

# New Evidence About the Building Blocks of Intelligence

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Supplementing young children's diets with fish oil, enrolling them in quality preschool, and engaging them in interactive reading all turn out to be effective ways to increase intelligence, according to a new report published in *Perspectives on Psychological Science* by **John Protzko**, a doctoral student at New York University's (NYU) Steinhardt School of Culture, Education, and Human Development. In collaboration with NYU Steinhardt professors **Joshua Aronson**, an APS Fellow, and **Clancy Blair**, leaders in the field of intelligence research, Protzko performed a meta-analysis of the best available studies involving samples of children from birth and kindergarten from the team's newly assembled "Database of Raising Intelligence."

"Our aim in creating this database is to learn what works and what doesn't work to raise people's intelligence," said Protzko. "For too long, findings have been disconnected and scattered throughout a wide variety of journals. The broad consensus about what works is founded on only two or three very high-profile studies."

All of the studies in this database rely on a normal population (participants without clinical diagnoses of intellectual disabilities), focus on interventions that are sustained over time, use widely accepted measures of intelligence, and, most importantly, are randomly controlled trials (participants selected at random to receive one of the interventions). The results of the meta-analysis indicated that supplementing pregnant women and newborns with long-chain polyunsaturated fatty acids, foods rich in Omega-3, boosted children's IQ by more than three and a half points, possibly by providing the building blocks for nerve cell development that the body cannot produce on its own.

Several educational tools also showed promise for boosting children's IQ, including interactive reading for children under four (a boost of more than six points), sending children to preschool (a boost of more than four points), and sending children to preschools with a language development component (a boost of more than seven points).

For economically disadvantaged children, early educational interventions that specifically included a

center-based education component raised a child's IQ by more than seven points — possibly, the researchers hypothesize, through exposure to a complex, cognitively stimulating and demanding environment. Surprisingly, the team found no evidence to support the idea that early education interventions that take place earlier in childhood are more effective than those that begin later.

The findings are promising, but more research is needed. “The larger goal here is to understand the nature of intelligence, and if and how it can be nurtured at every stage of development,” said Aronson, Protzko's advisor. “This is just a first step in a long process of understanding. It is by no means the last word. In fact, one of the main conclusions is how little high-quality research exists in the field and how much more needs to be done.”