



Biomedical Clinical Study Overview

Syndion[®] Nutritional Supplement



About Yasoo Health[®]

Yasoo Health is a science-based nutraceutical company with a pipeline of condition-specific products that are supported by clinical trials. Yasoo Health develops innovative, research based products consisting of essential nutrients and natural compounds.

Study Design

- Measured nutritional status of children with autism spectrum disorders (ASD) vs. control group. Study included 55 children with ASD and 45 neurotypical children, ages 5-16 yrs, 90% male. Neither group used a vitamin/mineral supplement in the 2 months prior to the study.
- Randomized, double-blind, placebo-controlled treatment for 12 weeks. Dosage slowly raised over first 3 weeks.
- Biochemical markers were assessed at baseline and at the end of the study.

Key Findings

- Improves neurotransmitter levels*
- Normalizes plasma ATP levels*
- Normalizes glutathione status*
- Improves methylation pathways*
- Improves transsulfuration pathways*
- Improves detoxification pathways*
- Reduces oxidative stress*
- Safely and effectively increases levels of fat-soluble nutrients and antioxidants*

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Reference 1: Data on file, Yasoo Health[®] Inc.



Baseline Nutritional Assessment:

The ASD group showed low levels of many nutrients and impaired biochemical pathways at baseline.

Clinical Study Results:

Improved platelet neurotransmitter levels

The supplement improved neurotransmitter levels of acetylcholine, serotonin, epinephrine, norepinephrine, and dopamine.

Improved Methylation

S-adenosylmethionine (SAM), the primary methyl donor in the body, normalized with treatment.

Increased levels of S-adenosylhomocysteine can inhibit SAM dependent methyltransferase activity and reduce glutathione. The supplement decreased levels in the ASD group.

Improved Transsulfuration Pathways

The supplement increased sulfate and free sulfate — which are important for detoxification of metals, maintaining the lining of the gut, neurodevelopment, and many other functions.

Supporting Clinical Studies

Pilot (2007) and Clinical Studies (2009) were conducted by James B. Adams, Ph.D., researcher at Arizona State University. The abstracts are available upon request, the papers are in the submission process.

Supporting Clinical Studies addressing the absorption technology

Papas KA, Sontag MK, Pardee C, Sokol RJ, Sagel SD, Accurso FJ, and Wagener JS. **A pilot study on the safety and efficacy of a novel antioxidant rich formulation in patients with cystic fibrosis.** Journal of Cystic Fibrosis 2008 7:60-67

Papas K, Kalbfleisch J, Mohon R. **Bioavailability of a novel, water-soluble vitamin E formulation in malabsorbing patients.** Dig Dis Sci. 2007 Feb;52(2):347-52.

Normalized Glutathione Levels

The supplement normalized glutathione which is important in reducing oxidative stress and detoxification. It also decreased levels of oxidized glutathione, an indicator of oxidative stress.

Improved levels of vitamins, minerals, and nutrients

The supplement was well-absorbed, and increased levels of many vitamins including B1, B3, B5, B6, B12, folic acid, biotin, C, and E and many minerals including calcium, magnesium (whole blood), iodine, selenium (whole blood), sulfate, molybdenum, manganese, and lithium.

Normalized plasma ATP

Niacin → NADH/NADPH → ATP

Low NADH/NADPH, indicative of impaired amino acid metabolism, and low ATP, indicative of low energy levels for the brain and body, were found pre-study. The supplement showed good improvements in both and normalized markers of mitochondrial function.

Reduced Oxidative Stress

NO tyrosine (nitrotyrosine), an indicator of oxidative stress and inflammation, was reduced by the supplement.