

Contents

Preface	ii
Congress Committee Membership	iii
Acknowledgements	iii

Section I: Muscle Mechanics

1. Stretch Load Influences on Stretch Reflex Characteristics of the Triceps Surae Muscle in Drop Jump Exercises <i>Avela, Janne M.</i> Co-authors: <i>P.M.Santos, P.V.Komi, H.Kyröläinen</i>	1
2. Estimation of Individual Muscle Forces During a Dumbbell Curl <i>Challis, John.</i> Co-author: <i>D.G.Kerwin</i>	2
3. Muscle Fatigue During Isometric and Dynamic Contractions <i>Duchateau, Jacques.</i> Co-author: <i>K.Hainaut</i>	4
4. Stiffness of the Gastrocnemius Medialis Muscle-Tendon Complex and Isolated Tendon of the Rat Measured by Sinusoidal Length Changes <i>Ettema, Gertjan.</i> Co-author: <i>P.A.Huijing</i>	5
5. Development of Strength Endurance Tests for Stretch-Shortening Cycle Movements <i>Frick, Ulrich.</i> Co-authors: <i>D.Schmidtbleicher, R.Stutz</i>	7
6. Joint Torque/Velocity Profiles in the Human Lower Extremity During Maximum Pedalling and Single Joint Concentric and Eccentric Actions <i>Funato, Kazuo.</i> Co-authors: <i>R.J.Gregor, J.P.Broker</i>	9
7. Contraction Characteristics of Quadriceps/Hamstring at Four Isokinetic Velocities <i>Hanzhou, Shen.</i> Co-author: <i>B.Eryu</i>	11
8. Changes in Force Sharing Among Cat Triceps Surae Muscles as a Function of Movement Intensity <i>Herzog, Walter.</i> Co-author: <i>T.R.Leonard</i>	12
9. Muscle Fibre (Hyper-)trophy and Atrophy in Relation to Fibre Angle <i>Huijing, Peter A.</i> Co-author: <i>J.W.Heslinga</i>	14
10. Isometric Trunk Extensor Endurance in Young Females <i>Jorgensen, Kurt.</i> Co-author: <i>T.Nicolaisen</i>	16
11. Differences in Mechanical Efficiency Between Lower and Upper Limb Exercises <i>Kyrolainen, Heikki.</i> Co-author: <i>P.V.Komi</i>	17
12. Contractile Recordings in Single Human Muscle Fibre Segments obtained by Percutaneous Biopsy <i>Larsson, Lars.</i>	19
13. Implementation of Force Enhancement in a Muscle Model <i>Leyland, A.J.</i> Co-author: <i>A.E.Chapman</i>	21
14. The Influence of Pretension on Concentric Muscle Action <i>Mungiole, Michael.</i> Co-author: <i>J.M.Winters</i>	22
15. Muscular Responses Comparison Between Normal and ACL Reconstructed Knees During Drop Jump <i>Normand, Martin C.</i> Co-authors: <i>A.R.Normand, D.Marchand</i>	24

16.	Elastic Energy Storage in Vertical Jumping <i>Pandy, Marcus G.</i> Co-author: <i>F.C.Anderson</i>	26
17.	Measurement of Changes in Muscular Strength in Aquatic Rehabilitation <i>Prins, Jan.</i> Co-author: <i>R.Havriluk</i>	28
18.	The Effects of Climb Up in Drop Jump Training <i>Schmidtbleicher, Dietmar.</i> Co-author: <i>U.Frick</i>	29
19.	A Muscular Model Approach of Triceps Surae During Vertical Jump <i>Van Hoecke, Jacques.</i> Co-authors: <i>M.Pousson, F.Birague, A.Spiewek</i>	31
20.	Is the Activation of Mono-Articular Muscles Based on Position Information? <i>Van Ingen Schenau, Gerrit Jan.</i> Co-authors: <i>W.M.M.Dorssers, T.Welter</i>	33
21.	Strategies in Human Jumping <i>Voigt, Michael.</i> Co-authors: <i>E.B.Simonsen, P.Dyhre-Poulsen, F.Bojsen-Moller</i>	34
22.	Model of Muscle Fibre with Controllable Recruiting <i>Vorobiev, Andrei.</i> Co-authors: <i>A.Guskov, A.Eliutin, G.Ariel</i>	36
23.	The Effect of Increasing the Compliance of the Musculo-Tendinous System on the Performance of a Stretch Shorten Cycle Movement <i>Wilson, Greg.</i> Co-authors: <i>B.C.Elliott, G.A.Wood</i>	38
24.	Relative Intercompensation in Force Output of Cat Plantaris and Gastrocnemius Muscles <i>Zatsiorsky, V.M.</i> Co-authors: <i>W.Herzog, T.R.Leonard</i>	39
25.	The Effect of Muscle Architecture on Shortening Velocity of Pennate Muscle <i>Zuurbier, Koert.</i> Co-author: <i>P.A.Huijing</i>	41

Section II: Sports Biomechanics

26.	Ground Reaction Forces in Sprinting <i>Ae, Michiyoshi.</i> Co-authors: <i>K.Miyashita, T.Yokoi, S.Ooki</i>	43
27.	Heel Pad Mechanics in Shod Conditions: Conflicting Mechanics <i>Aerts, Peter F.J.</i> Co-author: <i>D.L.R.De Clercq</i>	45
28.	Kinetic Analysis of Roundoff Entry Vaults in Gymnastics <i>Alt, Wilfried.</i>	46
29.	On the Dynamics of an Eight Seat Rowing Ergometer <i>Bauer, W.Lutz.</i>	48
30.	Influence of Fatigue on the Rearfoot Motion and Shock Attenuation During Normal Running with Different Footwear <i>Brüggemann, Gert-Peter.</i> Co-authors: <i>A.Hirthe, A.Knicker, Ch.Steppat</i>	49
31.	Laboratory vs Field Tests in Running Shoe Research <i>Brüggemann, Gert-Peter.</i> Co-authors: <i>A.Hirthe, A.Knicker, Ch.Steppat</i>	51
32.	Tennis Dynamics: Experimental Results on Rebound Speed <i>Casolo, Federico.</i> Co-authors: <i>Rinaldo Garziera, Roberto Garziera</i>	52
33.	Foot Strike in Running: Heel Pad Mechanics <i>De Clercq, Dirk L.R.</i> Co-authors: <i>P.Aerts, M.Kunnen</i>	54
34.	Air Friction and Rolling Resistance During Cycling <i>De Groot, Gert.</i> Co-authors: <i>P.Aben, K.Hoefnagels</i>	56

