

Enhancing the Health of Children with Autism: Diet & Environmental Modifications That Can Help Kids on the Spectrum Thrive!

Presented by Beth Beisel, RD

Webinar Questions Answered by Beth Beisel, RD

1) Do you think many of the adults high functioning on the spectrum continue to go undiagnosed because they have spent 50+ years finding ways to cope with their spectrum behaviors?

Yes, there are likely many adults with ASD that might be considered “high functioning” that have not been diagnosed. While “high functioning” is not the best term to describe a subset of individuals with ASD, it is commonly used to mean those individuals who can live independently, have not been diagnosed with an intellectual disability or those who have other features that may have allowed their diagnosis to be missed in childhood. When considering how many ASD adults’ diagnoses may have been “missed” in childhood—it is important to remember that autism is a spectrum of disorders, where some individuals can live independently, hold jobs, and participate in society. These are likely the ones who might have been “missed.” But many ASD individuals are more severely impacted and would not be “missed.” In fact, studies have shown that somewhere between 40 and 43% of children with ASD are considered to have moderate to severe autism. <https://www.ncbi.nlm.nih.gov/books/NBK332896/> Moderate to severe autism is less likely to be “missed” and even if a child was not diagnosed with ASD, they would have another diagnosis such as intellectual disability, and studies have already shown that diagnostic swapping cannot account for the increase in ASD prevalence.

Believe it or not, we still don’t have a good study on the prevalence of autism in adults today. The CDC reports that 1 in 54 children has autism. This is approximately 2% (1.85%) of children. If we extrapolate that prevalence rate to adults, there should be approximately 4.7 million adults with autism in the US today-40% of whom would be considered moderate to severe. Also if you consider that 1/3 of children with autism are nonverbal then that would mean that there would be approximately 1.5 million non-verbal adults with autism in the U.S. today (1/3 of the 1.85% prevalence rate). Are there? These numbers just don’t add up.

2) How do high dairy diets negatively impact the healthy gut bacteria?

Casein, the protein found in milk, is a common cause of food intolerance/sensitivity. Removing it can lower the body’s total load of stressors, including chronic inflammation. If the gut is inflamed or overgrown with bacteria, nutrient absorption from food is difficult. Today’s milk comes from cows that are largely grain-fed and treated with antibiotics, which may affect gut bacteria. The pasteurization process wipes out good bacteria, which would have benefitted the microbiome.

3) Would you recommend specific supplementation in addition to dietary modification?

Supplements are often necessary to replace nutrients not consumed or to enhance health.

4) Are you recommending avoiding gluten as a first defense / treatment? Are you referencing that there is an evidence-based connection?

There is a growing body of evidence in the literature supporting gluten free/casein free diets and/or using food sensitivity and intolerance testing as a way to identify inflammatory foods in an individual’s diet. Unfortunately, much of the literature *only* looks at gluten-free/casein-free diets and many studies do not take in to account the fact that these children might also have *other* food intolerances, in addition to

gluten/casein that might contribute to inflammation and associated neuro-immune symptoms. So for instance, if a child is sensitive to gluten, casein, soy and eggs (all of which can contribute to inflammation in the body) but you only remove gluten and casein, the soy and eggs may perpetuate the inflammatory symptoms, so that you don't notice the impact of removing the gluten and casein. Anecdotally, children who do well on individualized therapeutic anti-inflammatory diets often remove gluten, casein, soy, eggs, and occasionally other suspected food triggers. Dietitian colleagues of mine who have been using diet therapeutically with ASD children for decades report that usually a child needs multiple trigger foods removed, and not just gluten and casein. Most children on the spectrum tend to have intolerances to gluten and casein. But any diet used therapeutically needs to be individualized. and symptom improvement depends on other food sensitivities and intolerances that may need to be investigated.

