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Improved iodine status is associated with improved mental performance of schoolchildren in Benin.

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Abstract

BACKGROUND: An adequate iodine supply in utero and shortly after birth is known to be crucial to an individual's physical and mental development. The question of whether iodine supplementation later in life can exert a favorable influence on the mental performance of iodine-deficient populations was addressed in various studies, but with contradictory results.

OBJECTIVE: The aim of this study was to examine the effect of an improvement in iodine status on mental and psychomotor performance of schoolchildren (7-11 y) who were moderately to severely iodine deficient.

DESIGN: The study, which was originally planned as a double-blind, randomized, placebo-controlled intervention, was carried out in an iodine-deficient population of schoolchildren (n = 196) in northern Benin. As the population began to have access to iodized salt during the 1-y intervention period, the study population was split post hoc on the basis of urinary iodine concentrations into a group with improved iodine status and a group with unchanged iodine status. Changes in mental and psychomotor performance over the intervention period were compared.

RESULTS: Children with increased urinary iodine concentrations had a significantly greater increase in performance on the combination of mental tests than did the group with no change in urinary iodine concentrations.

CONCLUSIONS: An improvement in iodine status, rather than iodine status itself, determined mental performance in this population, which was initially iodine deficient. These findings suggest a "catch-up" effect in terms of mental performance.

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