35. Simulation of Sprint Performances in Speed Skating <i>De Koning, Jos J.</i> Co-authors: <i>G.de Groot, G.J.van Ingen Schenau</i>	57
36. Research on the Velocity Structure of Long Jump <i>Di, Fenggang.</i> Co-author: <i>J.Zhou</i>	59
37. Kinematic Comparison of On-Water and Specific Ergometer Sculling <i>Duchesnes, Christiane.</i> Co-authors: <i>M.L.Riethmuller, A.C.Nicol, J.P.Paul</i>	61
38. A Study of Two Kinds of Arm-Swinging in the Front Spike of the Chinese Women Volleyball Team Players <i>Erlian, Huang.</i>	63
39. Stiffness of Fibreglass Poles and Performance Among World-Class Pole Vaulters <i>Fuchimoto, Takafumi.</i> Co-authors: <i>A.Ito, M.Kaneko</i>	63
40. The Characteristics of Various Vertical Jumps in Japanese Top Athletes <i>Fukashiro, Senshi.</i> Co-authors: <i>T.Kobayashi, A.Wakayama, H.Yanagi, H.Matsui</i>	65
41. Maximal Human Power Output Capacity and its Determination for Male and Female Athletes <i>Garhammer, John.</i>	67
42. Release Parameters in a Selected Horizontal Bar Release Regrasp Skills <i>Gervais, Pierre.</i> Co-authors: <i>F.Tally, N.Tsaousidis</i>	68
43. Computer Modelling of Gleno-Humeral Joint Loads as Related to Gymnastic Rings Technique <i>Gielo-Perczak, Krystyna.</i>	70
44. Barefoot Running in Long Distance Competition <i>Dongsheng, Guo.</i> Co-author: <i>P.Huiju</i>	71
45. Release Mechanics in the Triple Tucked Backward Salto Dismount from High Bar <i>Harwood, Michael.</i> Co-authors: <i>D.G.Kerwin, M.R.Yeadon</i>	73
46. The Effect of Braking Load on Maximal Anaerobic Muscle Power Output During Short-Term Cycling Exercise <i>Hirano, Yuichi.</i> Co-authors: <i>T.Tagawa, M.Miyashita</i>	75
47. The Mechanical Model of Legs and Arms, and the Definitions of the Strike Centre of Bridges and Sweep-Legs in the Wushu <i>Hui, Li.</i> Co-authors: <i>Z.Weimin, W.Juan</i>	76
48. Progressive Changes of Joint Power in Sprint Starts <i>Ito, Akira.</i> Co-authors: <i>M.Saito, F.Fuchimoto, M.Kaneko</i>	78
49. Intermuscular Coordination in a Sprinting Task <i>Jacobs, Ron.</i> Co-author: <i>G.J.van Ingen Schenau</i>	79
50. Biomechanics Evaluation on Female Triple Jump Technique <i>Jianshe, Li.</i> Co-authors: <i>H.Zhongyuan, G.Dongsheng, P.Huiju</i>	81
51. The Sport Biomechanical Analysis of Flic Flac to Double Layout Salto <i>Jie, He.</i> Co-authors: <i>J.Jiapu, W.Xiaofen, L.Rongzeng</i>	82
52. Biomechanical Characteristics of Fatigue During 400 Meter and 800 Meter Runs <i>Kaneko, Masahiro.</i> Co-author: <i>T.Fuchimoto</i>	84
53. Analysis of Breathing Waves and EMG During the Golf Swing <i>Kawashima, Kazuaki.</i> Co-authors: <i>M.Muro, A.Nagata</i>	85