The link below is to a study that "involved a randomized, controlled, single-blind 12-month treatment study of a comprehensive nutritional and dietary intervention. Participants were 67 children and adults with autism spectrum disorder (ASD) ages 3–58 years from Arizona and 50 non-sibling neurotypical controls of similar age and gender. Treatment began with a special vitamin/mineral supplement, and additional treatments were added sequentially, including essential fatty acids, Epsom salt baths, carnitine, digestive enzymes, and a healthy gluten-free, casein-free, soy-free (HGCSF) diet. There was a significant improvement in nonverbal intellectual ability in the treatment group compared to the non-treatment group ($+6.7 \pm 11$ IQ points vs. -0.6 ± 11 IQ points, $p = 0.009$) based on a blinded clinical assessment. Based on semi-blinded assessment, the treatment group, compared to the non-treatment group, had significantly greater improvement in autism symptoms and developmental age. The treatment group had significantly greater increases in EPA, DHA, carnitine, and vitamins A, B2, B5, B6, B12, folic acid, and Coenzyme Q10. The positive results of this study suggest that a comprehensive nutritional and dietary intervention is effective at improving nutritional status, non-verbal IQ, autism symptoms, and other symptoms in most individuals with ASD. Parents reported that the vitamin/mineral supplements, essential fatty acids, and HGCSF diet were the most beneficial." Here is a link to the study:

<https://www.mdpi.com/2072-6643/10/3/369>

<https://nourishinghope.com/autism-symptoms-improve-with-better-diet-and-nutrition-1-year-study-concludes/>

<https://www.youtube.com/watch?v=8LIAbuuX1oM> - excellent 7 minute video of James Adams, PhD, discussing diet and nutrition's effects on alleviating symptoms, including a GF/CF diet.

5) How do you recommend families implement specialized or restricted diets in their children if the child with ASD already struggles to eat a well-balanced diet due to GI issues, picky eating, or texture issues?

Often, underlying sensory challenges need to be addressed first, before the food will be accepted. This is a difficult challenge, and clients should be encouraged to seek help from Feeding Specialists such as OT, PT, and SLP who specialize in working with children on the spectrum.

6) Your recommendations sound like the Feingold diet. Is there a connection?

The Feingold diet is one of the diets recommended by some practitioners for some children. Here is information from one of the slides that wasn't shared during the webinar.

Feingold Diet: Eliminates artificial colors, flavors, synthetic sweeteners, dyes, the preservatives BHA, BHT, TBHQ, and salicylates. Some children with impaired ability to detoxify may benefit from this

diet. <https://www.ncbi.nlm.nih.gov/pubmed/15585776> Most preservatives and dyes come from crude oil (Petroleum). Salicylates occur naturally in some foods like apples, berries, oranges, tomatoes, peppers, and cucumbers. The salicylates are broken down using detoxification pathways, and if these mechanisms are impaired, salicylates may cause irritability and hyperactivity. If following the Feingold principles, all salicylates are removed and then added back one at a time once the child has a favorable response.

7) What are your thoughts on organic soy products?

Organic soy products, like all organic foods, should not contain synthetic chemicals or be genetically modified. However, soy is goitrogen, meaning it depresses the thyroid function. Soy contains anti-nutrients such as phytic acid which blocks mineral absorption, and enzyme inhibitors which block the enzymes needed for protein synthesis. It may impair iodine absorption. Many children are sensitive to it, especially if they react to casein. The chemical structure of soy protein is similar to casein, and a cross sensitivity may exist in some individuals who react to dairy products. The phytoestrogens contained in soy are also a concern:

Several animal studies have demonstrated significant effects of phytoestrogen on sexual development, including altered pubertal timing, impaired estrous cyclicity and ovarian function, and altered function of the HPG axis. Human studies are also examining the possible effects of isoflavone exposure on sexual development in childhood. Especially during infancy, which is a critical period for growth and development, soy formula feeding may exert estrogenic effects on multiple organs including the mammary glands, gonads, and brain. In human studies, it is difficult to absolutely control other factors influencing clinical outcomes, such as diet, genetic factors, or other environmental disruptors. Further prospective human studies are needed that control these factors as much as possible to reveal the potential health effects of soy-based formulas or other sources of phytoestrogens on sexual development in children. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3433562/>

Organic soy, like tamari, can be used as a condiment, if the person consuming it is not sensitive or intolerant. Coconut aminos is another option, especially if one must be on a soy free diet.

