

The possibility and probability of a gut-to-brain connection in autism

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Abstract

BACKGROUND: We have shown that urine peptide increase is found in autism, and that some of these peptides have a dietary origin. To be explanatory for the disease process, a dietary effect on the brain must be shown to be possible and probable.

METHODS: Diagnosis was based on DSM-III and DSM-IV criteria. We ran first morning urine samples equivalent to 250 nm creatinine on high-performance liquid chromatography (HPLC) reversed phase C18 columns using trifluoroacetic acid acetonitrile gradients. The elution patterns were registered using 215 nm absorption for largely peptide bonds, 280 nm for aromatic groups, and 325 nm for indolyl components. We referred to a series of published ability tests, including Raven's Progressive Matrices and the Illinois Test of Psycholinguistic Ability, which were administered before and after dietary intervention. The literature was also reviewed to find evidence of a gut-to-brain connection.

RESULTS: In autistic syndromes, we can show marked increases in UV 215-absorbing material eluting after hippuric acid that are mostly peptides. We also show highly significant decreases after introducing a gluten- and casein-free diet with a duration of more than 1 year. We refer to previously published studies showing improvement in children on this diet who were followed for 4 years and a pairwise matched, randomly assigned study with highly significant changes. The literature shows abundant data pointing to the importance of a gut-to-brain connection.

CONCLUSIONS: An effect of diet on excreted compounds and behavior has been found. A gut-to-brain axis is both possible and probable.

Source: <http://www.ncbi.nlm.nih.gov/pubmed/19917211>