54. Breathing Pattern of Elite Swimmers in Aerobic/Anaerobic Loading <i>Keskinen, Kari L. Co-author: P.V.Komi</i>	87
55. The Cause of Personal Difference of Joint Movement in Vertical Jump <i>Kimura, Hiroshi.</i>	88
56. Is the Proximal to Distal Sequence of Torque Onset a Common Feature of all Types of Simulated Throws and Puts? <i>Kojima, Takeji. Co-author: A.E.Chapman</i>	90
57. Biomechanical Factors Related to Performance of "Fouette en Tournant" <i>Kuno, Mayumi. Co-authors: Y.Hirano, M.Miyashita</i>	91
58. Effects of Slight Variations of Joints Law-of-Motion on Gymnastic Performances <i>Legnani, Giovanni. Co-author: F.Casolo</i>	93
59. Study and Manufacture of Large Simulated Track <i>Lian, Zhong. Co-authors: M.Fanzhao, G.Lange</i>	95
60. Archery Bow Grip Force Distribution: Relationship with Skill Level and Fatigue <i>Martin, Philip E. Co-author: G.D.Heise</i>	96
61. A Kinetic and Kinematic Analysis of the Golf Swing <i>Mason, Bruce. Co-authors: R.L.Thinnes, S.Limon</i>	97
62. Does the Concept II Rowing Ergometer Accurately Simulate the Biomechanics of Rowing? <i>McBride, M.E.</i>	99
63. Influence of Cadence on Mechanical Parameters of Pedalling <i>McLean, Brian. Co-author: M.A.Lafortune</i>	100
64. Optimum Pedalling Cadence Determined by Joint Torque Parameters and Oxygen Cost <i>McLean, Brian. Co-author: M.A.Lafortune</i>	102
65. Characteristics in Running Technique After Two Years of Training in Sprinters <i>Mero, Antti. Co-author: P.V.Komi</i>	104
66. A Proportionality Profile of the Pre-Adolescent Female Gymnast <i>Mitchell, Jo. Co-authors: B.C.Elliott, T.R.Ackland</i>	106
67. Mechanical Nature of a Tennis Racket - the Point of Impact on the Strings and the Bend of the Racket Frame <i>Miyashita, Mitsumasa. Co-authors: Y.Hirano, K.Kodama</i>	108
68. Effects of Knee Angle on Squat and Countermovement Jumps <i>Mognoni, Piero. Co-authors: F.Lorenzelli, M.D.Sirtori, A.E.Minetti</i>	109
69. A Three Dimensional Cinematographic Investigation of the Techniques of Elite Hammer Throwers in Competition <i>Morriss, Calvin J. Co-author: R.M.Bartlett</i>	111
70. Computerised Feedback System for Vaulting in Gymnastics <i>Nissinen, Mauno. Co-author: E.Nixdorf</i>	112
71. Effects of Training Intensities on Maximal Leg Extension Power <i>Ohgane, Masako. Co-authors: Y.Hirano, T.Fukunaga, M.Miyashita</i>	114
72. The Application of Dynamics of Multi-Body Systems with Closed Chains to Computer Simulation of Pole Vaulting <i>Qin, Wang. Co-author: W.Wen-Yi</i>	115

73.	Temporal Analysis of the Effects of Competition on Young Swimmers <i>Ragheb, Mohamed A.</i> Co-author: <i>W.B.Gregory Jr.</i>	117
74.	The Influence of Visualizing the Finish Line on the Kinematics of 50m Dash Performed by Novice Athletes <i>Ragheb, Mohamed A.</i>	118
75.	A Comparison of the Arm Movement of Overhand Throwing Motion Between Male and Female Students <i>Sakurai, Shinji.</i> Co-authors: <i>Y.Ikegami, K.Yabe, A.Okamoto, S.Toyoshima</i>	120
76.	Timing Changes During Accommodation to a Compliant Surface in Jumping <i>Sanders, Ross.</i> Co-author: <i>J.B.Allen</i>	122
77.	EMG Activities Related to Metabolic Cost During Stationary Running of Aerobic Dancing <i>Sawai, Shiho.</i> Co-authors: <i>Y.Hirano, T.Fukunaga, M.Miyashita</i>	123
78.	Rebound Velocity Characteristics of Wide Body Tennis Rackets with Different String Tensions <i>Sasahara, Hideo.</i> Co-authors: <i>R.Tomosue, N.Oda, E.Yanagihara</i>	125
79.	The Movement of the Heel Within a Running Shoe <i>Stacoff, Alex.</i> Co-authors: <i>Ch.Reinschmidt, E.Stussi</i>	127
80.	Optimal Release Angle on Discus Throw Through Computer Simulation <i>Sueyoshi, Yasuhiro.</i> Co-author: <i>A.Maruyama</i>	129
81.	The Effects of Difference in the Thickness of Racket Frame and the String Tension on Tennis Ball-Racket Impact <i>Sugiyama, Kiyoshi.</i> Co-authors: <i>A.Miura, H. Sasahara, S.Usui</i>	131
82.	A Change of Fixation Point in Golf Approach Shot Performance <i>Takagi, Hideki.</i> Co-author: <i>K.Tsuruhara</i>	132
83.	A Comparison of Techniques Used by Two Groups of Elite Gymnasts Performing a Double Salto Backward Tuck Dismount from the Horizontal Bar <i>Takei, Yoshiaki.</i> Co-authors: <i>H.Nohara, M.Kaminura</i>	134
84.	Fast Information System for Floor Exercise in Gymnastics <i>Theiss, Petra.</i> Co-author: <i>E.Nixdorf</i>	136
85.	Measuring the Vibrations of a Racket Handle and the Wrist Joint in the Tennis Forehand Drive <i>Tomosue, Ryoso.</i> Co-authors: <i>Y.Mutoh, K.Yoshinari, Y.Kawazoe</i>	138
86.	Longitudinal Study on the Selected Sports Performances Related with the Physical Growth and Development in Twins <i>Goya, Toshiaki.</i>	139
87.	The Determination of the Subtalar Pronation Axis of Elite High Jumpers During the Impact Phase at Take-Off: A Three Dimensional Cinematographical Approach <i>Van Gheluwe, Bart.</i> Co-author: <i>E.Deporte</i>	141
88.	Special Analysis System for Some Sports Performances <i>Weimin, Liu.</i> Co-authors: <i>L.Qing, C.Guojun</i>	143
89.	Three-Dimensional Analysis of Zhong Yu-Ping's Straight-Body Backward Somesaults with 720 Degree Twist <i>Wensheng, Wang.</i> Co-author: <i>Liu Rongzeng and Xu Jingming</i>	144

