

A CASE STUDY IN NUTRITION: POTENTIAL COGNITIVE GAINS

In addition to environmental, experiential and genetic factors, nutrition plays a critical role in brain development and brain functioning. Thus, important functions such as memory, learning and cognition (thinking, problem solving and information processing), which are mediated by the brain, can be adversely affected by the lack of good nutrition. Can these functions also be augmented in the general population by nutritional supplementation? Controlled studies with children suggest that this, indeed, may be the case. For example, results from two comprehensive studies by Schoenthaler, et al (1999, 2000) found significant increases in "fluid intelligence" (active, unrehearsed problem solving) in children receiving supplementation versus those receiving a placebo ("sugar pill"). Their conclusion was that many children (or for that matter adults) do not receive adequate nutrition from their regular diets and, therefore, are not able to problem solve efficiency as others. Since there is little doubt that many children and adults resort to junk foods in their day-to-day eating habits, the positive results of these, and other studies, make sense. To illustrate the possible effects of supplemental nutrition as an agent that may increase cognitive efficiency, a family case study approach was considered appropriate.

A test-retest clinical case study of a family presumed to have good nutritional habits was conducted to determine if levels of intelligence for the family, as a whole, could be raised beyond the level expected from "practice effect" (increase based on previous exposure and familiarity with the test) by nutritional supplementation. Widely used standardized intelligence tests were administered to the family during a single afternoon. The family was then provided nutritional supplementation for fifty-one days. Following this period of time, the same standardized tests were readministered along with alternate forms of several of the tests' components.

The results revealed an average increase in fluid intelligence (Performance I.Q.) for the family as a whole that exceeded the gain expected from practice effect at the 90% level; in fact, individually, four of the five family members achieved gains that exceeded this level (Dawes, et al, 2001; Niolon, 2004; Kaufman, 1994; Zhu & Garcia, 2000). Unexpectedly, the family also had an average increase in crystallized or verbal intelligence that met the 90% criteria. Three of five individual family members accounted for this overall gain in measured verbal abilities. The pre-test results of the intelligence tests were also compared to the post-test administration of an abbreviated alternate form of the intelligence test. The family average also exceeded the expected gain from practice effects alone. Three of the five family members accounted for this increase. Consistent with previous studies, four of the five family members exceeded the expected gains on the alternate form test of Visuo-Spatial abilities (visual pattern analysis and construction of the patterns using blocks).

Case studies, such as presented here, are not to be confused with large, controlled studies like those conducted by Schoenthaler, et al (1999, 2000). However, the present findings are consistent with their results and lend further support to the importance of good nutrition as a contributor to efficient cognitive functioning. One might argue that the "belief by the family" (placebo effect) that the supplement would work was sufficient to cause the gain in I.Q. scores. In fact, both the family and this author were initially skeptical that a family with good nutritional habits would benefit significantly from nutritional supplementation, especially over such a short period of time. Continued research and exploration in this area is indicated.

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