Research – Vitamins:

One large comprehensive study found that children with autism had lower levels of several vitamins (especially biotin) and some minerals (lithium, calcium, and magnesium) and impairments in sulfation, methylation, glutathione, ATP, and oxidative stress, compared to neurotypical children of the same age. The severity of autism was strongly associated with the level of certain vitamins and minerals.

http://www.nutritionandmetabolism.com/content/8/1/34

One study in China found that most children with autism had inadequate intake of folic acid, vitamin B6, calcium, vitamin A, vitamin C, and zinc, based on estimating dietary intake from diet logs (not as accurate as blood measurements).


One study in Romania found normal levels of vitamin B12 and folate in children with autism compared to controls, but low levels of plasma glutathione, consistent with the Adams et al 2011 study. In other words, it seems that children with autism need extra amounts of vitamin B12 and folate to have normal glutathione.


One study found that children with autism had high levels of plasma vitamin B6 presupplementation, and this finding was confirmed in a follow-up study (Adams 2006), suggesting a metabolic imbalance in B6. (See section on High-Dose Vitamin B6 for more info.)


One study of vitamin D status in Egypt found that young children with autism had lower levels of
vitamin D compared to age-matched controls. However, the Adams et al 2011 study did not find any difference between vitamin D levels in children with autism in the US and neurotypical children in the US. Low levels of vitamin D are a concern for the general population, since vitamin D is made by the body only when exposed to direct sunlight, and nowadays people spend more time inside or shielded from the sun.


One study in Slovakia found that children with autism had significantly higher levels of vitamin C and beta-carotene, but normal levels of vitamin A and vitamin E, compared to older teen controls. This is consistent with the Adams et al 2011 study.


Many studies have demonstrated that children with autism have substantial oxidative stress, suggesting either a low level of key antioxidants or an increased need for them. (See section on oxidative stress.)

**Research – Minerals**

One large comprehensive study found that children with autism had lower levels of some minerals (lithium, calcium, and magnesium) compared to neurotypical children of the same age. The severity of autism was strongly associated with the level of certain vitamins and minerals.


Another study also found that young US children with autism (and their mothers) had unusually low levels of lithium compared to neurotypical children and their mothers. Lithium is receiving increasing recognition as possibly being an essential mineral, as low levels are associated with psychiatric and immunological disorders.


Two large studies of iron status found that young US and Canadian children with autism had anemia in 8% and 16% of cases, respectively.
One small study of minerals in red blood cells found that young Canadian children with autism had lower levels of RBC selenium and RBC molybdenum than neurotypical children of the same age [24], but similar levels of most other minerals.


A small study of zinc and copper in plasma found that British children with autism had similar levels to neurotypical children.


In contrast, a study of Turkish children with autism found that they had lower levels of zinc in plasma and RBC compared to neurotypical children.