CONTENTS

PAGE
1

THE FORCE GENERATING COMPONENTS

HUXLEY, H. E. The crossbridge mechanism of muscular contraction and its implications .	17
PERRY, S. V. Properties of the muscle proteins: a comparative approach	31
WHALEN, ROBERT G. Myosin isoenzymes as molecular markers for muscle physiology	43
EISENBERG, BRENDA R. Adaptability of ultrastructure in the mammalian muscle	55
MORGAN, D. L. From sarcomeres to whole muscles	69
CAVAGNA, G. A., MAZZANTI, M., HEGLUND, N. C. AND CITTERIO, G. Storage and release of mechanical energy by active muscle: a non-elastic mechanism?	79

THE ACTIVATION AND CONTROL COMPONENTS

PEACHEY, LEE D. Excitation-contraction coupling: the link between the surface and the interior of a muscle cell	91
CONTE-CAMERINO, DIANA, BRYANT, S. H., LOGRANO, M. D. AND MAMBRINI, M. The influence of inactivity on membrane resting conductances of rat skeletal muscle fibres undergoing reinnervation	99
HENNEMAN, ELWOOD. The size-principle: a deterministic output emerges from a set of probabilistic connections	105
VROBOVÁ, G., NAVARRETE, R. AND LOWRIE, M. Matching of muscle properties and motoneurone firing patterns during early stages of development	113
DE LUCA, CARLO J. Control properties of motor units	125
LOEB, GERALD E. Motoneurone task groups: coping with kinematic heterogeneity	137

ENERGY SUPPLY COMPONENTS

HOCHACHKA, P. W. Fuels and pathways as designed systems for support of muscle work .	149
KUSHMERICK, MARTIN J. Patterns in mammalian muscle energetics	165
PETTE, DIRK. Metabolic heterogeneity of muscle fibres	179
GOLLNICK, PHILIP D., RIEDY, MARK, QUINTINSKIE, JOHN J. AND BERTOCCI, LOREN A. Differences in metabolic potential of skeletal muscle fibres and their significance for metabolic control	191
ARMSTRONG, R. B. AND LAUGHLIN, M. H. Metabolic indicators of fibre recruitment in mammalian muscles during locomotion	201
HUDLICKA, O. Development and adaptability of microvasculature in skeletal muscle	215

Contents

OPERATION OF THE SYSTEM FOR DEVELOPMENT OF FORCE, SPEED AND POWER	
ALEXANDER, R. MCN. The maximum forces exerted by animals	231
JOHNSTON, IAN A. Sustained force development: specializations and variation among the vertebrates	239
TAYLOR, C. RICHARD. Force development during sustained locomotion: a determinant of gait, speed and metabolic power	253
MCMAHON, T. A. The role of compliance in mammalian running gaits	263
HEGLUND, NORMAN C. AND CAVAGNA, GIOVANNI A. Efficiency of vertebrate locomotory muscles	283
ELLINGTON, C. P. Power and efficiency of insect flight muscle	293
LIMITATIONS TO PERFORMANCE AND MALLEABILITY OF THE SYSTEM	
TERJUNG, RONALD L., DUDLEY, GARY A. AND MEYER, RONALD A. Metabolic and circulatory limitations to muscular performance at the organ level	307
DI PRAMPERO, P. E. Metabolic and circulatory limitations to \dot{V}_{O_2} max at the whole animal level	319
BENNETT, ALBERT F. Temperature and muscle	333
SALTIN, B. Malleability of the system in overcoming limitations: functional elements	345
HOPPELER, H. AND LINDSTEDT, S. L. Malleability of skeletal muscle in overcoming limitations: structural elements	355
HOWALD, H. Malleability of the motor system: training for maximizing power output	365
GOLDSPINK, GEOFFREY. Malleability of the motor system: a comparative approach	375
EDGERTON, V. REGGIE, MARTIN, THOMAS P., BODINE, SUE C. AND ROY, ROLAND R. How flexible is the neural control of muscle properties?	393
CONCLUSION	
WEIBEL, EWALD R. Design and performance of muscular systems: an overview	405
PHOTOGRAPHS OF MEETING	

PAGE