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MOLECULES & HEALTH

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Autism, Antioxidants, and Nutritional Support



In the year 2000, one out of every 150 children born in the United States was eventually diagnosed with an autism-spectrum disorder (ASD). Would you believe in that as little as 10 years, that diagnosis rate more than doubled with 1 out of 68 births in 2010 receiving the same diagnosis? (CDC, 2015) One reason why this increase is startling is because despite the amount of research

and attention on the subject, we still know little about the actual cause of ASD or the best approaches for treatment and prevention.¹

What we do know is that the cause of ASD is complex and likely involves a combination of genetics, oxidative stress, nutrition, metabolic processes, and environmental factors like exposure to toxins.²⁻⁴ The good news is that every day we learn more about ASD, allowing us to develop better strategies to assist in prevention and treatment.

A major focus of researchers and clinicians has been on the role of nutrition in the development, progression, and severity of ASD. Key nutrients have been identified that play a definite role in ASD, and now we are learning to use those nutrients



to improve the lives of people with these conditions. In fact, a survey of physicians revealed that over 49% recommend vitamin and mineral supplementation in children with autism, making it one of the most widely recommended interventions for autism.⁴ Some of the nutritional interventions with documented benefits include:

Antioxidants

Biological indicators of oxidative stress tend to be elevated in people with ASD. This occurrence is attributed largely to altered biochemical processes and environmental exposures to toxins like heavy metals and pesticides. Regardless of the



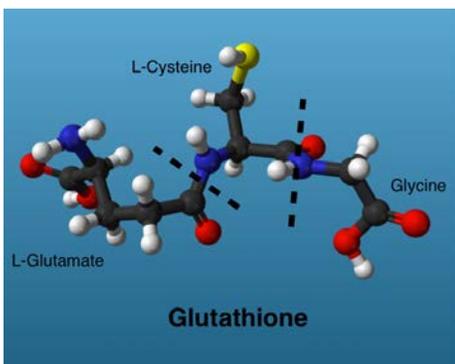
source of increased oxidative stress, there is continuously increasing evidence that supports the role of antioxidants in the treatment of ASD.^{1,5-7}

For example, in a double-blind randomized placebo-controlled trial, a potent antioxidant found in broccoli, called sulforaphane, had positive effects in the treatment of moderate to severe ASD.⁸ They showed statistically significant improvements in sociability and behavior within 4 weeks of beginning daily supplementation with sulforaphane. Effects were noticeable enough that 75% of the parents and caregivers of the study participants were able to accurately predict if their child was receiving the placebo or the sulforaphane.⁸ The effect was reversible and participants reverted to previous behaviors after stopping the supplementation of sulforaphane.

Sulforaphane is a key ingredient found in Small Molecule Technologies ImmuneBoost™, Brain Health, and Joint Health.

Glutathione and Manganese Superoxide Dismutase (MnSOD)

Two of the most important antioxidants produced naturally



by your body include glutathione and MnSOD. Studies have shown that people with autism have slight alterations in these systems that prevent their body from effectively producing and recycling these vital antioxidants. A result of this is that they are less capable of dealing with oxidative stress throughout their body.⁵

Glutathione cannot be absorbed from dietary sources, but you can increase levels by supplementing your diet with an amino acid called N-acetyl-l-cysteine (NAC).^{9,10} Vitamin B12 has also been shown to play an important role in the glutathione redox cycle and studies have indicated improvements in ASD in children following supplementation with methylcobalamin, a form of B12 found in Small Molecule Technologies Brain Health, Energy Support, and Mood Support.^{11,12} NAC is one of the components of the patented Olivamine 10 Max formula found in all Small Molecule Technologies supplements that has been scientifically proven to increase the levels of MnSOD.¹³

Nutritional Deficiencies

People with ASD tend to have more gastrointestinal (GI) problems such as chronic inflammation, diarrhea, and/or constipation. These GI problems contribute to poor absorption or altered metabolism of nutrients like vitamin B12, vitamin B6, magnesium, vitamin D, calcium, vitamin A, vitamin C, and zinc.¹ People with ASD can also have particular eating habits and dietary preferences that further contribute to nutritional imbalances. Researchers found that between 79-89% of children with ASD below the age of 12 were deficient in vitamin D, and there was an increasing prevalence of inadequate dietary intake of vitamins A, C, E, B12, magnesium, zinc, and folate as children with ASD got older.¹⁴ The addition of Small Molecule Technologies Multivitamin and D3+Magnesium may help to correct some of the associated nutritional deficiencies that are associated with ASD and some of the associated health problems.¹⁵



Beneficial Bacteria

It is thought that a large part of the GI problems experienced by people with ASD are caused by disrupted or imbalanced intestinal bacteria (“microflora”).¹⁶ In addition to GI health, intestinal microflora are known to play a role in many disease states, having effects on several organ systems including the brain and immune system.^{17,18} Studies have identified that people with ASD do have distinct variations in their intestinal microflora, and correcting those variations can improve symptoms.¹⁹ Supplementing with Prebiotic Fiber can help to restore healthy intestinal bac-

teria (“probiotics”), improve GI symptoms and absorption of nutrients.³ Small Molecule Technologies Prebiotic Fiber can be added to any food or drink that can be stirred, hot or cold, without altering the fla-

vor or texture, making it easy to incorporate into the diet of even your pickiest eaters.

Research has shown that safe, easy-to-take, and affordable nutrients like those found in the Small Molecule Technologies Supplements can play an important role in improving the lives of your loved ones - with or without ASD. Supplements are also an excellent option for picky eaters that have limited dietary intake of certain nutrients because of selective food choices.



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