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ONLINE ISSN : 1880-1404

PRINT ISSN : 0916-717X

## Biomedical Research on Trace Elements

Vol. 16 (2005) , No. 4 285-292



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### Mineral Imbalance in Children with Autistic Disorders

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(Accepted: October 17, 2005)

#### Abstract:

In order to investigate any role of minerals in autistic disorders, we measured 24 mineral contents in scalp hair samples of 360 autistic children and compared with those of healthy controls. In the male autistic group aged 4-9 years (N=200), the geometric means of many element levels, namely not only essential minerals such as cobalt, chromium, iodine, molybdenum and phosphorus, but also nickel, boron, cadmium and lead were significantly lower than those in the control group ( $p < 0.001$ ). In contrast, selenium level was significantly higher in the autistic group. On the mercury levels, no significant difference was observed between the two groups, though with a tendency of low concentration in the autistic group. Similar mineral imbalance profiles with a global mineral deficiency were observed in the other autistic groups aged 0-3 and 10-15 years (N=85 and 20) and also in the female autistic groups. In addition, high accumulation of a few elements such as iron, manganese, chromium, copper, sodium, aluminum, cadmium, lead, or mercury was observed in some autistic individuals. These findings indicate that autistic children are suffered from a global mineral deficiency in various trace elements, with some individuals being exposed to a marked accumulation of several elements. Autistic children may be classified to sub-groups, based on their mineral imbalance profile in hair.

**Key words:** [Autistic children](#), [Global mineral deficiency](#), [Mineral imbalance](#), [Sub-groups](#)



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To cite this article:

Hiroshi Yasuda, Toshie Yonashiro, Kazuya Yoshida, Tomiko Ishii and Toyoharu Tsutsui, "Mineral Imbalance in Children with Autistic Disorders", Biomedical Research on Trace Elements, Vol. **16**, pp.285-292 (2005) .

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