

Contents

Index 333

339

373

Foreword

Preface

Contributors

CHAPTER 1

Basic Concepts in Electricity and Contemporary Terminology in Electrotherapy 1

Andrew J. Robinson

CHAPTER 2

Instrumentation for Electrotherapy 27

Andrew J. Robinson

CHAPTER 3

Physiology of Muscle and Nerve 71

Andrew J. Robinson

CHAPTER 4

The Neurobiology of Pain and Foundations for Electrical Stimulation
for Pain Control 107

Kathleen A. Sluka

CHAPTER 5

- Electrical Stimulation for Pain Modulation 151
Tara Jo Manal and Lynn Snyder-Mackler
Towson Sports Medicine
Towson, Maryland

CHAPTER 6

- Electrical Stimulation of Muscle: Techniques and Applications 197
Sara J. Farquhar and Lynn Snyder-Mackler
Guam

CHAPTER 7

- Electrical Stimulation of Muscle for Control of Movement and Posture 239
Scott Stackhouse

CHAPTER 8

- Electrical Stimulation to Augment Healing of Chronic Wounds 275
Andrew J. Robinson
Foreword
Preface

CHAPTER 9

- Electrical Stimulation and Biofeedback for Genitourinary Dysfunction 301
Rebecca G. Stephenson and Elizabeth R. Shelly
CHAPTER 1
Basic Concepts in Electricity and Contemporary Terminology in Electrotherapy

CHAPTER 10

- Electrical Stimulation for the Delivery of Medications: Iontophoresis 351
Charles D. Ciccone
CHAPTER 2
Instrumentation for Electrotherapy

CHAPTER 11

- Electromyographic Biofeedback for Improvement of Voluntary Motor Control 389
Stuart A. Binder-Macleod and Jennifer A. Bushey
CHAPTER 3
Physiology of Muscle and Nerve
Andrew J. Robinson

CHAPTER 12

- Clinical Electrophysiologic Examination and Evaluation: Principles, Procedures, and Interpretation of Findings 409
Andrew J. Robinson, with Case Studies Provided by Robert M. Kellogg
CHAPTER 4
The Neurobiology of Pain and Fundamentals of Pain Control for Pain Control
Kathleen A. Shuka

APPENDIX A

Peripheral Neuroanatomy of the Upper and Lower Extremities

499

*Andrew J. Robinson***APPENDIX B**

Answers to Self-study Questions

511

Index

533

*Andrew J. Robinson***Fundamental Concepts of Electricity**

- Electric Charge
- Electric Field
- Voltage
- Conductors and Insulators
- Electrical Current
- Resistance and Conductance
- Ohm's Law
- Capacitance and Impedance

Language of Electrotherapeutic Currents

- Traditional and Commercial Designations of Currents

Summary**Self-study Questions****References**