

CONTENTS

PREFACE

In memoriam: Professor MUDr. Václav SELIGER, DrSc.

J. RUTENFRANZ 11

EFFECTS OF EXERCISE ON THE LEVEL OF CELLS AND TISSUES

The functional state and the physiological lability at the cellular and systemic levels	
M. I. SOLOGUB	19
Muscular enlargement	
P. D. GOLLNICK, B. F. TIMSON, R. L. MOORE, M. RIEDY	23
Changes in rabbit muscle enzyme activities in response to chronic stimulation with different frequency patterns	
B. HARRIS, A. HEILIG, O. HUDLICKÁ, E. LEBERER, O. PETTE, K. TYLER	27
Effect of intermittent chronic stimulation on fiber distribution in rabbit muscles	
D. SZVETKO, K. MABUCHI, K. PINTER, F. JOLESZ, F. A. SRETER	33
Some enzyme activities of energy supply in m. vastus lateralis of trained ski-runners and less active men	
A. BASS, E. MACKOVÁ, J. TEISINGER, K. VONDRA	41
Changes of enzyme activities of the energy metabolism due to endurance loads	
E. V. MACKOVÁ, A. BASS, Š. ŠPRYNAROVÁ, K. VONDRA, I. BOJANOVSKÝ	47
The effect of short maximum load exercise test on some enzyme activities and cholesterol contents in human skeletal muscle	
K. VONDRA, V. BRODAN, A. BASS, E. KUHN, M. ANDĚL, V. VÍTEK, J. TEISINGER	53
Interaction of calcium, cyclic AMP and tension in the regulation of protein degradation in muscle	
J. D. ETLINGER, K. MATSUMOTO	57
Differentiation of myosin in fast and slow muscles during development	
I. SYROVÝ	65
Developmental aspects of cardiac enlargement	
M. WACHTLOVÁ, B. OŠŤÁDAL, V. MAREŠ	69
Use of monoclonal antibodies for detection of different molecular forms of myosin	
R. ZAK	75
Extracellular potassium changes in working muscles and their physiological implications	
P. HŇÍK	81
Assessment of muscle activity in awake unrestrained animals using chronic polyelectromyography	
R. VEJSADA, P. HŇÍK, S. KASICKI, Z. AFELT	87
The effects of thyroid hormone on the isometric characteristics of mammalian fast and slow-twitch skeletal muscles	
A. MONTGOMERY	95

BIOCHEMISTRY OF EXERCISE

Glucose and free fatty acids (FFA) blood level after exercise in adult men with various physical activity	
H. KUŇSKI, A. JEGIER, M. SZTOBRYN	103
The Bohr effect in blood of physically trained subjects	
D. BÖNING, F. TROST, K. M. BRAUMANN, U. KUNZE	107
Changes in biochemical parameters in athletes of different sports events after various exercises	
J. VRÁNOVÁ, J. MELICHNA, L. HAVLÍČKOVÁ, V. SELIGER, Z. BARTŮŇEK	113
Muscle fibre composition and functional performance in athletes of various sports events	
J. MELICHNA, L. HAVLÍČKOVÁ, J. VRÁNOVÁ, V. SELIGER, Z. BARTŮŇEK, S. BARTŮŇKOVÁ, J. ŠTICHOVÁ	119
Renal elimination of catecholamines during simple physical exercise and during exercise combined with stress	
A. VESELKOVÁ, E. KUHN, M. ANDĚL, K. VONDRA, R. HONZÁK, V. BRODAN	123
Effect of exercise on substrate metabolism in pregnant mother, placenta and fetal liver of the rat	
J. GÓRSKI, T. KIRYLUK	129

