Do We Have Evidence for Dietary and Nutritional Interventions for Autism Spectrum Disorder?

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Primary care physicians are often in the unique position of not only acting as the first point of contact for families with concerns about children’s development or behavior but also then being able to provide ongoing guidance, support, and care to youth with autism spectrum disorder (ASD) and their families over time. In this capacity, providers increasingly find themselves fielding questions related to the safety and efficacy of a wide variety of interventions.

A growing evidence base supports the benefits of specific behavioral, educational, and, to a limited extent, certain pharmacologic interventions for individuals with ASD. Unfortunately, because of the difficulty in obtaining effective treatments (because of factors such as limited availability, high cost, or extensive waiting lists), the modest benefit of available interventions, the lack of medications that address core symptoms, and the chronic, sometimes significant impairments associated with ASD itself, families often search for more widely available and more powerful ways of helping their children.

It should not be surprising that many, if not a substantial majority of families, not only have questions about but actually pursue and implement a wide variety of complementary and alternative interventions, including dietary and nutritional approaches. For some of these complementary and alternative interventions, there is clear evidence of potential harm in the absence of evidence of benefit (eg, chelation). However, for most purported interventions, there is little research into efficacy or outcomes, which leaves providers and families in the challenging position of struggling to understand the safety and potential benefits of such approaches. In this issue of Pediatrics, Fraguas et al present results on their meta-analysis of nutritional and dietary interventions in an attempt to synthesize evidence of their potential effects. The authors extracted data from 27 studies that varied dramatically in terms of the interventions themselves, quality and risk of bias, the extreme number of clinical measures and outcomes evaluated, and characteristics of the populations studied. In an attempt to address this profound heterogeneity, the authors create categories of interventions as well as clinical domains and symptom categories. The authors suggest, via 37 separate meta-analyses of this aggregated outcome data, that dietary supplementation may play a role in the management of some symptoms, functions, and clinical domains for individuals with ASD. The authors themselves interpret this finding with caution, given the above noted methodological limits and the fact that even via their categorization method interventions revealed small effect sizes relative to the placebo. Ultimately, they rightly conclude that their analysis of the data does not support

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nonspecific dietary interventions as current treatments for ASD.

However, even more caution may be needed when interpreting findings. Significant questions remain regarding the internal validity of the methods used to accomplish the meta-analyses themselves. The limits and quality of the existing studies included within the meta-analyses present a fundamental barrier that even complex, sophisticated data analyses may not overcome. In addition, the categorization performed by the authors ended up combining different types of nutritional and vitamin supplementation into single categories, raising questions regarding what, in fact, comprised the aggregated intervention under study. The authors combined 206 different outcome measures and their varied subscale domains, which were not clearly specified as primary or secondary outcomes in primary studies and were not designed to measure change during the time frame postulated (if at all). These measures and domains may in fact not create valid or understandable categories for the purpose of making clinical judgments or recommendations. Unfortunately, this suggests that there are fundamental questions regarding the defined interventions (which supplements, what dosages, what duration) and outcomes examined in the current work and that any interpretation of such findings as revealing evidence of benefit may not be well aligned with the data. Moreover, the populations studied are so varied and poorly described in primary studies that additional questions remain regarding who might benefit on the basis of factors such as age, level of functioning, or co-occurring medical and/or behavioral conditions.

It is clear that we need more high-quality data for parents and providers regarding a wide variety of interventions for children with ASD, including dietary interventions and nutritional supplementation. In a field in which children present with complex phenotypes and genotypes and yet service access and benefit can be limited, offering families a low-intensity, off-the-shelf treatment may hold tremendous appeal. Although high-quality trials of specific interventions are available, we should be cautious when interpreting preliminary results or risk continuing to support intervention choices, some of which hold potential for harm, on the basis of anecdotal evidence. Ultimately, Fraguas et al best support the assertion that there is little evidence to support the use of nutritional supplements or dietary therapies for children with ASD, which has been the conclusion of other reviews and analyses.

**ABBREVIATION**

ASD: autism spectrum disorder

**REFERENCES**


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