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Julie Matthews is a Certified Nutrition Consultant, author, lecturer and DAN! Practitioner for families on the biomedical model for treating autism and ADHD. She has been studying the biochemistry of autism for seven years. Her book, *Nourishing Hope*, is a comprehensive guide to nutrition and dietary intervention for autism that informs parents and clinicians of the scientific rationale for autism diets and presents a holistic approach to applying this healing strategy. She embraces many of the dietary philosophies of the Weston A Price Foundation nutritional model.

Julie presents her work at the Defeat Autism Now! (DAN!) and Autism One national conferences, teaches Traditional Healing Foods cooking classes, hosts a health oriented radio show in San Francisco and another on Autism One Radio and has a private nutrition practice in San Francisco where she consults with clients from around the world. Her website: www.NourishingHope.com contains free information, including links to videos of her presentations and interviews with experts.

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Diet for Autism



Why and How it Helps

Diet is a powerful tool. The choices we make about what to eat and what to feed our children have profound impact on health and present a great opportunity to support healing and recovery from autism.

Some parents hesitate to try autism diets (or physicians are slow to suggest them) because they don't know if (why / how) diet works. One recent news report about autism diets suggested uncertainty about their efficacy, saying it was uncertain whether diet helps the symptoms of autism, or whether it helps the gut (which in turn affects a relief in autistic symptoms). The insinuation was that since they don't *how* it's helping - the 'autism' or 'the gut' - they don't know *if* it's working at all. This is foolhardy: don't limit your potential because some 'experts' fail to realise why or how diet works!

As a Certified Nutrition Consultant with experience supporting hundreds of families with children on the autism spectrum, I will explain to you WHY and HOW diet works. This will remove any mystery about diet and get you on the road to recovery.

The common physical symptoms of children with autism include diarrhoea, constipation, bloating and GI pain, frequent infections, sleeping challenges and inflammation/pain. For many, nutrient deficiencies, imbalanced biochemistry and digestive problems are at the core

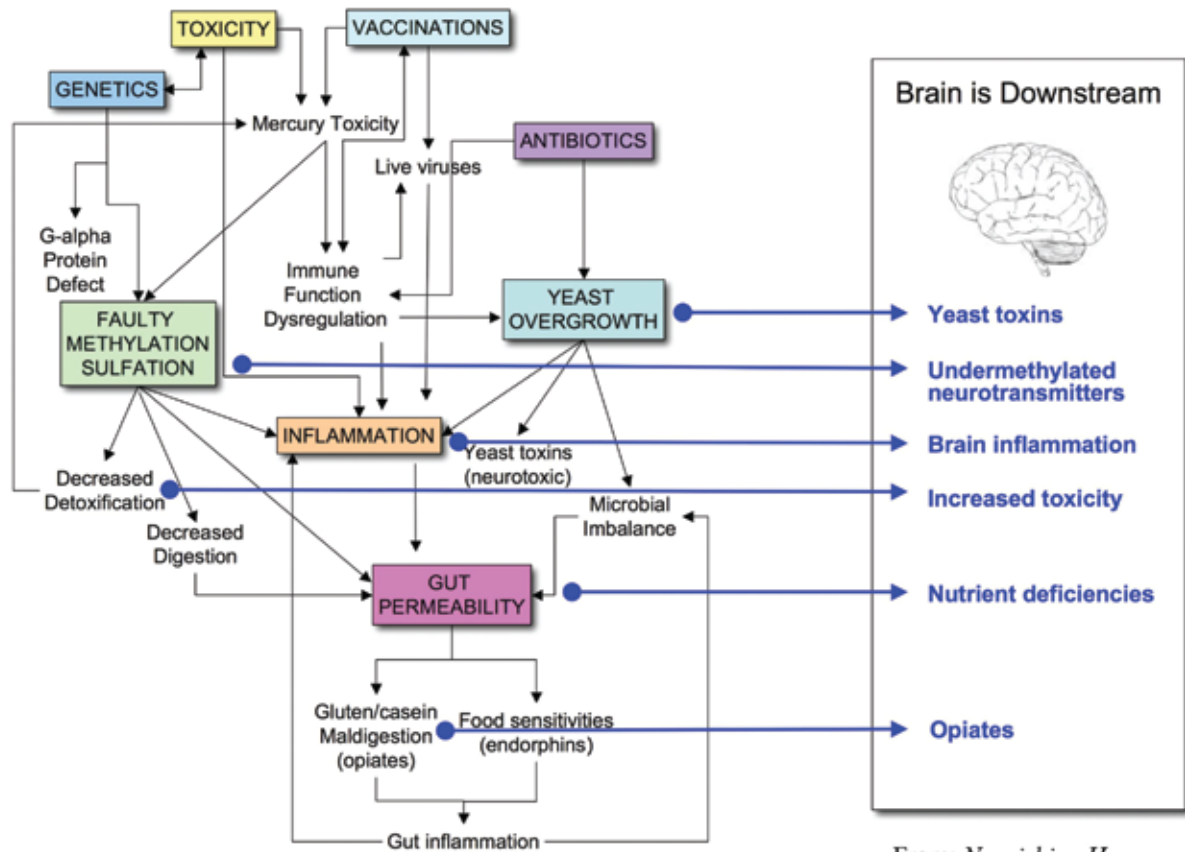
of these symptoms. These weaknesses in physiological functioning can be directly tied to biochemical processes that are affected by diet - i.e. the absence of requisite nutrients and / or the presence of offending substances. Altering food choices affects these processes and helps improve symptoms.

