

## Preface

Neurophysiology, or "neurophysiology" for short, is a branch of neuroscience that studies how the nervous system (including the peripheral nervous system, spine, and brain) functions. Neurophysiology is also a branch of physiology that focuses specifically on the nervous system.

Since the research objects can be discussed at several different levels, such as molecular, cell, network, system, etc., neurophysiology research objects include the following aspects from micro to macro, from basic to comprehensive: the working principle of the nervous system at the molecular level, such as the function of molecular structures such as neurotransmitters, receptors, and ion channels; How the nervous system works at the cellular level, i.e. individual neurons or receptors or effectors; The way the nervous system works at the level of a network of multiple neurons; The research in this area belongs to a relatively new field, mainly because the research methods mature late; The working mechanism of the nervous system at the system level, the most typical one is the study of neural pathways, such as the division of labor and coordination of various nuclear groups in the auditory pathway and the motor pathway.<sup>1</sup>

According to the different functional subsystems studied, neurophysiology can be divided into sensory, motor, memory and learning, emotion, language and other higher functions of neurophysiology.

In the present book, ten typical literatures about clinical neurophysiology published on international authoritative journals were selected to introduce the worldwide newest progress, which contains reviews or original researches on clinical neurophysiology. We hope this book can demonstrate advances in clinical neurophysiology as well as give references to the researchers, students and other related people.

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<sup>1</sup> From: <https://zh.wikipedia.org/wiki/%E7%A5%9E%E7%BB%8F%E7%94%9F%E7%90%86%E5%AD%A6>