

MOST RECENT RESEARCH ON EFFECTS OF MERCURY ON BRAIN DEVELOPMENT

“Cognitive Deficit in 7-Year-Old Children With Prenatal Exposure to Methylmercury.”

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ABSTRACT: A cohort of 1022 consecutive singleton births was generated during 1986-1987 in the Faroe Islands. Increased methyl mercury exposure from maternal consumption of pilot whale meat was indicated by mercury concentrations in cord blood and maternal hair.

At approximately 7 years of age, 917 of the children underwent detailed neurobehavioural examination. Neuropsychological tests included Finger Tapping; Hand-Eye Coordination; reaction time on a Continuous Performance Test; Wechsler Intelligence Scale for Children-Revised Digit Spans, Similarities, and Block Designs; Bender Visual Motor Gestalt Test; Boston Naming Test; and California Verbal Learning Test (children).

Clinical examination and neurophysiological testing did not reveal any clear cut mercury related abnormalities. However, mercury related neuropsychological dysfunctions were most pronounced in the domains of language, attention, and memory, and to a lesser extent in visuospatial and motor functions. These associations remained after adjustment for covariates and after exclusion of children with maternal hair mercury concentrations above 10 micrograms (50 nmol/g).

The effects on brain function associated with prenatal methyl mercury exposure therefore appear widespread, and early dysfunction is detectable at exposure levels currently considered safe.

COMMENT: This publication of the widely discussed Faroe Islands study should have dramatic impact on evaluation of mercury exposure to unborn babies. Obviously, the adverse effect is not detectable at birth, and shows a dramatic impact on quality of life for the affected individuals. It should be kept in mind that methyl mercury and mercury vapour are the two forms of mercury that readily penetrate cell membranes and accumulate in tissues of unborn babies. Methyl mercury is derived primarily from consumption of fish and seafood, whereas the primary contributor of mercury vapour to human body burdens comes from dental fillings.