WHY DIET HELPS: A WHOLE BODY DISORDER

Historically, autism was considered a 'mysterious' brain disorder, implying that it begins and ends in the brain. Through the array of common physical symptoms observed and the breakthrough work of the Autism Research Institute, a more appropriate 'whole body disorder' (the brain is affected by the biochemistry generated in the body) perspective of autism has emerged. Martha Herbert MD PhD, who was one of the first to describe autism this way, refers to the brain as 'downstream' from the body's functioning.

Referring to the chart, Whole Body Disorder, you can see the complex set of factors that influence autism (on the right): toxins, environmental factors, digestive health, and inflammation. The right side indicates the effects they can have on the brain. Here's how imbalanced biochemistry affects the brain and the symptoms of autism:

Whole Body Disorder



■ Yeast. When there is yeast overgrowth in the body, toxins enter the bloodstream and make their way to the brain where they can cause symptoms ranging from 'spaciness', foggy thinking and drunken behaviour.

■ When the biochemistry of methylation is not working properly, neurotransmitters cannot be methylated (and therefore are not 'activated') as they need to be, increasing the likelihood of anxiety, depression, ADHD, and sleeping issues.

■ Inflammation in the gut and brain can be caused by toxins, food sensitivities or bad bacteria or yeast in the gut. This can cause pain that affects behaviour: self-injurious behaviour, leaning over furniture, eye poking and head banging are all common signs.

■ When detoxification is poor (common with autism), toxins from food and the environment can build up and act like drugs on the brain, (causing irritability, aggression, brain / cellular damage) as with salicylates, artificial ingredients, MSG, mercury and aluminium.

■ When digestion is poor and the gut is too permeable (a 'leaky gut'), the nutrients that are supposed to get through cannot absorb properly. This leads to nutrient deficiencies, which can affect all cellular function including poor brain function.

■ Opiates can be created from inadequate breakdown of gluten, casein, and soy leading to symptoms of opiate excess: foggy thinking, insensitivity to pain, opiate addiction and withdrawal and irritability.

According to Hippocrates, "All disease begins in the gut", and this certainly proves true with autism. As you can see, digestion and gut health affect the brain and autism's physical symptoms. Food interacts with the gut constantly and can have a profound impact on these symptoms. Removing the offending foods that contribute to inflammation, trigger immune response (food sensitivities), and increase toxicity is crucial and adding foods that support a healthy ecosystem and provide needed nutrients is essential.

Understanding that gut and brain are connected helps explain WHY autism and overall health are improved through a diet that supports digestion/GI health and biochemistry. GI health and biochemistry are partners. Biochemistry involves cellular processes that require energy, nutrients



and enzymes to function; proper digestion is required to obtain and absorb the nutrients needed for these processes. If there are insufficient nutrients, an inability to digest and absorb nutrients, a limitation on a particular nutrient, or an inability to convert a nutrient to the active and usable form, biochemistry can go awry. Diet is crucial.

