Allostasis

Allostasis is a concept in physiology that goes beyond the traditional idea of homeostasis, which refers to the body's ability to maintain internal stability and balance. While homeostasis focuses on keeping physiological parameters within a narrow range, allostasis considers the adaptive changes that occur in response to stressors and challenges.

In other words, allostasis is the process by which the body anticipates and responds to changes in the internal and external environment to maintain overall stability and ensure the body's survival and well-being. It involves a dynamic and flexible adjustment of various physiological systems to meet the demands placed on the body.

The term “allostasis” emphasizes the active nature of physiological regulation, where the body's responses are not just reactive but also anticipatory. These responses can include changes in hormone levels, neural activity, and other regulatory mechanisms to optimize the body's performance in different situations.

The concept of allostasis has been extended beyond physiology to encompass broader contexts, such as social, psychological, and environmental factors. This expansion recognizes that the body's adaptive responses are not solely based on internal cues but also take into account the individual's experiences, perceptions, and interactions with the external world.

In summary, allostasis is a concept that describes the body's dynamic and proactive regulation to maintain stability in the face of changing conditions, going beyond the more static idea of homeostasis. It reflects the body's ability to adapt and respond to a variety of stressors for overall well-being.

Since the late nineteen-nineties, the concept of homeostasis has been contextualized within a broader class of “allostatic” dynamics characterized by a wider-berth of causal factors including social, psychological and environmental entailments; the fundamental nature of integrated brain-body dynamics; plus the role of anticipatory, top-down constraints supplied by intrinsic regulatory models. Many of these evidentiary factors are integral in original descriptions of homeostasis; subsequently integrated; and/or cite more-general operating principles of self-organization. As a result, the concept of allostasis may be generalized to a larger category of variational systems in biology, engineering and physics in terms of advances in complex systems, statistical mechanics and dynamics involving heterogenous (hierarchical/heterarchical, modular) systems like brain-networks and the internal milieu [1].

In the post-COVID-19 epidemic time, medical and nonmedical workers had similar allostatic load. Psychological distress and abnormal illness behavior were risk factors for it, while social support could relieve it [2].

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2)

Peng M, Wang L, Xue Q, Yin L, Zhu BH, Wang K, Shangguan FF, Zhang PR, Niu YY, Zhang WR, Zhao WF, Wang H, Lv J, Song HQ, Min BQ, Leng HX, Jia Y, Chang H, Yu ZP, Tian Q, Yang Y, Zhu Z, Li W, Gao XL, Liu XL, Yang M, Wang P, Wei PH, Wang CX, Li JN, Jia LB, Huang XM, Li DN, Xu DJ, Deng YL, Si TM, Dong HQ, Wang YP, Cosci F, Wang HX. Post-COVID-19 Epidemic: Allostatic Load among Medical and Nonmedical Workers in China. Psychother Psychosom. 2021;90(2):127-136. doi: 10.1159/000511823. Epub 2020 Nov 5. PMID: 33152729; PMCID: PMC7705943.