The Clinical Neurophysiology Primer

THE CLINICAL NEUROPHYSIOLOGY PRIMER

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Cover illustration: *(Foreground)* Needle EMG, positive sharp wave (Fig. 4, Chapter 14; *see* complete caption and discussion on pp. 233–234). *(Background)* Epileptiform abnormalities, three-Hertz EEG of generalized spike-and-slow wave activity (Fig. 10, Chapter 8; *see* complete caption on p. 114 and discussion on p. 112).

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PREFACE

With the growth of combined clinical neurophysiology fellowship training programs and their corresponding "pan-physiology" board examinations, there has been an increased need for educational materials that span the range of clinical neurophysiology topics. *The Clinical Neurophysiology Primer* aims to meet this need by providing a broad and intentionally basic treatment of the most central topics within clinical neurophysiology.

The Clinical Neurophysiology Primer initially took shape within the clinical neurophysiology sections at Beth Israel Deaconess Medical Center and Rhode Island Hospital, as an outgrowth of their fellowships' didactic lecture series. Faculty and trainees at these and affiliated teaching hospitals participate in a series of lectures over the course of the academic year designed to acquaint trainees with the elements of clinical neurophysiology, supplementing their clinical experiences. We hope that this primer will prove valuable to others as a companion book intended for clinical neurophysiology fellows and neurology residents, to be used in conjunction with such a program of lectures.

The Clinical Neurophysiology Primer is divided into four parts. The first addresses background topics integral to, and shared by, all the disciplines within clinical neurophysiology. These treat such topics as basic electronics and the neural basis for the central and peripheral electrical potentials that we study in the laboratory. Part II addresses the most central topics pertinent to the application and analysis of electroencephalography. Part III tackles similar key topics pivotal to understanding neuromuscular disease pathophysiology and correlates found with nerve conduction studies and electromyography. The last part covers topics in related fields of clinical neurophysiology: autonomic testing, evoked potentials, sleep studies, and their applications. The primer is multiauthored. Many of the contributing authors are faculty, or were trainees, at our fellowship programs. Inevitably other contributors also joined the effort. Each chapter has appended references or bibliographies that provide the reader with additional sources of information to expand upon the introductory materials covered here. Chapter lengths also vary considerably in size, in part related to the breadth of the material incorporated. Finally, each chapter ends with a set of questions and answers to aid trainees in gauging their mastery of the materials.

We hope this primer will fulfill its intended role as a starting point for fellows engaged in clinical neurophysiology training, for those pursuing more focused training in areas within clinical neurophysiology, and for neurology residents aiming to acquire a basic understanding of these disciplines.

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