By supporting digestion and biochemistry through diet and nutrition, we can improve the symptoms of autism. Here are several examples of how food and nutrients can improve the health of the gut, the whole body's biochemistry and positively affect autism.

LEAKY GUT AND GUT INFLAMMATION.

Improving digestion, reducing inflammation and healing the gut are important steps in overall health and healing. Behaviour, language and skin rashes are a few of the areas that improve.

■ **Remove foods that inflame the gut.** Gluten, casein, soy, corn and eggs are common offenders. The exact foods to remove will depend on the individual; however gluten and casein-free diets are among the most popular and successful. Sugar and refined oils also contribute to inflammation.

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■ **Add foods that heal the gut.** Foods such as ginger and turmeric reduce inflammation. Fish oil, flax seeds and walnuts contain Omega 3s that have anti-inflammatory properties. Fermented foods help heal the gut.

■ **Add foods that supply beneficial bacteria.** Fermented foods such as non-dairy yogurt, young coconut kefir and raw sauerkraut help supply good bacteria that reduce inflammation and help create an environment that is healing.

■ **Add foods that increase beneficial bacteria levels.** Prebiotics are foods, often high in soluble fibre, that support good bacteria and increase levels in the gut. These foods include: asparagus, bananas, beans / legumes, chicory root, garlic, honey, kefir / yogurt, leeks, onions and peas. Butyric acid is a short chain fatty acid (often produced by good bacteria from the consumption of soluble fibre), found in butter fat and ghee that helps nourish the intestinal lining.

NUTRIENT DEFICIENCIES

Nutrient deficiencies are common among children with autism. Poor quality and limited diets add to this problem. Specific nutrients are required for complex biochemical processes and nutrients can only be digested and absorbed through food and supplementation when the GI tract is functioning well. In addition to boosting digestion, it is important to get a wide variety of nutrients through foods.

■ Increase the quality and digestibility of food. Increase food quality and the amount of nutrient-dense foods such as vegetables in the diet. For ideas on getting greater variety, see the list of nutrient-dense foods. Soaking and fermenting grains increases digestibility.

■ **Sneak in vegetables for picky eaters.** Pureeing vegetables and adding them to meatballs, smoothies, pancakes, muffins and sauces is a great way to disguise them. Try juicing to get concentrated nutrients that are easy to digest - making ice pops from juices or smoothies is a good way to serve these nutrient dense vegetables and fruits to kids.

■ **Add supplementation.** It can be difficult to get the requisite therapeutic levels of nutrients through food. Adding vitamins, minerals, fatty acids or amino acids can be helpful in boosting needed nutrients.

YEAST OVERGROWTH

Yeast is a harmful organism that can affect energy level, clarity of thought and intestinal health. Yeast overgrowth is often triggered by antibiotic use. Yeast overgrowth creates gut inflammation and decreases gut function. The following dietary practices help rid the body of yeast overgrowth.

■ **Remove sugars.** Sugars feed yeast, contributing to yeast overgrowth. Reduce the amount of cookies, muffins and other sugar-rich treats. Even sugar in fruit, especially dried fruit and fruit juice can be a problem for some.

■ **Remove yeast-containing foods.** Bread, grapes, plums, aged meats and cheeses and vinegars can feed yeast and should be removed.

■ Remove starches. Some people choose diets such as the Specific Carbohydrate Diet (SCD) that eliminate starches that can feed yeast such as potatoes, corn and gluten-free grains.

■ **Add probiotic-rich foods.** Fermented foods contain live beneficial

bacteria that crowd out yeast and support a healthy internal environment.

TOXICITY AND POOR

DETOXIFICATION When detoxification is not working optimally or is overburdened by pre-existing toxins, avoiding additional toxins from food is important. These chemicals can cross the blood brain barrier and affect the brain, creating hyperactivity, aggression, irritability and self-injurious behaviour.

■ **Avoid food additives.** Artificial ingredients are very difficult for the body to process, avoiding artificial colours, flavours, preservatives and MSG is crucial.

