 DOI: https://doi.org/10.3329/jacedb.v4i20.84895

Shaping Mind, Body and Metabolism: From Burden to Breakthrough

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Abstract

Regular physical activity is a cornerstone of obesity management due to its profound endocrine and metabolic effects. Exercise enhances insulin sensitivity, lowering circulating insulin and improving glucose uptake, which facilitates weight reduction and metabolic control. Aerobic and resistance training stimulate catecholamine release, promoting lipolysis and mobilization of free fatty acids as energy substrates.

Exercise also modifies adipokine secretion: leptin levels decrease, improving appetite regulation, while adiponectin increases, enhancing lipid oxidation and insulin sensitivity. These changes collectively establish a biochemical environment favorable for sustained fat loss. Moreover, transient rises in growth hormone and cortisol during exercise support lipolysis and gluconeogenesis, while increased thyroid hormone activity elevates basal metabolic rate.

From a clinical perspective, a minimum of 150 minutes per week of moderate-intensity aerobic activity combined with 2-3 sessions of resistance training is recommended. Early weight-loss efforts benefit from low-impact, continuous exercise to maximize fat oxidation, progressing to higher intensities as tolerance improves. Dietary modification enhances these hormonal effects, particularly when paired with protein-rich meals post-exercise to support muscle adaptation and metabolic health.

Monitoring metabolic markers-such as fasting glucose, insulin, and leptin-can guide therapy and track endocrine responses. By viewing exercise not merely as calorie expenditure but as a targeted hormonal intervention, clinicians can design more effective, personalized strategies for weight reduction and long-term metabolic disease prevention. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2025;4(Suppl 1): S19]*

Keywords: Adipokines, Basal metabolic rate

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