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Biography

Renuka Sharma, brings a wealth of expertise in patient care and medical administration. Already holding an MBBS and an MBA in Hospital Administration, she is deeply committed to continuous learning and is currently a second-year postgraduate student Physiology SSMSR, Sharda University, alongside her vast clinical experience across prestigious hospitals, she is an active academic and researcher, having authored three publications and delivered Three Publications.

Understanding Obesity Through the Lens of Human Physiology: A Systematic Review of Its Prevalence and Underlying Mechanisms

Abstract:

Background: The epidemic of obesity has become a worldwide health challenge, now affecting more than 650 million adults globally. Aside from lifestyle and behavioral factors, a complex network of physiological mechanisms contributes to its onset and persistence. Knowledge of these mechanisms is crucial for effective prevention and treatment of the disease.

Objectives: This systematic review seeks to review the global prevalence of obesity, as well as a comprehensive physiological process initiation and pathophysiology of subsequent progressions. Research examines energy balance, hormonal factors, neural circuits, adipose tissue, and the gut microbiome.

Methodology: A systematic search was made in the main databases: PubMed, Scopus, and Web of Science with predefined keywords, using terms related to obesity and human physiology. English language studies from 2000 until 2024 were included. Keyword-based incarceration focused on original articles and systematic reviews related to physiological factors attributed to human obesity. Studies were selected according to PRISMA guidelines, and quality assessment tools were used to confirm the reliability of the included studies.

Key Findings: In the review the authors emphasize the importance of hormonal regulators of the appetite and energy metabolism leptin, ghrelin, insulin and cortisol. Hunger and satiety are also controlled by important neurophysiological centers in the hypothalamus. Fat is an organ unto itself that releases pro-inflammatory cytokines and leads to systemic inflammation. Furthermore, gut microbiota dysbiosis has been associated with changes in nutrient uptake and metabolic disorders. These physiological pathways are further modulated by genetic and epigenetic factors; each of which contribute additional levels of individual susceptibility.

Conclusion: The disease of obesity is a complex, multifactorial condition steeped in human physiology. Considering its physiological underpinnings, along with lifestyle modifications, may improve the efficacy of both treatment approaches and clinical public health initiatives.