■ **Avoid toxins in food supply and meal preparation.** Prevent the introduction of further toxins into the body by avoiding aluminium and plastic in cooking, by avoiding aluminium pans, aluminium foil, storing and microwaving in plastic and canned foods.

■ **Eat organic.** Eat high quality foods that are free of pesticides and hormones by eating organic produce, grass-fed meat and pastured eggs and chickens. Non-organic chicken can contain arsenic. Eating organic avoids consumption of pesticides, GMOs (genetically modified organisms) and hormones and provides higher nutrient content.

■ **Add foods that support the liver.** Antioxidants support liver detoxification: beta carotene, Vitamins A, C & E, B vitamins including folic acid and selenium (see list of nutrient dense foods). Sulphur rich foods are especially beneficial in liver detoxification processes such as broccoli, cabbage, cauliflower, collard greens, kale and Brussels sprouts. The spices cinnamon and turmeric support the liver. Glutathione is a powerful antioxidant and adequate levels are supported by the consumption of asparagus, watermelon, broccoli, herb milk thistle, papayas and avocados.

POOR METHYLATION AND SULFATION BIOCHEMISTRY

Methylation, transsulfuration and sulfation are one set of biochemical pathways that do not function optimally for many children with autism. These

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pathways can be supported by avoiding certain substances and supplying needed nutrients.

■ **Remove phenolic foods.** When the biochemical processes of methylation, transsulfuration or sulfation are not functioning well, limiting phenols and salicylates is important. Artificial phenols occur in petroleum-derived additives such as all artificial colours, flavours, and preservatives. Even naturally occurring phenols, called salicylates, present in (organic and conventional) foods such as grapes, raisins, apples, berries, almonds, honey, and more can create a variety of behavioural, emotional and physical symptoms.

■ **Improve methylation and sulfation through supplementation.** Supplementing with nutrients that can support these biochemical pathways is important. Methyl-donors and methylation / transsulfuration support such as: Vitamin B12, folate, B6, DMG/TMG, magnesium and zinc are important supplements to consider. Determining which supplements are needed and adding them, can be very helpful to

the biochemistry and reducing autism symptoms.

I hope that parents and practitioners can see the possibilities for positive influence and realise that diet can help autism. Diet is a powerful personal tool; it has few downsides and is accessible to everyone. With diet, parents have great control over choices that can have immediate impact.

Wherever you are, begin there: remove artificial ingredients, reduce sugar, avoid gluten and casein, add fermented foods or probiotics, or include more vegetables and lessen starches. Start wherever it's easiest or enlist the help of a nutrition consultant or practitioner. A third party that specialises in nutrition can help you feel confident to begin and provide helpful food suggestions. A professional is highly encouraged - they can help determine the best dietary principles to start with, help get you out of a food rut and ensure your child is getting adequate nutrition. Whether you reach out to a nutrition consultant or start on your own, getting good nutrition, avoiding problematic ingredients and supporting good digestion are practices that will benefit everyone in the family.

NUTRIENT-DENSE FOODS

- **Beta carotene and Vitamin A:** Carrots, sweet potatoes, apricots, winter squash, pumpkin, cantaloupe, mango, kale, collard greens, spinach, broccoli, cod liver oil, butter/ghee, liver and egg yolk.
- **Vitamin C:** Sweet potato, winter squash, broccoli and leafy greens.
- **Vitamin B6:** Sunflower seeds, pistachios, walnuts, lentils, grains and beans, rice bran and blackstrap molasses.
- **Vitamin B12:** Liver, eggs, fish, lamb and beef.
- **Folic acid:** Beans, rice germ, liver, asparagus, broccoli and bananas.
- **Omega 3:** Fish/cod liver oil, beef, lamb, egg yolk, butter/ghee, flax seeds, hemp seeds, walnuts and algae-based DHA (neuromins supplement).
- **Iron:** Blackstrap molasses, liver, pumpkin seeds and duck egg.
- **Zinc:** Pumpkin seeds, nuts, legumes, ginger and oats.
- **Magnesium:** Sweet potato, winter squash, broccoli, leafy greens, seaweed, nettles, whole grains, nuts and legumes.
- **Calcium:** Broccoli, leafy greens, winter squash, seaweed, nettles and nuts.

