

Position Statement on Vitamin and Nutritional Therapy In Children with Down Syndrome

To date, no vitamin or mineral nutritional supplement is known that will significantly alter the intelligence, physical characteristics or behavioral features of Down syndrome and, thus, none are supported by the National Down Syndrome Congress.

- Any substance that is claimed to significantly affect intelligence must be carefully evaluated with control individuals utilized and multiple variables measured such as thyroid function, other nutritional substances being taken, stimulation and general state of health.
- Certain vitamin supplements taken in high doses are potentially toxic and can alter liver function. Vitamin A in excess can cause neurologic and dermatologic abnormalities. Vitamin C in excess can cause urinary tract irritation and frequency. Long-term effects of megavitamin therapy are not known.
- Metabolism of cells in persons with Down syndrome may indeed be altered but, to-date, no specific vitamin or mineral regimen has been found in any way to ameliorate the features of Down syndrome as noted before.
- Claims made by certain programs that particular vitamins “relieve,” “improve,” “promote,” “delay” or “aid” aspects of Down syndrome are not scientifically proven in persons with Down syndrome.

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Initial studies on vitamin therapy in people with Down syndrome began in 1959 with the development of the “U” series of vitamins by Dr. Henry Turkel. Over the years, many more studies have been done. Dr. Len Leshin, an American pediatrician in an editorial updated November 14th, 1997, reviewed numerous studies from 1978 to 1991 on vitamin supplements. No clear scientific evidence of effectiveness has come forward from these studies. Dr. Mary Coleman reviewed 9 studies conducted between 1964 and 1989 that indicated the same lack of scientific evidence of effectiveness. “No study that adhered to even minimal scientific methods documented any definite improvement or even suggestive trends in intelligence, speech or language, neuromotor function, height or health” and in the “Bidder et al (1989) study on Children with Down Syndrome, the study documented a decrease in the developmental progress while on multivitamins and multi minerals.”

Cornelius Ani, et. al.,(2000) wrote a very interesting article detailing the theoretical basis for using different vitamin supplements, and reviewed the studies done with supplements. Their focus is oxidative stress and supplementation with antioxidants. They conclude “...we believe that to date there has been no consistent or rigorous proof that any form of nutritional supplementation improves the outcome in Down syndrome. There is, therefore, an urgent need for a well conducted clinical trial to evaluate the hypothesis that antioxidant supplementation may improve the outcome in Down syndrome.” It is important to point out in reading this article, that there are hundreds of proteins coded for by chromosome 21. Though there is abnormal activity of superoxide

dismutase, much is still unknown about what other proteins are produced at abnormal levels and how these proteins interact.

In 2002, Michael Salman did a systematic review of the randomized controlled studies of supplements and drugs in people with Down syndrome. He found “no positive evidence that any combination of drugs, vitamins and minerals enhance either cognitive function or psychomotor development in people with Down syndrome”.

Having reviewed the research on nutritional intervention, we cannot promote or support their use because there is no credible scientific evidence of their real effectiveness. Many families are experiencing very heartening courses of their young children with Down syndrome in present times. This is true whether or not they are on special supplements. Again, we are not seeing two different populations becoming identified, based on the medications. Early intervention, thoughtful educational programming, good health care, and optimistic expectations, remain the core of best supports.

Weathers, C. Effects of Nutritional Supplementation on IQ and Certain Other Variables Associated with Down Syndrome. *Am. J. Mental Deficiency* 88 (2), 214–217, 1983.

Bennett, F. Vitamin and Mineral Supplementation in Down(’s) Syndrome. *Pediatrics* 72 (5), 707–713, November, 1983.

Smith, G. F. Use of Megadoses of Vitamins with Minerals in Down Syndrome. *J. Pediatrics* 105 (2), 228–234, August, 1984.

Coleman, M. Editorial: Vitamins and Down Syndrome. *Down Syndrome Quarterly*, 2(2), 1997.

Ani C, Grantham–Mcgregor S, Muller D. Nutritional Supplementation in Down Syndrome: Theoretical Considerations and Current Status. *Dev Med Child Neurol* 2000 Mar;42(3):207–13.

Salman M. Systematic Review of the Effect of Therapeutic Supplements and Drugs on Cognitive Function in Subjects with Down Syndrome. *Eur J Paediatr Neurol* 2002;6(4):213–9.

Please quote fully and reference the National Down Syndrome Congress.

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