Cardiovascular and Cardiorespiratory Interactions – From Physiological Mechanisms to Clinical Applications
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Hierarchically-Organized Interactions in Dynamic Physiological Networks

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In Network Physiology, the human organism is modeled as a complex network of interacting organ systems. While traditional approaches focus on pairwise interactions and time-domain analysis, these methods often fail to capture the full complexity of physiological regulation. This research addresses these limitations by investigating how multi-organ regulation emerges from high-order interactions (involving more than two nodes) and by shifting the focus to frequency-specific mechanisms. Exploring these distinct oscillations and multi-node synergies sheds new light on the hidden modalities of signal cooperation in both healthy and pathological conditions.