

### **Fluoride and autism: is there a connection?**

At age 2 my son, born 2 October 1992, was diagnosed with Gastroesophageal Reflux Disease and Pervasive Development Disorder – an autistic spectrum disorder (ASD). Early in 1997, when he was 4 years old, I heard a casual comment that fluoride might be a problem for him. At the time I thought I was listening to urban legend, since the only information I had ever known about fluoride was that it was beneficial. None of the specialists who were treating my son had cautioned me about fluoride. They were all aware, however, that I was mixing my son's sole food source, an amino acid formula, with 0.8-ppm F nursery water. Even so, the remark about fluoride haunted me, and on March 1, 1997, I embarked on what was intended to be a two-week trial of reducing his fluoride intake.

I began mixing the formula with spring water, which I later learned contained 0.6-ppm fluoride. My son responded by managing to increase his daily caloric intake by 33-45%. Shortly thereafter I replaced the spring water with distilled water. He then ingested 65-100% more formula than before the trial began. In 3.5 months he gained 6 lbs, and in 4 months he grew 1.5 inches – unprecedented gains for him. His language scores, which were only in the 2-16 percentile range in December 1996, increased to a percentile range of 61-84 in August 1997. His autistic characteristics diminished dramatically, and he began interacting happily with other children. His profuse sweating ceased, and his seemingly never-ending illnesses rapidly became less frequent and less severe. His tactile hypersensitivities rapidly diminished, as did his fine-motor impairment. He exhibited a novel ability to adapt to changing circumstances and to redirect his attention. In short, his overall functioning began to approximate that of a typical four-year old, although many features of the ASD remained.

At that point I wanted to learn whether the medical literature suggested any connection between known systemic effects of fluoride and characteristic features of ASD. If so, which symptoms might remain after significant decrease in fluoride intake? How might they be treated if not remedied completely? Finally, which symptoms would be irreversible systemic effects of fluoride ingestion?

My search for answers took me to Medline, where I learned that many effects of fluoride bore a striking resemblance to the myriad of characteristics of ASD children. These included effects of hypomagnesemia, hypocalcemia, hypokalemia, hypothyroidism, elevated lead intake, sleep-pattern disturbances from reduced production of melatonin, muscle weakness, reduced protein digestion, and IQ deficit. By contrast, information on symptom remission and treatment was extremely sparse.

Numerous references to fluoride as a neurotoxin, a metabolic inhibitor, and a potent G-protein activator raised even more questions about its potential role in ASD. Specifically, could fluoride result in excess G-protein activation sufficient to produce clinical hyperactivity or inability to modulate sensory input? How might fluoride activation of G-proteins interfere with G-protein-coupled

processes such as the release of secretin? When fluoride is a factor in ASD, as suggested by the experiences described here, does it initiate a litany of autistic symptoms, or is it an opportunist in an already compromised body?

Contacts with many different researchers have been unproductive to date. Most tell me this is unexplored territory. Although valuable, none of the existing literature focuses on any complicit or etiological role of fluoride in the digestive, neurological, or autoimmune features of ASD. Dr Mary Megson is the only physician I know who has proposed a connection between G-alpha protein defect and autism. Her theory was published in the March 2000 issue of *Medical Hypotheses*.

My son, who continues to show improvement, is one of a very large and growing number of children diagnosed with ASD. Our treatments of individual symptoms, as my experience illustrates, are partially successful, but we need to know and understand what is causing them. We need interventions that will address the entire family of autistic symptoms. For our desperately sick children, I hope those who are engaged in fluoride research will examine my questions and others like them and attempt to provide us with the answers we so urgently seek.

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