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Picky eating or something more? Differentiating ARFID from typical childhood development

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Abstract: *Picky eating is a commonly observed behavior among children that comprises a part of typical development and usually resolves with time. A regular concern for parents, children's picky eating is routinely addressed successfully by pediatric clinicians via anticipatory guidance and basic nutrition education. In some cases, however, a child who is a picky eater may develop a feeding and eating disorder. Avoidant/restrictive food intake disorder (ARFID) is one such disorder that is often marked by an apparent lack of interest in or avoidance of food based on its sensory characteristics or on the individual's fear of possible negative consequences of consumption. ARFID is associated with significant weight loss or failure to achieve expected weight gain; nutritional deficiency; need for supplemental feeding; and/or negative psychosocial effects. The disorder can impact children's overall trajectory of growth and development. Pediatric clinicians must be aware of appropriate monitoring for the milestones of typical development in order to identify any feeding and eating disorder as soon as possible, thereby enabling early intervention and avoiding poor health outcomes. Clinicians must also familiarize themselves with the diagnostic criteria for ARFID, a rare disorder with which many may be unfamiliar.*

Keywords: autism spectrum disorder (ASD), avoidant/restrictive food intake disorder (ARFID), eating, eating disorders, feeding, feeding and eating disorders, mental health, pediatrics

Published by the American Academy of Pediatrics (AAP), the fourth edition of *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* provides pediatric clinicians with recommendations for pediatric health promotion and supervision as well as anticipatory guidance for visits beginning in infancy and continuing throughout the developmental period. *Bright Futures* contains recommendations on nutrition supervision (that is, screening and assessment of feeding and eating behaviors), with the goal of helping infants, children, and adolescents develop positive attitudes toward food and practice healthy eating behaviors to support their growth and development.¹ Pediatric clinicians, including pediatric NPs, family NPs practicing in pediatrics, pediatricians, and other healthcare providers with training and expertise in the care of children, are experts in the growth and development of children and have knowledge of typical development of feeding and eating behaviors.

Pediatric clinicians must also be able to identify and address atypical development in terms of feeding and eating behaviors. This article highlights the disparity of knowledge in atypical feeding and eating behaviors with respect to persistent picky eating and provides concrete tools, guidelines, and resources to support the pediatric clinician in appropriate screening, assessment, management, and proper referrals for avoidant/restrictive food intake disorder (ARFID).

■ Typical development

Development of feeding and eating behaviors begins in infancy and continues to solidify through experience as children age.² Research in feeding and eating behaviors in children has identified four areas that are key to the development of these skills: skills related to feeding and eating (holding and mouthing of food); specific feeding skills (sucking, swallowing, chewing, biting); taste, texture, and food preferences; and appetite regulation. The ages at which infants and toddlers develop these skills is heterogeneous and tied to differences in physical and cognitive development, living environment, and parental behavior around feeding.³ However, recent changes to developmental milestone checklists, including those around feeding and eating behaviors, published by the CDC and AAP in 2022 clarified when to be concerned or initiate further screening.⁴ These checklists identify new feeding-related developmental milestones linked to

cognition (such as “if hungry, opens mouth when she sees breast or bottle” at 4 months of age and “closes lips to show she does not want more food” at 6 months of age) and motor skills (such as “uses fingers to ‘rake’ food toward himself” at 9 months of age, “drinks from a cup without a lid” as the caregiver holds it at 12 months of age, and “uses fingers to feed herself some food” at 15 months of age).⁴ Increased awareness of typical feeding and eating behaviors aids pediatric clinicians in early identification of children who do not meet these feeding-related milestones in order to promote appropriate management.