90. The Relationship of Vertical-Ground-Reaction Force with Barbell Load in the Olympic Clean Lift <i>Wisleder, Deric.</i>	146
91. A 3D Kinematic Analysis of the Squash Forehand Stroke <i>Woo, Helen.</i> Co-author: <i>A.E.Chapman</i>	147
92. Comparison of Mechanical Properties of Injured Rat Muscles with Different Treatments: Splinting Fixation, Free Activity and Forced Training <i>Xu, Zhaoqing.</i>	149
93. Angular Momentum of the Shomen-Uchi Technique in Kendo <i>Yamagami, Shin-ichi.</i> Co-authors: <i>F.Nakiri, Y.Okada, M.Ae</i>	151
94. Analysis of the Movement Velocities of Upper Limb in Smash, Driven Clear and Drop Spike of Badminton <i>Ye, Wei.</i>	152
95. Control Strategies for Non-Twisting Somersaults <i>Yeadon, Maurice.</i> Co-author: <i>E.C.Mikulcik</i>	154
96. Correlation Between Explosive and Maximum of Leg Extensor Muscles in Dynamic Strength Testing <i>Yue, Zhang.</i> Co-authors: <i>C.Guo-Jun, D.Yu-Sheng</i>	156
97. A Biomechanical Research for 1 1/2 Backward Somersault with Half Turn Vault and Regrasp on the Horizontal Bar <i>Yusheng, Dai.</i> Co-authors: <i>Q.Jinguang, Z.Lixing, L.Wieming, B.Weidong</i>	157
98. Reexamination of Acceleration Theory During Push-Off Phase in Speed Skating <i>Yuuki, Masahiro.</i> Co-authors: <i>M.Ae, T.Asami</i>	158
99. Biomechanical Analysis of the Javelin Throw <i>Zhi-Heng, Ning.</i> Co-authors: <i>L.Yong-dong, Z.Zai-ping</i>	160
100. Muscle Activity Between Varied Motions During Swinging Backward from Hanging Position on the Rings <i>Jian-Zhuang, Niu.</i> Co-author: <i>W.Sui-Sheng</i>	161
101. The Functional Role of the Velocity Fluctuation in Swimming <i>Zschorlich, Volker.</i>	163
102. Influence of Dropping Height and Magnitude of Dropping Mass by Extra Weights on Eccentric Power Output of Drop Jumping <i>Zushi, Koji.</i> Co-authors: <i>K.Takamatsu, T.Koto</i>	165

Section III: Special Populations

103. Gait Analysis in Patients After Van Nes Rotation Plasty <i>Catani, Fabio.</i> Co-authors: <i>R.Capanna, M.G.Benedetti, A.Battistini, A.Leardini, G.Cinque, S.Giannini</i>	167
104. Kinematics of Walking Frame Ambulation <i>Crosbie, Jack.</i>	168
105. External Loading for Below-Knee-Amputee and Able-Bodied Children During Walking <i>Engsberg, Jack.</i> Co-authors: <i>A.G.Lee, M.J.N.Springer, J.A.Harder</i>	170

106.	Structural Changes to the Rectus Abdominis During Pregnancy and Immediately Post-Pregnancy <i>Gilleard, Wendy.</i>	171
107.	Functional Significance of Braces and Special Shoes in Subjects with and without Chronic Instability of the Ankle Joint <i>Gollhofer, Albert.</i> Co-authors: <i>C.Scheuffelen, H.Lohrer, S.Terreri</i>	173
108.	Wave Parameters in Stance of Osteoarthritic Knee Subjects <i>Grote, Robyn H.</i>	175
109.	The Regularity of the Teenager's Centre of Gravity Change with the Process of Growth and Development <i>Guo-Zheng, Zhou.</i>	177
110.	The Kinematics of Vertical Jump in Boys Aged Five, Six and Seven Years <i>Harrison, Andrew.</i>	178
111.	Development of Preparatory Control Capacity in Children During Precision Grip <i>Kinoshita, Hiroshi.</i> Co-authors: <i>K.Ikuta, T.Ono, K.Kuzuhara, M.Udo</i>	179
112.	Methodology for Gait Evaluation of Paretic Patients using Electrical Stimulation for Gait Correction <i>Kljajic, Miroljub.</i> Co-authors: <i>M.Malezic, P.Vrtacnik</i>	181
113.	Effects of Severe Obesity on Rearfoot Dynamics During Walking <i>Messier, Stephen.</i> Co-authors: <i>A.B.Davies, D.T.Moore, S.E.Davis, R.J.Pack, S.Kazmar</i>	183
114.	Characteristics of Hemiplegic Cerebral Palsy Gait - a Regression Approach <i>Olney, Sandra.</i> Co-authors: <i>M.P.Griffin, I.D.McBride</i>	185
115.	The Effects of Clinical Manifestations in Parkinson's Disease on Standing Balance <i>Panzer, Victoria.</i> Co-authors: <i>G.A.Moyle, L.M.Nashner, T.N.Chase</i>	186
116.	Use of F.E.S. in Crutch Aided Locomotion <i>Paul, John P.</i> Co-authors: <i>M.H.Granat, B.J.Andrews, M.A.Delargy, P.A.Freeman</i>	188
117.	Gait Patterns After Free-Flap Reconstruction of the Foot Sole <i>Perttunen, Jarmo R.</i> Co-authors: <i>P.V.Kumi, J.Rautio</i>	190
118.	Analysis of Walking Kinetics in Below Knee Amputees <i>Sanderson, David J.</i> Co-author: <i>P.E.Martin</i>	191
119.	Ground Reaction Forces of Children with Clubfeet <i>Sawatzky, Bonita.</i> Co-authors: <i>D.J.Sanderson, R.D.Beauchamp, A.R.Outerbridge</i>	193
120.	Skeletal Muscle Work and Power in Ageing Women <i>Stanley, S.N.</i> Co-author: <i>N.A.S. Taylor</i>	195
121.	Muscle Mechanics in Post-Menopausal Osteoporotic and Non-Osteoporotic Females <i>Stanley, S.N.</i> Co-authors: <i>R.N. Marshall, M.W. Tilyard, N.A.S. Taylor</i>	196
122.	Three-Dimensional Kinematics in Wheelchair Propulsion <i>Su, Fong-Chin.</i> Co-authors: <i>Y.L.Chou, J.W.Lu, K.A.Lai</i>	198
123.	Clinical and Physiological Consideration of the Influence of Soft Tissue Contractures on Walking Ability in Spastic Cerebral Palsy <i>Suzuki, Nobuharu.</i> Co-authors: <i>M.Watakabe, K.Mita, Y.Takemitsu</i>	199

