The Correlation between Docosahexaenoic Acid (DHA) and Cognitive Function in Healthy Teens

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The purpose of the study was to determine if a statistical correlation existed between DHA (an essential fatty acid) levels in the blood and cognitive function in teens. The study also looked at the effect of DHA dosage levels on cognitive performance and whether BMI (Body Mass Index) impacted the results. This was a single blind experiment where 29 participants were split into three groups with similar ranges of BMI. We collected baseline information of height, weight, omega 3 levels in the blood, and cognitive function using the CPT, reaction time, and 3- Back Test, working memory. Group 1 took 900mg of DHA, Group 2 took 450mg of DHA, and Group 3 took a soybean oil placebo each day. Blood and cognitive tests were completed again at the end of two months. Data was collected on a myriad of different cognitive values. Fatty acid analysis in the blood was accomplished using a GCMS to determine the levels of DHA. Our results indicate that a strong statistical correlation exists between individuals in the two treatment groups that received DHA supplementation and improved Hit Rate Reaction Time on the CPT, and Working Memory Combined Score on the 3-Back Test as compared to the placebo group. There was no statistically significant difference between the two treatment groups indicating that the optimal improvement to supplement ratio was achieved by taking the lower dosage. The lower dose of DHA was sufficient except for individuals with the largest BMI. BMI did impact the amount of DHA absorption in individuals. This study is important in confirming the correlation between DHA levels and cognitive function, and providing evidence that a 450mg dosage is sufficient for cognitive improvement.