■ Picky eating

Although a standard, universally accepted definition of picky eating does not exist, the behavior has been described in the literature as consumption of an inadequate variety or quantity of food due to rejection of a substantial quantity of familiar and unfamiliar foods.^{5,6} Picky eating has also been called selective eating or fussy eating. A subset of picky eating, food neophobia is a fear of consuming or unwillingness to consume new or unfamiliar foods. Risks for developing persistent food neophobia in children include anxiety, feelings of disgust toward food, parental pressure to consume foods, parental food neophobia, decreased exposure to novel foods, and sensory hyper-responsivity.^{7,8} Picky eating is considered developmentally typical during the period of time when children are identifying taste preferences, generally through toddlerhood, and food neophobia is also thought of as a natural part of development, arising from an instinct to protect against toxin ingestion.^{9,10} Children’s picky eating—despite its place in typical development—is a common source of concern for parents or guardians, and pediatric clinicians are skilled at addressing this behavior via anticipatory guidance and basic nutrition education. A subset of picky eaters, however, may develop disorders of feeding and eating that require intervention beyond anticipatory guidance, and many clinicians are unaware of this possibility.¹

Several intrinsic and extrinsic factors increase the likelihood of development of picky eating behaviors. Studies have shown that intrinsic factors associated with increased likelihood of picky eating include being the firstborn child, male, or underweight; having certain temperaments (more fussy, rigid); having a history of medical illness or feeding difficulty in infancy; being born prematurely; and having an

increased sensitivity to taste or smell.^{6,11} Extrinsic, or environmental, factors that have been shown to increase the risk of picky eating behavior include authoritarian parenting (or decreased involvement), maternal depressive or anxiety symptoms, maternal history of picky eating, receipt of rewards for eating, or feeling pressured by parents or caregivers to eat.¹¹ Protective factors shown to reduce the incidence of picky eating include having family meals and regular mealtimes; responsive parenting around mealtimes, including awareness of hunger and satiety cues; and being involved in preparing/choosing meals alongside parents or caregivers.^{5,11}

Although picky eating is considered developmentally typical for a time, identification of any preferences that restrict food variety significantly enough to impact

psychiatric disorder.¹⁵ PPE behaviors also put children and adolescents at risk for development of feeding and eating disorders, such as ARFID, which can lead to significant nutritional deficiencies that impact the overall trajectory of growth and development.^{6,16} It is important that pediatric clinicians learn to identify this subset of pediatric patients in order to begin appropriate monitoring and refer them for early support.

■ ARFID

ARFID is a condition that was added to the category of Feeding and Eating Disorders in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*, in 2013, and modified in the *DSM-5, Text Revision (DSM-5-TR)*.^{17,18} In prior versions of the *DSM*, this condition was classified more specifically as a

Feeding Disorder of Infancy or Early Childhood, though the disorder is now understood to affect both children and adults. ARFID is characterized as an eating or feeding disturbance associated with at least one of the following criteria: significant weight



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growth and cognitive development is cause for concern.^{10,12} Research is inconclusive about whether developmentally typical picky eating is associated with health risks during the developmental period in question: Some studies indicate risks from poor dietary variety include deficiencies in vitamins and minerals (such as zinc and iron) and constipation resulting from low fiber intake.⁶ In addition, early feeding challenges have been linked to developmental delays.¹³ Early food preferences may impact future eating behaviors: Picky eaters in childhood tend to remain picky or cautious eaters as they grow.⁶ Picky eating has been associated with family stress, mealtime conflict, and high levels of parental concern and frustration.^{12,14}

Pediatric clinicians may have low awareness about implications of potential etiologies of persistent picky eating (PPE) behaviors, including food neophobia, that do not resolve within the period during which they are developmentally typical (for example, toddlerhood). In one study of picky eating in preschool-age children, those with moderate or severe selective eating were more likely to have psychiatric comorbidities of depression, social anxiety, and generalized anxiety disorder; to experience texture and taste hypersensitivities; to have an oral-motor problem affecting the mechanics of eating; and to have a mother with a history of a

