with feeding are first mentioned. Do not wait for an ASD diagnosis.
- The following strategies can help with mealtime structure and predictability:
 - Children should be offered routine meals and routine snacks.
 - Mealtime should be calm and distractions in the household minimized.
 - Adults should sit down with children and eat the same foods.
 - Children with the motor ability should self-feed.
 - At each meal the caregiver should provide foods that the family eats but at least one food that the child is known to accept. This way the child has something he is likely to eat. The parent should not be a short-order cook.

- The child should be requested to eat. Pleading and threatening should not occur.
- After the child is finished, the child is permitted to leave the table.
- No food or drink is provided until the scheduled snack or meal so the child is hungry for more nutritious foods.
- If family culture is one of grazing, it is unlikely that the child will follow a different schedule.
- Children who do not see their families eat vegetables or fruits are unlikely to eat them.
- Families may need support in establishing mealtime structure.
- Specialized feeding problems like mouth packing, rumination, severe pica, and intense aversions are likely to need the support of professionals with expertise in behavior management (psychologists) or oral motor therapies (speech or occupational therapy).

Common Pitfalls for Parents or Caregivers

- Expectations of volumes of food to be eaten are too great.
- Concern about nutritional compromise or dehydration leads caregivers to give in and let a child eat empty calories.
- If behaviors (eg, food refusal, agitation) have always worked to get desired foods or to get out of eating in the past, the child now intensifies these problematic behaviors when they no longer are effective. Caregivers should be warned that this is likely to happen in a newly implemented treatment prior to any improvements (see “Behavioral Principles” in the Clinician Fact Sheets section of this toolkit).

Reference Daily Intake of Selected Nutrients

Reference daily intake (RDA) is the average daily allowance of a nutrient that would need to be consumed to meet the nutritional needs of 97% to 98% of healthy children. Dietary supplements may contain more of these and other nutrients than are currently recommended. Labeling might display the content as Daily Value (DV), which is the percent of RDA for a 2,000-kcal diet. This reflects adult dietary needs and could be excessive for children.

| Nutrient | Recommended Daily Treatment | Known Effects of Deficiency | Known Side Effects of Excess |
|-------------------------|--|---|--|
| Vitamin A | 1–3 y: 1,000 IU/d 4–8 y: 1,320 IU/d 9–13 y: 2,000 IU/d >14 y (female): 2,310 IU/d >14 y (male): 3,000 IU/d | Photophobia, keratinization of skin/mucosa, poor growth | Anorexia, dry skin, bone pain, bone fragility, organomegaly, pseudotumor cerebri |
| Vitamin B ₆ | 1–3 y: 0.5 mg/d 4–8 y: 0.6 mg/d 9–13 y: 1 mg/d 14–18 y (female): 1.2 mg/d 14–18 y (male): 1.3 mg/d | Irritability, anemia, paresthesia, stomatitis | Sensory neuropathy |
| Vitamin B ₁₂ | 1–3 y: 0.9 µg/d 4–8 y: 1.2 µg/d 9–13 y: 1.8 µg/d >14 y: 2.4 µg/d | Anemia, neuropathy, glossitis, paresthesia | Unknown |
| Vitamin C | 1–3 y: 15 mg/d 4–8 y: 25 mg/d 9–13 y: 45 mg/d 14–18 y (female): 65 mg/d 14–18 y (male): 75 mg/d | Scurvy, poor wound healing | Gastrointestinal distress, rebound deficiency |
| Vitamin D | >1 y: 15 µg/d, 600 IU | Rickets, osteomalacia | Nausea, diarrhea, constipation, calcifications |
| Vitamin E | 1–3 y: 9 IU/d 4–8 y: 10.4 IU/d 9–13 y: 16.4 IU/d >14 y: 22.4 IU/d | Neuropathy | Decreases effect of iron if anemic |
| Calcium | 1–3 y: 700 mg/d 4–8 y: 1,000 mg/d 9–18 y: 1,300 mg/d | Osteomalacia, poor growth | Constipation, heart block, vomiting |
| Iron | 1–3 y: 7 mg/d 4–8 y: 10 mg/d 9–13 y: 8 mg/d >14 y (female): 15 mg/d >14 y (male): 11 mg/d | Anemia, inattention, lethargy | Hemosiderosis |

Resources

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The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate. Original document included as part of *Autism: Caring for Children With Autism Spectrum Disorders: A Resource Toolkit for Clinicians*, 2nd Edition. Copyright © 2013 American Academy of Pediatrics. All Rights Reserved. The American Academy of Pediatrics does not review or endorse any modifications made to this document and in no event shall the AAP be liable for any such changes.

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