ONTOGENETIC ASPECTS OF EXERCISE

Health standarts in terms of exercise fitness of school children in urban and rural areas in various European countries	
J. RUTENFRANZ, I. L. ANDERSEN, V. SELIGER, R. MASIRONI	135
The pattern of habitual physical activity of school children affected by social isolation	
J. RUTENFRANZ, K. LANGE ANDERSEN, R. MASIRONI, V. SELIGER, I. BERNDT, H. KYLIAN, P. KNAUTH, F. KLIMMER	143
The comparison of the adjustment of oxygen uptake in 13-year-old boys at the onset of exercise of two different loads	
M. MÁČEK, J. VÁVRA	155
Functional capacity in boys aged 12—15 years with different motor activity	
Z. PLACHETA	159
Energy expenditure during current and "intensified" lessons of physical education	
J. HELLER, V. SELIGER, Z. BARTŮŇEK, M. PAUER	165
Effects of intensified school physical education on physical fitness	
M. PAUER, V. SOBOLOVÁ, Z. BARTŮŇEK, S. BARTŮŇKOVÁ, L. HAVLÍČKOVÁ, J. HELLER, J. MELICHNA, V. SELIGER, V. ZELENKA	171
Energy expenditure and work efficiency during steady state exercise: The effect of age	
J. ULBRICH	177
Thermoregulation in children	
C. T. M. DAVIES	183
A ten year study of physiological changes in initially sedentary middle-aged men	
F. W. KASCH	187
The impact of different work load and nutrition at the beginning of life on later development of the organism	
J. PAŘÍZKOVÁ, M. ŠPÁTOVÁ, S. FRAŇKOVÁ	193
Increased sensorimotor activity during early postnatal life increases the metabolic resistance of the brain to stress in adult rats	
B. SEMIGINOVSKÝ, B. JAKOUBEK	199
Changes in body composition after retirement from manual work	
J. M. PATRICK, E. J. BASSEY, P. R. M. JONES, I. A. MACDONALD, P. H. FENTEM	207

MOTOR CONTROL AND CARDIORESPIRATORY DYNAMIC DURING EXERCISE

The relationship between anaerobic threshold and physical working capacity	
J. GHESQUIERE, T. REYBROUCK, J. FAULKNER	213
The computer analysis of heart rate during exercise and recovery and the influence of some drugs	
V. BRODAN, J. POTŮČEK, M. HÁJEK	217
Cardiorespiratory fitness of men with hypercholesterolaemia	
J. HORÁK, P. BRANDEJSKÝ, L. BOUDOVÁ, O. JINDRA	223
The effect of diet and exercise on the peripheral vascular resistance and myocardial oxygen uptake of hypertensive men	
F. W. KASCH, A. M. FRIEDMAN	229
Effect of exercise on physical fitness and coronary risk factors	
S. BARTŮŇKOVÁ, Z. BARTŮŇEK, V. SELIGER	237
Systolic time intervals, stroke volume and cardiac output measured by electrical impedance during static effort	
J. VÁVRA, J. SOVA, M. MÁČEK	241
Age specific features of blood circulation in upper and lower limbs at repose and after physical loading	
V. GEORGIEV, E. KISSEKOVA, R. HRISTOV	245
Reaction time in hyperbaric conditions with breathing air and helium-air mixture	
V. S. GAVRIYSKY, G. D. MATEEV	251
Changes of parameters of the cardiovascular and respiratory functions during arm cranking in untrained women aged 40 to 49 years	
H. FRAUENDORF, W. GELBRICH, D. BRÄUER	257
Physical load and fitness of women working in agriculture	
V. HAVEL, O. ŠKRANEC	261

FUNCTIONAL CHANGES IN DIFFERENT SPORTS

New aspects of field testing — a summary of the research done at the University of Montreal	
L. LÉGER	265
The influence of exercises with steady or varied power on energy metabolism	
I. WOJCIESZAK, J. STARCZEWSKA-CZAPOWSKA, A. NOWAKOWSKA	273
Energy expenditure and food intake of Polish free-style wrestlers of the olympic team	
I. CELEJOVA, D. NIEDŹWIECKA, I. WOJCIESZAK, E. NAJMARK	279
Some indexes of blood circulation during swimming in ice-cold water	
YU. TCHUSOV	287
Changes in cardiorespiratory parameters during short-term and prolonged exercise	
L. HAVLÍČKOVÁ, J. MELICHNA, J. VRÁNOVÁ, † V. SELIGER, Z. BARTŮŇEK, P. VODIČKA	293
Changes in maximal aerobic power in groups of endurance athletes	
Š. ŠPRYNAROVÁ, I. BOJANOVSKÝ, V. BUNC, A. JEHLÍKOVÁ	299
Longitudinal development of the state of health in young swimmers	
J. NOVÁK	305
Electrocardiographic changes after swimming marathon	
V. ZEMAN, J. NOVÁK, J. HŮLA	313
Body temperature response to swimming marathons in cold water	
V. ZEMAN, J. NOVÁK	319
Physical fitness of soccer players of the first division during three-year cycles	
V. ZELENKA	327
Factor analysis of some functional and biochemical parameters in sportsmen of different activities	
Z. BARTŮŇEK, J. MELICHNA, L. HAVLÍČKOVÁ, J. VRÁNOVÁ, V. SELIGER	333