8) I do not generally value the nut milks because of the very low protein. I do not consider them as a good substitute generally (especially for children) because of the lack of protein. Soy has always been my go-to because of the better protein. Do you really find coconut to be an adequate substitute?

I encourage using a variety of nut milks. If clients are on a dairy free diet, we try to find other sources of protein and make sure the child is getting enough of it on a daily basis. That's not usually too difficult.

9) Is the recommendation for soy milk transfer to tofu/ tempeh?

Yes, but tempeh is fermented, so it's a healthier choice, but it should be provided in small amounts, and served infrequently, and only if the child is not allergic or sensitive to soy.

10) What are your thoughts on pea protein milks?

Pea protein milk saved one of my students who was allergic to coconut, tree nuts, and dairy. If it can be purchased organically, it is a better option, since peas are desiccated with glyphosate. Pea protein contains all nine essential amino acids that the body cannot create and must get from food.

11) How do you adapt your recommendations to low income families?

12) Many of the neurological and immunological symptoms you describe are very similar in Lyme disease patients. Have you seen any similarities in your practice? Any correlation of ASD to Lyme Disease?

Yes. People who have lyme co-infections (e.g. borrelia, babesia, erlichia, etc.) who also have neuro-immune symptoms and individuals with ASD often share common underlying physiological imbalances including, compromised immune function, perturbations of the gut microbiota, decreased diversity of the gut microbiota, cellular toxicity, gut and brain permeability (e.g. intestinal hyper-permeability, breaches to the blood-brain barrier), autoimmune antibodies and more. For more information, you can research the following:

Dr. Lee Cowden: <https://www.arizonaadvancedmedicine.com/articles/2013/june/the-link-between-autism-and-lyme-disease/>

Dr. Tom Moorecroft: <https://drroseann.com/how-does-lyme-affect-the-brain/>
<https://www.originsofhealth.com/beyond-borrelia/>

<https://aspire.care/>

13) Do you have specific probiotic strain or brand recommendations?

MegaSporeBiotic, total gut restoration, <https://microbiomelabs.com/>

14) Does organic oat cereal have problematic chemicals and should be avoided?

I discourage cereal— which is sugary and starchy - and encourage more nutrient dense breakfasts. However, organic oats are a much better choice than conventional, which are desiccated with chemicals. Oats should also be specified gluten free. And if they are “sprouted,” even better.

15) A lot of autism clients are so structured with foods, how can you adjust and still get them to eat?

As far as suggestions for getting kids to eat nutrient rich foods with varying textures, please watch the webinar again, and look at the links, especially the link to a ppt on sensory issues, (slide 10). Often, it is important to refer your client to a feeding specialist, such as OT, PT, and SLP, who *specializes* in treating kids on the spectrum.

16) Would you recommend a vitamin for children with autism, if so what brand of vitamins would you recommend? What brand of children's multivitamins do you recommend? What brand of NAC do you like?

There isn't one particular brand or type of vitamin that I recommend. It depends on individual needs. As I mentioned in the webinar, there are many supplements that can benefit children with autism. Data supporting supplementation of micronutrients is strongest for carnitine, CO-Q10, Mg, B6, B12, D3, and essential fatty acids. I do suggest staying away from vitamins that have fillers, GMOs, pesticides, common allergens, or other artificial ingredients. You should recommend supplements from reputable companies that list what the supplements do and *do not* contain.

Individuals with ASD have profound nutritional deficiencies which can have deleterious effects on overall health and ASD symptoms.

Link: [Supplementation can help increase several biomarkers and vitamin status.](#)

17) What is the benefit of collagen?