loss (or failure to achieve expected weight gain), significant nutritional deficiency, dependence on enteral feeding or oral nutritional supplements, and/or a marked interference with psychosocial functioning.^{17,18} Additionally, the diagnostic criteria specify that the eating disturbance may not be attributable to a concurrent medical condition and may not be better explained by another psychiatric or behavioral disorder (including anorexia nervosa, bulimia nervosa, or body dysmorphism) or by a lack of available food or culturally sanctioned practice.^{17,18} Unlike anorexia nervosa and bulimia nervosa, ARFID is not connected by any evidence to a fear of weight gain, nor is there any data showing an association between ARFID and a disturbance in the way in which individuals with the disorder experience their body weight or shape. Three subtypes of ARFID have been identified in the literature: avoidant (sensory sensitivity); restrictive (lack of interest in food, low hunger cues, low appetite); and aversive (fear of negative consequences of eating).¹⁹

A myriad of etiologies have been considered for ARFID, including a biological component, a biobehavioral response to past feeding and eating experiences (such as a choking or vomiting episode or food poisoning), and a behavioral adaptive response that develops to prevent physical symptoms related to

eating or consumption of specific foods.¹⁹ One group developing a model to understand the neurobiology of ARFID theorizes that abnormalities in taste perception within avoidant type, homeostatic appetite within restrictive type, and fear responsiveness within aversive type are underlying factors.¹⁹ It is also important to note the association between ARFID and autism spectrum disorder (ASD), as one study estimated that 21% of children with ASD are at high risk for ARFID, based on screening and additional survey questions.²⁰ Therefore, children with ASD who display PPE behaviors should be evaluated for ARFID. The overlap between these conditions largely is connected to sensory hypersensitivities as well as restrictive and repetitive behaviors, which are common in those with PPE, though the complexity of the association between these conditions is outside the scope of this paper.¹⁰

Studies suggest a higher prevalence of ARFID in healthcare settings such as eating disorder treatment centers, and therefore, it is posited that the condition may be more common among the general population than is recognized.¹⁹ This underscores the importance of screening for PPE behaviors associated with an increased risk of ARFID, particularly given the potential health consequences. Although no singular validated screening tool exists for ARFID specifically, the following tools may help to identify behaviors that confer risk for this diagnosis: Eating Disturbances in Youth-Questionnaire (EDY-Q), a self-report tool consisting of four subcategories (food avoidance, selective eating, functional dysphagia, and weight problems); Pica, ARFID, and Rumination Disorder Interview (PARDI), which contains parent and child reports and is aligned with *DSM-5* criteria for ARFID; and the Youth-Nine Item ARFID Screen.^{19,21,22}

Treatment for ARFID requires a multidisciplinary approach with a team of specialty providers; therefore, those with suspected ARFID should be referred to eating disorder-specific clinicians such as dietitians, therapists, and/or psychiatrists.^{6,23} Given the high comorbidity between ARFID and ASD, those diagnosed with ARFID should also be evaluated for ASD, and vice versa.²⁴ Treatment approaches for ARFID include family-based treatment specific to ARFID, parent training, cognitive behavioral therapy, refeeding in hospital and partial hospitalization settings, growth monitoring in the primary care setting, and


pharmacotherapy as indicated.²³⁻²⁶ In general, these interventions aim to promote food flexibility, resolve food aversions through exposure, resolve medical complications such as malnutrition, and treat psychiatric comorbidities. However, a unified treatment specific to all subtypes of ARFID has not been established, and studies of novel approaches are underway.^{25,26}

■ Applications to practice

Increased awareness of eating behaviors that may result in significant nutritional deficiencies impacting growth and development will lead to practice changes that improve the quality of care for children. Although it is developmentally typical for children to demonstrate a pattern of picky eating in early childhood, it is important for pediatric clinicians to identify those cases that are already problematic for health, development, psychosocial well-being, and learning, as well as those that have not remitted and that thereby leave children at increased risk later in life.^{5,27} Increased frequency of growth, development, and nutritional parameter monitoring is appropriate for all children suspected of meeting diagnostic criteria for ARFID.⁵

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Early intervention, including referral to a pediatric dietitian and possibly also to a therapist specializing in eating disorders, is essential to achieve the best possible outcomes among this population. 

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