124.	The Effects of Two Orthoses on the Passive Ankle Torque <i>Thonnard, Jean-Louis.</i> Co-authors: <i>D.Bragard, P.Willems, L.Plaghki</i>	201
125.	Maximum Performance of Wheelchair Track Athletes <i>Van Der Woude, Lucas H.V.</i> Co-authors: <i>H.E.J.Veeger, T.Gwinn, C.V.C.Bouten</i>	203
126.	Differences in Wheelchair Propulsion Technique Between Trained and Untrained Subjects <i>Veeger, H.E.J.</i> Co-authors: <i>E.M.C.Lute, K.Roeleveld, L.H.V.van der Woude</i>	204
127.	Centre of Pressure Paths for Normal Subjects and a Drop-Foot Patient <i>Wallace, Eric.</i> Co-authors: <i>J.F.Orr, R.McIlhagger</i>	206
128.	Biophysical Devices for Special Populations <i>Yurkevich, Vitold.</i> Co-authors: <i>B.S.Farber, V.I.Shumejko, L.P.Belov</i>	208

Section IV: Occupational Biomechanics

129.	Biomechanical Research in Space <i>Ariel, Gideon.</i>	209
130.	Lumbar Loads in Occupational Bedmaking <i>Barrett, Rodney.</i> Co-author: <i>P.D.Milburn</i>	210
131.	Estimation of Spinal Loads in Overhead Work <i>Burton, Kim.</i> Co-authors: <i>K.M.Tillotson, M.G.Boocock</i>	212
132.	Influence of Work with Repetitive Arm Elevations on EMG, Contraction Force and Perceived Exertion in the Shoulder <i>Cederquist, Tony.</i> Co-authors: <i>M.Lindberg, H.Linderhed</i>	213
133.	Dynamic Responses of Intra-Abdominal Pressure and Abdominal Muscle Activity During Trunk Loading <i>Cresswell, Andrew G.</i> Co-author: <i>A.Thorstensson</i>	215
134.	Validation of a Linked Segment Model Applied to Lifting <i>De Looze, Michiel P.</i> Co-author: <i>H.M.Toussaint</i>	217
135.	Acceleration Effects on Joint Loadings in Lifting Tasks <i>Gagnon, Micheline.</i> Co-author: <i>G.Smyth</i>	218
136.	Magnitude of Torsional and Lateral Bending Moments at L5/S1 Joint During Symmetrical Sagittal Plane Lifting <i>Gagnon, Denis.</i> Co-author: <i>M.Gagnon</i>	220
137.	Torque Production and Low Back Forces in Standing and Kneeling Back Exertions <i>Gallagher, Sean.</i>	222
138.	Issues Relevant to Biomechanical Analysis of Loading on the Lumbar Spine in Stooped Lifting <i>Gallagher, Sean.</i>	224
139.	An Observation Based Model of Lifting Strength and Body Configuration for any Hand Location Within the Standing Reach Envelope <i>Grieve, Donald W.</i> Co-author: <i>D.Sanchez</i>	225
140.	Spinal Forces During Asymmetric Lifting in Four Postures <i>Hamrick, Christopher A.</i>	226
141.	Spinal Forces During Symmetric Lifting in Four Postures <i>Hamrick, Christopher A.</i>	228

142.	Variation in Spinal Stresses Due to Interaction Between Strength Capability, Reach and Velocity in Lifting <i>Kumar, Shrawan.</i>	230
143.	The Effect of Recovery During Rest Pauses on Body Height Changes of Aircraft Loaders <i>Leskinen, Timo P.J.</i> Co-authors: <i>H.R.Stalhammar, P.A.Nurmi, P.E.Heinonen</i>	231
144.	The Determinants of Impulsive Forces at Heel Strike of Women Walking at a Naturally Selected Walking Speed <i>Lloyd, David Gavin.</i> Co-authors: <i>J.Raymond, S.R.Lord, N.L.Svensson</i>	233
145.	Evaluation of a New Scissor Lift Device using Erector Spinae EMG and Heart Rate Measurements <i>Marchand, Denis.</i> Co-authors: <i>M.C.Normand, Y.Beauchamp, D.Imbeau</i>	235
146.	Trunk Muscle Activity and Intra-Abdominal Activity During Changes in Trunk Position, Velocity and Acceleration <i>Marras, William.</i> Co-author: <i>G.A.Mirka</i>	237
147.	Three Dimensional Quantification of Human Standing Posture <i>Newton, Robert.</i> Co-author: <i>R.J.Neal</i>	238
148.	Computer Analysis of Spinal Loading and Lower Back Injury Risk Prediction <i>Oliver, Stanley.</i> Co-author: <i>G.Garbutt</i>	240
149.	Computer Graphics and Animation in Biomechanical Evaluation of Work Postures and Movements <i>Örtengren, Roland.</i> Co-author: <i>G. Nilsson</i>	242
150.	A New Biomechanical Technique for Increasing of Joint Flexibility with a Focus on Back Pain Prevention <i>Pitkin, Mark.</i>	243
151.	Individual Trunk Muscle and Ligament Forces During Dynamic Lifting <i>Potvin, J.R.</i> Co-authors: <i>R.W.Norman, S.M.McGill</i>	245
152.	Work Activities and Weight of Handled Loads of Aircraft Loaders and the Effect of Pauses on Psychophysical Stress <i>Stalhammar, Hannu P.</i> Co-authors: <i>T.P.J.Leskinen, P.A.Nurmi, P.E.Heinonen</i>	246
153.	Biomechanical Analysis of Joint Load due to the Combined Effect of Surface Motions and Manual Material Handling <i>Torner, Marianne.</i> Co-authors: <i>C.Almstrom, R.Karlsson, R.Kadefors</i>	248
154.	Spinal Curvature Changes Lever Arm Lengths for Erector Spinae <i>Tveit, Per.</i> Co-authors: <i>A.G.Cresswell, K.Daggfeldt, A.Thorstensson</i>	249
155.	Effect of Long Term Low Level Static Work on Fatigue <i>Veiersted, Kaj Bo.</i>	251