Collagen can help to improve intestinal permeability by sealing the gut. This can help to prevent food particles, toxins, and infections from passing through the intestinal wall, into the bloodstream, and causing inflammation. Over time, chronic inflammation may lead to autoimmunity. The amino acids in collagen support cellular health and tissue growth.

Collagen contains the amino acid glycine, and glycine can support the liver during its detoxification process. Glycine may also support calm and restful sleep.

<https://www.ncbi.nlm.nih.gov/pubmed/9694963>

18) Are you familiar with the CHO free diet? Has that been tried with autism?

The “Specific Carbohydrate Diet” may work for some children. This diet eliminates microbes and other foods that feed the microbes. Complex carbohydrates sit in the intestines and breed yeast and bacteria. The Specific Carbohydrate diet is for those clients who follow the GF/CF/yeast free diet but still have gut problems. Client must avoid complex carbs like grains, processed meat, soy products, cow’s milk, sugars and canned fruits and vegetables. It is a progressive diet that starts out with a plan for about two weeks consisting of proteins and a limited selection of carbohydrates.

It allows most fresh fruits and vegetables, (as long as they are peeled, seeded, and cooked) beans, unprocessed meats, fish and poultry, natural cheeses, olive and coconut oil, and honey. Fermented goat’s milk yogurt is allowed on this diet and when mixed with honey is well tolerated, but must be started with a small amount and gradually increased.

19) Do you have any additional/outside reading or educational materials for parents to use when trying to increase their child’s acceptance of new foods or dealing with food sensitivity?

Many of the books I have referenced at the end of the webinar will be helpful for parents trying to increase their child’s acceptance of new foods and for those trying to deal with food sensitivity.

20) What about the amount of saturated fat in the coconut oil?

See below, # 23.

21) How do you spell those soups?

TomKha soup <https://40aprons.com/tom-kha-soup-whole30/>
Moqueca. https://www.simplyrecipes.com/recipes/moqueca_brazilian_fish_stew/

22) If you do not see benefits/changes from the Gluten Free/Casein Free diet after longer than six months, even though there were urine peptides for these shown, how do you respond?

They should have a food sensitivity test. Often, a food intolerance or multiple intolerances can cause inflammation. There are many inflammatory foods that can exacerbate sensitivity. This is very

individualized. So a food sensitivity test may identify other sensitivities that are just as important as gluten and casein.

23) The American college of cardiologists definitively said that coconut oils/products are not recommended - how to manage that? And many of the nutrient rich foods to help prevent deficiencies in Autistic children are literally on the top of lists of foods they will not eat for varying textural reasons. Any suggestions?

My reason for recommending coconut oil is based on the benefits – the fact that it can inactivate pathogens. (Bacteria, virus' and fungus.) And it can prevent the overgrowth of candida, which is common in autism.

<http://www.ncbi.nlm.nih.gov/pubmed/17651080>

<http://www.ncbi.nlm.nih.gov/pubmed/24328700>

It is also one of the few oils that is safe to cook with, as it tolerates high heat, and therefore won't produce free radicals. Natural fats such as coconut oil, are gentle and nourishing, and promote absorption of fat soluble vitamins. Since those with autism are prone to oxidative damage, coconut oil is beneficial because it can improve antioxidant activity.

<http://www.ncbi.nlm.nih.gov/pubmed/23892389>

<http://www.autismspeaks.org/science/science-news/brain-inflammation-oxidative-damage-autism>

<http://www.ncbi.nlm.nih.gov/pubmed/23840462>

Here are some links to studies/articles disputing the assertion that coconut oil and saturated fat cause heart disease:

<https://www.ncbi.nlm.nih.gov/pubmed/26545671>

<https://theskepticalcardiologist.com/2017/06/18/beware-of-more-misinformation-from-the-american-heart-association-on-coconut-oil-and-saturated-fats/>

<https://www.faim.org/why-coconut-oil-really-is-healthy-despite-the-american-heart-associations-views>

<https://www.drperlmutter.com/is-coconut-oil-still-healthy-the-truth-behind-the-recent-headlines/>

<https://www.sciencedirect.com/science/article/abs/pii/S0899900711003145>

<https://www.ncbi.nlm.nih.gov/pubmed/24723079>

<https://www.ncbi.nlm.nih.gov/pubmed/20071648>

<https://bjsm.bmj.com/content/51/15/1111>

<https://www.latimes.com/opinion/op-ed/la-oe-teicholz-saturated-fat-wont-kill-you-20170723-story.html>

<https://www.integrativepractitioner.com/practice-management/news/can-coconut-oil-kill>

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24) Is there a way to test for inflammation in the body?

