

EDITOR'S NOTEBOOK/Bernard Rimland, Ph.D.**Vitamin C in the prevention and treatment of autism**

Vitamin C is an extremely safe substance which is immensely beneficial to the brain and body in a multitude of ways. Its potential for preventing and treating autism has barely been touched.

Vitamin C is heavily concentrated in the brain, but its exact role in brain function is not understood. A recent Medline search turned up 400 references referring to vitamin C and the brain, but the mystery remains.

We don't need to understand its biochemistry to know that vitamin C is crucial to brain function. The earliest signs of vitamin C deficiency are confusion and depression. Vitamin C also improves cognition, as shown by increased IQ scores in normal and Down's children. Other studies have shown improved EEGs and alertness, as measured in a variety of ways. Hoffer and Osmond, in a series of brilliant studies, showed vitamin C's effectiveness in treating schizophrenia.

Most of what we hear of vitamin C relates to its role in destroying viruses and bacteria. A 1995 review by Hemilä and Herman cited 21 placebo-controlled studies in which giving 1 or more grams of C daily significantly reduced the severity and duration of colds. (It doesn't *prevent* colds, it *mitigates* colds.) In ARRI 12-1, I discussed the work of Australian physician Archie Kalokarinis, who used vitamin C to reduce the vaccine-caused death rate of aborigine infants from 50 percent to zero.

But vitamin C's anti-germ defense is only one of its many roles in the body. Irwin Stone's superb book *The Healing Factor: Vitamin C Against Disease* discusses many other ways in which vitamin C protects the body against substances implicated as causative of some cases of autism. A few examples:

—**Toxins.** Stone reviews a number of studies, starting in the 1930s, showing that industrial workers suffering from lead poisoning as a result of their exposure to lead in smelters, storage battery plants and the like experienced quick relief from their mental and physical symptoms when given vitamin C supplements. He discusses a 1940 case of a 27-month-old child who had eaten materials containing lead who improved greatly when given vitamin C supplements. He discusses a Chinese study in which 100 tadpoles were put in water with high lead content, then removed and put into either plain water or water containing vitamin C. Six days later, all the tadpoles in the ascorbic-acid treated water were still alive, while 88% in the plain water had died. He also discusses the protective effect of vitamin C against mercury, arsenic, benzene and other chemicals, as well as such organic poisons as botulism, snake

bites, spider and scorpion bites, and bacterial toxins.

—**Vitamin C in autism?** Has vitamin C been used in the treatment of autism? I am aware of only two studies in which vitamin C was specifically evaluated as an intervention in autism. The first was the study I initiated in 1967 to evaluate the effects of four vitamins: B3, B5, B6, and C. We used a dose range of only 1 to 3 grams per day of vitamin C (about 20 mg/lb.), and the C at that dosage level was easily outshone by the vitamin B6. (18 consecutive positive studies confirm the value of the vitamin B6.)

The second study of vitamin C in autism was conducted by Dolske et al. (1993). The study consisted of a 30-week double-blind, placebo-controlled trial of 52 mg/lb. per day as a treatment for 18 autistic children (ages 6 to 19) in a residential setting. Statistically significant improvement on various outcome measures was reported.

Clearly, Dolske's higher dosage produced better results than our earlier study of vitamin C. But what is the right dose for autism? Nobody knows. But vitamin C is extremely safe, even in massive doses, so it would be well to find out what the optimal dose for autism might be.

What is the safe dose of vitamin C? A lot. Vitamin C expert Robert Cathcart proposes the "bowel tolerance" method of determining one's own vitamin C requirement. You simply take increasingly large amounts of vitamin C each day until your body reaches the vitamin C saturation point. Going beyond that level, the vitamin C becomes a laxative. For most people in good health, the well-tolerated level tends to be about 10 to 15 grams of vitamin C per day. If you start to get sick, your body requires more vitamin C, and your "bowel tolerance" may rise to 30 or 100 or more grams per day. But, according to Cathcart and other experts on vitamin C, increasing your input when you are sick will dramatically abbreviate your illness. Cathcart's patients with mononucleosis were functioning normally after a few days of 200 grams per day of vitamin C, given orally and IV, while the patients of the other doctors in the same community were hospitalized for several weeks during a mononucleosis outbreak. Dr. Cathcart's website: <http://www.orthomed.com>.

When my teenage daughter Helen was hospitalized with "terminal" (stage 4B) Hodgkin's disease in 1974, I put her on 40 grams of vitamin C per day (526 mg/lb.). Her doctors were aghast: "You'll kill her!" "Nonsense!" I replied. She recovered quickly, and 24 years later is in vibrant good health. (For more about Helen, see page 7.)

In 1966 VanderKamp published a seldom-cited but significant paper showing that adult schizophrenic men required 36 to 48 grams of vitamin C a day to reach the vitamin C saturation level that control group men reached by taking 4 grams of vitamin C per day. Saturation level was measured by a simple test in which one drop of urine is added to a test tube containing a reagent.

I found fascinating not only the fact that schizophrenics needed 10 times as much as the normal controls, but that the high doses of vitamin C brought about marked improvement in the *socialization* of the patients. While the patients were by no means cured, they "expressed a feeling of well being. The anxious, tense facial expression was replaced with a smile and friendliness. They stated that they didn't feel so 'hemmed in.' 'People didn't seem to be against me.' 'I can now think more clearly.' Those who were shy, seclusive and withdrawn began to participate in ward activities, in conversation with other patients and ward personnel."

Obviously, autism and schizophrenia are very different disorders (as I emphasized in my 1964 book *Infantile Autism*), but the enhanced socialization that VanderKamp reported in his schizophrenic patients would certainly be welcome among autistic patients, particularly those with Asperger syndrome. I hope that there are a few readers out there who are as curious as I am about what the outcome might be if the VanderKamp studies were repeated on Aspergers or autistic patients.

Other researchers have also reported improvement in the personalities of psychiatric patients on high doses of vitamin C. Milner (1963), for example, reported "statistically significant improvement in the depressive, manic and paranoid symptom complexes, together with an improvement in overall personality functioning..."

Research also has shown vitamin C to bring about improvement in patients with depression and manic depressive illness, which, as I pointed out in *Infantile Autism*, do appear to be genetically related to autism.

If vitamin C is used in large amounts, most experts suggest that buffered vitamin C (sodium ascorbate) should be used rather than ascorbic acid, since the acid form may be too acidic in multi-gram doses. Sodium ascorbate powder (1 level tsp. equals 4 grams) may be purchased inexpensively by the pound or the kilogram from the Wholesale Nutrition Company (1-800-325-2664) or from Bronson (1-800-610-4848).