Section V: EMG & Motor Control

156.	Psoas and Iliacus Muscles Act in Concert or Selectively During Natural Movements in Man <i>Andersson, Eva.</i> Co-authors: <i>H.Grundström, L.Oddsson, A.Thorstensson</i>	254
157.	Spatial Arrangement of Motor Unit Fibres in Fast- and Slow-Twitch Muscles of Young and Old Rats <i>Ansved, Tor.</i> Co-authors: <i>P.Wallner, L.Larsson</i>	255

158. Neuromuscular Indices of Inaccurate Movement <i>Brown, J. Mark.</i> Co-author: <i>R.Bronks</i>	257
159. Elaboration of EMG Data Based on a Pattern Recognition Approach <i>Bulgheroni, Maria.</i> Co-author: <i>R.Rodano</i>	258
160. Upper Extremity Function and the Biomechanics of Standing Up: Propulsion and Balancing Considerations <i>Carr, Janet.</i>	259
161. Long Time EMG Processing to Evaluate Muscular Loads in Working Activities <i>D'amico, Enrico.</i> Co-author: <i>M.Bulgheroni</i>	261
162. Analysing EMG Signals with Multivariate Statistics <i>Davis, Brian.</i> Co-author: <i>C.L.Vaughan</i>	262
163. Acute Effect of Static Stretching on Neural and Mechanical Properties of the Human Triceps Suræ <i>Duchateau, Jacques.</i> Co-authors: <i>N.Guissard, K.Hainaut</i>	264
164. Functional Evaluation of Two-Joint Muscle During Squat Jump Based on Musculo-Skeletal Human Model <i>Fujii, Norihisa.</i> Co-author: <i>T.Moriwaki</i>	265
165. Surface EMG Power Spectrum Changes During Incremental Exercise <i>Goubel, Francis.</i> Co-authors: <i>D.Gamet, C.Garapon-Bar, J.Duchêne</i>	267
166. Neuromuscular Adaptations in Strength Athletes During Strength Training Distributed into One or Two Daily Sessions <i>Hakkinen, Keijo.</i> Co-authors: <i>H.Kauhanen, M.Kallinen, P.V.Komi</i>	269
167. Muscle Force, EMG and Economy Effort <i>Högfors, Christian.</i> Co-authors: <i>R.Kadefors, D.Karlsson, B.Peterson</i>	270
168. Biomechanics Evaluation of Neuro-Muscle Electrical Stimulation <i>Huiju, Pan.</i> Co-authors: <i>L.Jianshe, G.Dongsheng, S.Jiabao, W.Zhongguan, H.Jie</i>	272
169. Simulation of Knee Joint Motions in Spastic and Rigid Patients <i>Jikuya, Kazuaki.</i> Co-authors: <i>T.Okamoto, T.Yokohira, K.Akashi</i>	273
170. The Control Mechanism of Dynamic Balance in a Jump with Full Turn <i>Watanabe, Kanae.</i> Co-author: <i>M.Harumi</i>	275
171. Analysis of Neural Mechanisms in Postural Adjustments During Voluntary Arm Movements <i>Kasai, Tatsuya.</i> Co-author: <i>Tomoyoshi Komiyama</i>	277
172. Studies of the Movements in Standing Up from a Chair <i>Kawagoe, Shouichi.</i> Co-authors: <i>Y.Okamoto, N.Tajima, I.Yamaguchi</i>	279
173. Cross Talk in Surface Electromyograms of Hamstring Muscles <i>Koh, Timothy.</i> Co-author: <i>M.D.Grabiner</i>	281
174. Minimizing Cross Talk in Surface Electromyograms <i>Koh, Timothy.</i> Co-author: <i>M.D.Grabiner</i>	282
175. Comparative Study of the Electromyographic Activities of m.Biceps Brachii and m.Brachoradialis <i>Masani, Kei.</i> Co-authors: <i>K.Nakazawa, T.Fukunaga, M.Miyashita</i>	284
176. Adjustments in Muscle Activation Patterns in Response to Greater Joint Flexion During Landing <i>McNitt-Gray, Jill.</i> Co-authors: <i>D.Irvine, D.D.Anderson, C.A.Barbieri</i>	285

