

Contents

Preface <i>R. Dengler</i>	V
Foreword <i>A. Struppner</i>	V
Index of Authors	X
I. Morphology and Biochemistry	
Morphology of Normal and Denervated Skeletal Muscle <i>D. E. Pongratz, W. Müller-Felber</i>	2
Is There Metabolic Homogeneity in Muscle Fibres Belonging to the Same Motor Unit? <i>H. Reichmann</i>	7
Mitochondrial Ophthalmoplegia Plus. Biochemistry and Therapy <i>S. Zierz, J. Bleistein, F. Jerusalem</i>	13
II. Physiology	
Fast and Slow Inactivating Human Potassium Channels Measured with a Double Patch Clamp <i>J. P. Ruppertsberg, W. Spittelmeister, A. Marx, B. Fakler, R. Rüdel</i>	20
Quantal Release at the Endplate Without Calcium Inflow <i>J. Dudel</i>	26
Ensemble Inputs to α -Motoneurons During Movement <i>A. Prochazka</i>	32
Some Aspects of Reflex and Non-Reflex Muscle Stiffness <i>A. Struppner, M. T. Jahnke</i>	43
Sensory Nerve Stimulation and the Sense of Muscle Force <i>J. H. Petajan</i>	48

VII

Contents

III. Pathophysiology and Diseases

Spontaneous Motor Unit Activity <i>F. Spaans</i>	56
Hyperexcitability of Muscle Fibers in the Schwartz-Jampel Syndrome <i>F. Lehmann-Horn, P. A. Iaizzo, C. Franke</i>	63
Overuse of Remaining Motor Units in the Step Cycle and Its Consequences in Human Lower Motoneurone Disorders <i>L. Grimby, J. Borg, K. Borg, L. Edström</i>	71
Dynamic Aspects of the Degenerative Process in Amyotrophic Lateral Sclerosis – A Clinical and Electromyographical Study <i>G. Küther, A. Struppner</i>	76
Running-Induced Damage in Soleus Muscle of Mice <i>A. Wernig, A. Irinchev, T. F. Salvini</i>	83
Methods for Counting the Number of Motor Units in Human Muscles <i>R. B. Stein, J. F. Yang</i>	89

IV. Electromyography

Development of the Motor Unit Action Potential During Aging. A Reappraisal <i>C. Bischoff, B. Conrad</i>	96
Concentric Macro EMG <i>J. F. Jabre, W. Bauermeister, R. Gan</i>	102
EMG Signal Classification <i>W. Wolf</i>	109

V. Motor Unit Contraction

Changes of the Muscle Contraction to a First Stimulus by a Second Excitation <i>H. C. Hopf, U. Dillmann, G. Krämer</i>	116
---	-----

- In-Situ Quantification of Mechanical Muscle Fibre Conduction Velocity
and Electromechanical Coupling Time in Intact Human Skeletal Muscle
M. Keidel, M. J. Zwarts 123

- Neuromuscular Properties and Fatigue Responses in Patients with
Multiple Sclerosis
B. Bigland-Ritchie, C. L. Rice, T. Vollmer 129

- Motor Unit Forces in Amyotrophic Lateral Sclerosis
R. Dengler, A. Konstanzer, J. Elek, S. Hesse, W. Wolf 133

VI. Regeneration

- Characterization of Ciliary Neurotrophic Factor
M. Sendtner 140

- Cellular and Molecular Events in the Motoneuron During Regeneration
G. W. Kreutzberg 145

- Regulation of Motor Unit Size and Properties
G. Vrbová 150

- Size and Properties of Reinnervated Motor Units
T. Gordon, S. Erdebil, J. Totós de Zepetnek, V. Rafuse 157

VII. Central Influences

- Influence of Upper Motoneuron Lesion on the Motor Unit
W. A. Nix, B. Pfeifer, T. Vogt 164

- Response of Single Motor Units from First Dorsal Interosseous Muscle
to Transcranial Electrical and Magnetic Stimulation in Man
B. L. Day, P. D. Thompson, J. C. Rothwell, C. D. Marsden 170

- Human Spinal Motoneurone Excitability Between Voluntary
Discharges Investigated with Magnetic Brain Stimulation
M. Schubert, S. J. Boniface, K. R. Mills 181

- Index 184