

# **Control and Regulation of Blood Pressure: Physiological Basis of Preventive and Therapeutic Interventions**

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## **Abstract**

The paper presents a review of recent theories involving the physiological control and regulation of blood pressure (BP). Specifically, the role of sympathetic efferents of autonomic nervous system, their central and peripheral control; renin-angiotensin-aldosterone system, vascular smooth muscle voltage-gated calcium channels, endothelially-derived vasoregulatory substances like nitric oxide, bradykinin and endothelin; neurohumoral mechanisms exerted by vasopressin, adrenaline, noradrenaline, atrial natriuretic peptides; and locally derived homeostatic autoregulatory molecules are discussed in the short-term and long-term regulation of BP. Based on the physiological regulation of BP, the pathophysiology of development of primary and secondary hypertension is discussed specially to provide rational basis for the use of various nonpharmacological preventive and pharmacological therapeutic interventions.

**Key Words:** Hypertension, blood pressure, autonomic control of BP, renin-angiotensin-aldosterone system, endothelially-derived vasoregulatory substances, preventive interventions for BP, therapeutic interventions for BP

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