177.	Acute EMG, Force and Hormonal Responses in Male Athletes to Four Strength Exercise Units	287
	<i>Mero, Antti.</i> Co-authors: <i>P.V.Komi, A.Kyllönen, T.Pullinen, A.Pakarinen</i>	
178.	Long-Latency Reflex and Mean Power Frequency on Surface Electromyogram	289
	<i>Nagata, Akira.</i> Co-author: <i>Y.Uchiyama</i>	
179.	Comparison of Electrical Activity of Synergistic Muscles Between Isometric, Concentric and Eccentric Contractions	291
	<i>Nakazawa, Kimitaka.</i> Co-authors: <i>Y.Kawakami, T.Fukunaga, M.Miyashita</i>	
180.	Fatigue and Recovery in Lumbar Muscles During Sustained Isometric Contraction: an EMG Study	293
	<i>Nemeth, Gunnar.</i> Co-authors: <i>K.Eriksson, N.Ask</i>	
181.	Combined Effects of Marathon Race on Running Kinematics and Neuromuscular Function	294
	<i>Nicol, Caroline.</i> Co-authors: <i>P.V.Komi, P.Marconnet</i>	
182.	Tendon Action of the Two-Joint Muscles in Running	296
	<i>Prilutsky, Boris.</i> Co-author: <i>V.M. Zatsiorsky</i>	
183.	Mechanism of Control of Fingers in Tracking Movements	298
	<i>Sakamoto, Kazuyoshi.</i> Co-authors: <i>N.Adachi, N.Itakura, J.Kataoka, K.Maie, A.Hayami, S.Hanba</i>	
184.	Development of Tapping Movement Control and Maintained Temporal Regularity in Early Childhood	300
	<i>Sasaki, Reiko.</i> Co-author: <i>T.Suzuki</i>	
185.	Eccentric and Concentric Torque-EMG Ratio Comparisons Between Adult and Prepubertal Males and Females	302
	<i>Seger, Jan Y.</i> Co-author: <i>A.Thorstensson</i>	
186.	Autoregressive Modeling of Surface EMG Signals and Motor Units Activities During Voluntary Isometric Muscle Action in Man	303
	<i>Seki, Kazuhiko.</i> Co-authors: <i>Y.Miyazaki, A.Nagata</i>	
187.	An Application of EMG Biofeedback for Promoting the Control Capacity of Thigh Muscles	305
	<i>Shuping, Li.</i> Co-authors: <i>Z.Baiming, L.Yanni</i>	
188.	Fine Motor Control Segmental Muscles Action and Speed of Motion of the Thumb in Young Adult and Senior Citizens	306
	<i>Simard, Thérèse.</i> Co-author: <i>E.Cerqueira</i>	
189.	EMG Activities of Agonist Muscles at Different Contraction Velocity	308
	<i>Tagawa, Takehiro.</i> Co-authors: <i>Y.Hirano, T.Fukunaga, M.Miyashita</i>	
190.	Fatigue Curves in an Agonist/Antagonist Pair	309
	<i>Taylor, Nigel A.</i> Co-author: <i>M.Hamlin</i>	
191.	Effects of Combined Training Programs on Force-Velocity Relation and Power Output in Human Muscle	311
	<i>Tohji, Hideki.</i> Co-authors: <i>K.Suei, M.Kaneko</i>	
192.	Neuromuscular Efficiency During Fatigue and Recovery	312
	<i>Van Hoecke, Jacques.</i> Co-authors: <i>L.Beliveau, J.N.Helal, C.Garapon-Bar, E.Gaillard, P.Bouissou</i>	
193.	Tremor in Elbow Flexion with Reference to Some Anthropometric and Muscle Structure Variables	314
	<i>Viitasalo, Jukka T.</i> Co-authors: <i>S.Mikkonen, M.Salonen, O.Aura, J.Gajewski, A.Wit</i>	

194.	Forearm Tremor During Isometric Elbow Flexion <i>Viitasalo, Jukka T.</i> Co-authors: <i>S.Mikkonen, M.Salonen, O.Aura, J.Gajewski, A.Wit</i>	315
195.	Electromyographic Evidence of Selective Muscle Fatigue During Swimming Above Onset of Blood Lactate Accumulation (OBLA) Speeds <i>Wakayoshi, Kohji.</i> Co-authors: <i>T.Moritani, Y.Mutoh, M.Miyashita</i>	317
196.	EMG Amplitude Analysis of the Foot Extrinsic and Intrinsic Muscles <i>Walker, Lloyd.</i> Co-authors: <i>G.Németh, A.Lundberg, I.Goldie, A.C.Nicol</i>	318
197.	EMG Frequency Analysis of Muscle Fatigue in Intrinsic and Extrinsic Foot Muscles <i>Walker, Lloyd.</i> Co-authors: <i>G.Németh, A.Lundberg, A.C.Nicol, I.Goldie</i>	320
198.	EMG Assessment of Treadmill and Overground Running <i>Yack, H. John.</i>	322
199.	Locomotor Behaviour Network System: a Mathematical Model for Sport Biomechanics <i>Zhongguan, Wu.</i> Co-authors: <i>H.Jie, L.Jianshe, P.Huiju, S.Jiabao</i>	324

Section VI: Instrumentation & Methods

200.	Range of Motion of the Ankle Joint Complex - in Vivo <i>Allinger, Todd L.</i> Co-author: <i>J.R.Engsberg</i>	326
201.	Investigations of Skin Marker Artefacts Reduction in Motion Analysis Using Algorithmic Approach <i>Amursky, Vladislav.</i>	327
202.	Animation and Analysis of Sport Events through 3D Computer Modelling <i>Angulo, Rosa M.</i>	329
203.	Maximal Power Generated During Sprinting on a Treadmill Ergometer <i>Belli, Alain.</i> Co-authors: <i>M.Duranseaud, J.C.Chatard</i>	330
204.	Expert System with Ultrasound Velocity Measurement Data Processing <i>Bertulsons, Ugis.</i>	332
205.	Flexible Electrogoniometers to Continuously Record Changing Lumbar Spinal Posture <i>Burton, Kim.</i> Co-authors: <i>M.G.Boocock, J.A.Jackson, K.M.Tillotson</i>	333
206.	Preliminary Tests on a Simple Finger Tendon-Complex Model <i>Casolo, Federico.</i> Co-authors: <i>V.Lorenzi, A.Vallatta</i>	334
207.	Measuring Ground Reaction Forces in a Zero-Gravity Locomotion Simulator <i>Cavanagh, Peter.</i> Co-authors: <i>B.L.Davis, R.Bock, H.J.Sommer III</i>	336
208.	Design of an Apparatus to Study Spinal P-A Mobilisation <i>Cheng, Pui Kong.</i>	338
209.	The Quantitative Analysis of the 24th Olympic Games TV Records <i>Chouchen, An.</i> Co-author: <i>Y.Sipeng</i>	340
210.	A Generalized Method for Determining 3-D Angular Joint Motion <i>Cole, Gerald.</i> Co-authors: <i>B.M.Nigg, J.L.Ronsky</i>	342
211.	Estimation of Spinal Angles through Non-Ionising Automatic Measurement Technique: a Preliminary Approach <i>D'amico, Moreno.</i> Co-authors: <i>R.Mondonico, G.C.Santambrogio</i>	343

