

Abstract

Med Hypotheses. 2006;66(2):263-9.

Obesity and ADHD may represent different manifestations of a common environmental oversampling syndrome: a model for revealing mechanistic overlap among cognitive, metabolic, and inflammatory disorders.

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BACKGROUND: Obesity and attention-deficit hyperactivity disorder (ADHD) are both increasing in prevalence. Childhood exposure to television has shown linkage to both ADHD and obesity with the former ascribed to dysfunctional cognitive hyperstimulation and the latter to altered patterns of diet and exercise. Empirical evidence has contradicted prior presumptions that the hyperactivity of ADHD would decrease the risk of obesity. Instead, **obesity and ADHD demonstrate significant comorbidity.**

OBJECTIVE: We propose that obesity and ADHD represent different manifestations of the same underlying dysfunction, a phenomenon we term environmental oversampling syndrome. Oversupply of information in the form of nutritional content and sensory content may independently predispose to both obesity and ADHD. Moreover, the pathogenic mechanisms of these conditions may overlap such that nutritional excess contributes to ADHD and cognitive hyperstimulation contributes to obesity. **The overlapping effects of medications provide further evidence towards the existence of shared etiologic pathways.** Metabolism and cognition may represent parallel systems of intelligence, and oversampling of content may constitute the source of parallel dysfunctions.

CONCLUSIONS: The emerging association between psychiatric and metabolic disorders suggests a fundamental biologic link between these two systems. In addition, the immune system may represent yet another form of intelligence. The designation of syndrome X subsumes seemingly unrelated metabolic and inflammatory entities. Environmental oversampling syndrome may represent an even more inclusive concept that encompasses various metabolic, inflammatory, and behavioral conditions. **Apparently disparate conditions such as insulin resistance, diabetes, hypertension, syndrome X, obesity, ADHD, depression, psychosis, sleep apnea, inflammation, autism, and schizophrenia may operate through common pathways,** and treatments used exclusively for one of these conditions may prove beneficial for the others.

PMID: 15905045

