

Overweight and Neurocognitive Functioning: Unraveling the Antagonistic Relationship in Adolescents

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Abstract : Background: There is dramatic increase in the prevalence and severity of overweight in adolescents, raising concerns about their psychosocial and cognitive consequences, thereby indicating the immediate need to understand the effects of increased weight on scholastic performance. Although the body of research is currently limited, available results have identified an inverse relationship between obesity and cognition in adolescents. Aim: to examine the association between increased Body Mass Index in adolescents and their neurocognitive functioning. Methods: A case-control study of 28 subjects in the age group of 11-17 years (14 Males and 14 females) was taken on the basis of main inclusion criteria (Body Mass Index). All of them were randomized to (experimental group: overweight) and (control group: normal weighted). A complete neurocognitive assessment was carried out using validated psychological scales namely, Color Progressive Matrices (to assess intelligence); Bender Visual Motor Gestalt Test (Perceptual motor functioning); PGI-Memory Scale for Children (memory functioning) and Malin's Intelligence Scale Indian Children (verbal and performance ability). Results: statistical analysis of the results depicted that 57% of the experimental group lack in cognitive abilities, especially in general knowledge (99.1 ± 12.0 vs. 102.8 ± 6.7), working memory (91.5 ± 8.4 vs. 93.1 ± 8.7), concrete ability (82.3 ± 11.5 vs. 92.6 ± 1.7) and perceptual motor functioning (1.5 ± 1.0 vs. 0.3 ± 0.9) as compared to control group. Conclusion: Our investigations suggest that weight gain results, at least in part, from a neurological predisposition characterized by reduced executive function, and in turn obesity itself has a compounding negative impact on the brain. Though, larger sample is needed to make more affirmative claims.

Keywords : adolescents, body mass index, neurocognition, obesity

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