Standard tests include C-reactive protein, and homocysteine levels. Other tests are usually run by integrative health professionals which include immune markers (immune markers are sometimes secondary markers for inflammation.) Vitamin D, iron panel with ferritin, total IgG.

In stool, look for IgA. A good stool test has other markers of inflammation as well.

<https://www.doctorsdata.com/comprehensive-stool-analysis-w-parasitology-x3/>

25) Do you find that restricting casein and gluten products from an individual with autism causes more behaviors especially when their housemates may be consuming other food?

Yes. It happens all the time when a child in my school has to go on a restricted diet. It is heartbreaking. However, we also find that behaviors increase when the student inadvertently gets something he/she was supposed to be avoiding.

26) Do you have any recommendations for dairy-free/probiotic-rich yogurts?

I like Anita's coconut milk yogurt. <http://anitas.com/> The unsweetened version is delicious. It is also simple to make coconut yogurt. Here is a recipe: <https://minimalistbaker.com/easy-2-ingredient-coconut-yogurt/>

You can also use the homemade yogurt to make chia pudding, (just substitute the yogurt for the nut milk in the chia pudding recipe.) Chia seeds make it even more nutritious! And by adding maple syrup and raw cacao or cocoa powder, it becomes chocolate coconut chia pudding.

<https://feelgoodfoodie.net/recipe/3-ingredient-chia-pudding/>

<https://orgain.com/blogs/news/chocolate-cashew-chia-pudding-recipe>

27) What are your thoughts on the GAPS diet?

The Guts and Psychology Syndrome diet was developed by Natasha Campbell-McBride, M.D. She developed it after working with hundreds of adults and children with neurological and psychological conditions including autism. She found that psychiatric conditions in children coincide with physical ailments such as digestive disorders. She pioneered the use of probiotics to heal the gut. This is a good diet to try for those with chronic digestive symptoms such as diarrhea, flatulence, stomach pains, reflux, and leaky gut syndrome, food allergies, food intolerances. If there is gut dysbiosis, food cannot be properly digested and causes these symptoms we are trying to eradicate. Here is a link to purchase her book: <https://www.amazon.com/Psychology-Syndrome-D-D-D-H-D-Schizophrenia/dp/0954852028>

28) I am torn on the GMO issue. Are there any good resources to read more information on this that you recommend?

GMOFREEUSA.org
GMWatch.org

This article on autism and lyme disease discusses GMOs and their relationship to autism: <https://www.arizonaadvancedmedicine.com/articles/2013/june/the-link-between-autism-and-lyme-disease/>

29) How do you know if something is truly organic? If the supply chain can cross over with non-organic?

Right now, the USDA Organic label is the best option we have. When I gave talks on GMOs, sometimes organic farmers would come, and they would stress how stringent the USDA organic label surveyors were. It gave me faith in the label.

30) Do you have any books or handouts to recommend for references?

Please see my references page on the power point. You can find excellent resources on nourishinghope.com and epidemicanswers.org.

31) Is there a bread you can recommend that does not use the processing you described?

Food for life – makes Gluten Free sprouted breads. There are many recipes on the internet for sourdoughs that are GF. I personally love this recipe: <https://www.dietdoctor.com/recipes/the-keto-bread>
It is a simple and quick way to make rolls – no kneading or raising. It contains psyllium which is high in fiber, but the psyllium must be organic since it is one of those crops desiccated with RoundUp and/or other harmful chemicals.