

Mild iodine deficiency is associated with elevated hearing thresholds in children in Benin.

[van den Briel T](#), [West CE](#), [Hautvast JG](#), [Ategbo EA](#).

Division of Human Nutrition and Epidemiology, Wageningen University, Wageningen, The Netherlands.

Abstract

OBJECTIVE: Elevated hearing thresholds have been demonstrated in populations afflicted by endemic cretinism as a result of severe iodine deficiency. However, data on the effects of less severe iodine deficiency on hearing thresholds in apparently normal children are scant. This study addresses the question whether there is a relationship among iodine variables, hearing and mental performance in a mildly iodine-deficient population.

DESIGN: A randomized, placebo-controlled intervention trial with an observation period of 11 months.

SETTING: An iodine-deficient area in northern Benin.

SUBJECTS: A total of 197 school children, aged 7-11 y.

INTERVENTIONS: A total of 97 children received an oral dose of iodized oil, containing 540 mg I, while 100 children received a placebo. About 3-4 months after supplementation, the whole population began to have access to iodized salt. Non-verbal mental tests were administered and biochemical indicators (thyrotropin, free thyroxine, thyroglobulin and urinary iodine) were measured at the beginning and the end of the study. Hearing was measured at the end of the study in both ears by pure-tone audiometry at seven frequencies.

RESULTS: In this mildly iodine-deficient child population children with higher serum thyroglobulin concentrations had significantly higher hearing thresholds in the higher frequency range ($>$ or $=$ 2000 Hz) than children with lower serum thyroglobulin concentration. Moreover children with lower hearing thresholds performed significantly better on the mental tests used.

CONCLUSIONS: Even when iodine deficiency is 'mild', promotion of adequate iodine intake through salt iodization programs and other means remains crucial.

SPONSORSHIP: Nestlé Foundation, Lausanne, Switzerland; Wageningen University, Wageningen, The Netherlands.

PMID: 11528490 [PubMed - indexed for MEDLINE]