

# The Complex Etiology of Obesity in the Biopsychosocial Model

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Obesity is one of today's most prominent public health concerns. Obesity today affects more than 300 million people with increasing trend. This article examines obesity from a biopsychosocial perspective.

A genetic predisposition to obesity has been suggested but not been clearly identified. Predisposition to insulin resistance may contribute to obesity, but insulin levels are seldom directly measured by regular blood screenings. Basic nutrients differ in their satiating properties. A shift towards proteins has been proposed for beneficiary health effects. Many modern foods tend to be low in protein, and high in fat and sugars (Astrup, 2006, pp. S4-S5). Immune cells in the brain respond to certain fats in the diet (University of California – San Francisco, 2014). Obesity causes chronic inflammation, cardiovascular diseases and certain cancers. A common link has been established via chronic inflammation of Alzheimer's, type-2 diabetes and atherosclerosis via the CD36 receptor of macrophages (NYU Langone Medical Center, 2013). Obesity produces increased wear and tear, leading to debilitating lower back problems and arthritis (Dario et al., 2015).

Food availability is shaped by social contexts. In Western societies, many people live in abundance of food. Cheap foods oversupply refined sugars and satiated fatty acids, turning obesity into a social problem. Liquid caloric uptake exhibits quicker insulin responses (Zhu, Hsu, & Hollis, 2013, p. 385). Food processing significantly altered human foods. Federal backing of sugar prices promoted widespread addition of high fructose corn syrup (HFCS). The soft-drink

industry tops the rankings of HCFS-based products (USDA, n. d.). Fruits have been cultivated towards higher disaccharide content (Milton, 1999, p. 490). Eating behavior is social in primates (Tournier et al., 2014; van de Waal, Borgeaud, Whiten, 2013). Food availability and single lifestyles shape individual diets. Eating behavior starts early in life before people voluntarily select their foods. A family history of eating related disorders must be included in the individual etiology. Reduced nonexercise activity thermogenesis connected with sedentary lifestyles contributes to overweight. As obesity is complex, reductionist studies produce detrimental results. Only in the late 20<sup>th</sup> century that Harvard banned carbohydrates from the top of the nutritional pyramid and recommended foods with low glycemic index and glycemic load (Ludwig, 2011).

Obese people receive peer penalties related to gender and race. Varying psychological impacts can be expected. Obese people are subject to discrimination, leading to social isolation, less active lifestyles and restricted access to jobs (Fletcher, 2014, p. 79). Impulse control disorders have been linked to obesity (Schmidt, Körber, Zwaan, & Müller, 2012, p. e144). Ward & Hay relate depression, coping hassles and body dissatisfaction to eating disorders (2014, pp. 14-18). Jauch-Chara & Oltmanns report “a close relationship with psychological components comprising mood disturbances, altered reward perception and motivation, or addictive behavior.” Visceral obesity correlates with chronic psychosocial stress. High carbohydrate intake has been discussed as an addictive disorder. Thus a circular etiology between biological, social and psychological factors can be assumed for obesity. (2014, p. 84)

### **Treatment**

A combined biopsychosocial approach at a therapy should be taken. High-intensity resistance training (HIRT) restores the body’s basic stability that is challenged by overweight and

shifts the ratio between fat and lean body mass. It may be beneficial to restore insulin and leptin balances in the body and lower overall cortisol, which all contribute to obesity (Damaso et al., 2014, p. 1435). HIRT has been linked to increased NEAT with delayed onset 48 hours after doing the exercise (Alahmadi, Hills, King, Byrne, 2011, p. 624).

Cognitive-behavioral therapy (CBT) has been shown effective in treating obesity. Lifestyle adjustments include exercise and avoiding situations with unhealthy food choices. Food balance should shift away from carbohydrates and unhealthy fats toward protein and healthy fats while covering all basic nutrients. Combined HIRT and aerobic exercise 3 times weekly and CBT recurring weekly over the course of 6-12 months have proven effective. (Jauch-Chara, & Oltmanns, 2014, p. 96; Vanderlinden et al., 2012)

### **Conclusion**

Obesity is a complex disease. Reductionist approaches fall short of explaining its etiology. As social factors contribute the disease, putting the blame on individuals alone falls short of the solution. A successful approach at treatment must investigate contingencies that are available in people's individual situations.

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