212.	Validity of Pelvic Tilt Measurements in Anatomical Neutral Position <i>Deusinger, Robert.</i>	345
213.	Usefulness of Instantaneous Helical Axis in Functional Movement Evaluation <i>Fioretti, Sandro.</i> Co-authors: <i>T.Leo, M.Maurizi</i>	347
214.	Methods and Instrumentation in Water Research <i>Griffin, Lori.</i> Co-authors: <i>J.S.Dufek, B.T.Bates</i>	348
215.	The Accuracy of Coordinate Data Derived from Video Tape <i>Harrison, Andrew.</i> Co-author: <i>D.A.Littler</i>	350
216.	Indices of Human Motion During Walking and Running <i>Jaworek, Krzysztof.</i>	351
217.	Vivimeasurement of Inertia Parameters of Human Body Segments <i>Jianshe, Li.</i> Co-authors: <i>P.Huiju, L.Fangqiang</i>	352
218.	Semiautomatic Video Image of Sport Collecting System <i>Kaosheng, Jin.</i>	354
219.	Biomechanical Modelling of the Human Shoulder <i>Karlsson, Dan.</i> Co-authors: <i>C.Högfors, B.Peterson</i>	356
220.	A Real Time Measurement Method of Moving Objects Applicable to Biofeedback in Training of Sports <i>Kasai, Takeshi.</i> Co-author: <i>T.Sakurai</i>	357
221.	Analysis of Musculature in Human Elbow Flexors and Extensors using Magnetic Resonance Imaging <i>Kawakami, Yasuo.</i> Co-authors: <i>K.Nakazawa, T.Fukunaga, M.Miyashita</i>	359
222.	A Dynamometer for Isotonic Measurements of Muscle Group <i>Kedzior, Krzysztof.</i> Co-authors: <i>K.Mianowski, W.Niwiniski</i>	361
223.	Direct Determination of Human Angular Momentum <i>Kerwin, David.</i>	363
224.	Instantaneous Center of Rotation of the Knee During Isokinetic Exercise <i>Kevelin, Amy.</i> Co-authors: <i>K.Kulig, W.Szermer</i>	365
225.	Design and Construction of a Wear Simulator for Knee Joints <i>Kirk, Thomas.</i> Co-author: <i>G.W.Stachowiak</i>	366
226.	Multidisciplinary Data Acquisition and Analysis of Wheelchair Ergometry <i>Kobayashi, Masuo.</i> Co-authors: <i>M.M.Rodgers, S.F.Figoni, G.W.Gayle, D.R.Schrag, R.M.Glaser</i>	368
227.	Heel Plantar Pressure Distortion Caused by Discrete Sensors <i>Lake, Mark.</i> Co-authors: <i>M.A.Lafortune, S.D.Perry</i>	370
228.	Errors in Thigh Axial Rotation Measurements using Skin Mounted Markers <i>Lamoreux, Larry.</i>	372
229.	VIFDIG - a Method for Digital Analysis of Human Motion Recorded on a VCR <i>Lanshammar, Hakan.</i>	373
230.	A Proposal for the Standardisation of Some Human Joints Models <i>Legnani, Giovanni.</i> Co-author: <i>R.Faglia</i>	375

231.	Skin Displacement Errors in the Foot and Ankle <i>Maslen, Barbara.</i> Co-author: <i>T.R.Ackland</i>	377
232.	Estimation of Volume, Density, Mass and Location of CG by Means of MRI Method <i>Matsuo, Akifumi.</i> Co-authors: <i>T.Fukunaga, S.Uchino</i>	379
233.	A Three-Dimension Finite Element Model of the Cervical Spine <i>Maurel, Nathalie.</i> Co-authors: <i>F. Lavaste, M.Noat</i>	380
234.	Visualisation of Back Surface Asymmetry in Scoliosis <i>Merolli, Antonio.</i> Co-authors: <i>M.D'Aniello, P.Tranquilli Leali</i>	382
235.	Impact Analysis by the use of "At Rest" Trajectories <i>Neal, Robert.</i> Co-authors: <i>F.Gatto, P.Swannell</i>	383
236.	Energetics and Efficiency of Muscle Contraction Assessed by 31P Magnetic Resonance Spectroscopy (MRS) <i>Penn, Andrew.</i> Co-authors: <i>M.R.Menard, J.W.K.Lee</i>	385
237.	Clinical Determination of the Subtalar Joint Axis <i>Phillips, Robert D.</i> Co-author: <i>R.B.Lidtke</i>	387
238.	Stochastic Simulation for Estimation of Sensitivity of the Human Body Model to Errors in Input Parameters <i>Poltorapavlov, Nikita.</i> Co-authors: <i>B.I.Prilutsky, L.N.Petrova</i>	389
239.	Error in Kinematic Data due to Marker Attachment Methods <i>Ronsky, Janet.</i> Co-author: <i>B.M.Nigg</i>	390
240.	Three Dimensional In-Vivo Measurement of Scapular Position <i>Rozendal, Riens H.</i> Co-authors: <i>G.M.Pronk, F.C.T.van der Helm, H.E.J.Veegar</i>	392
241.	An Audiometric Method for Obtaining the Mechanical Resonant Characteristics of the Human Head <i>Shorokhov, Vladimir.</i> Co-author: <i>R.E.Tigranyan</i>	394
242.	Short-Term Effects of Formalin Fixation on Thoracic Vertebral Mineral Density using Quantitative Computed Tomography and Dual Energy X-Ray Absorptiometry <i>Singer, Kevin.</i>	395
243.	Validation of a Protocol for Determining Submaximal Efforts in Back Strength Assessment <i>Smith, Gerald A.</i> Co-authors: <i>A.M.Sadoff, K.Fujimoto, P.H.Bednarski</i>	397
244.	Determining the Contributions that the Anatomical Rotations of the Arm Segments make to Racket Head Speed <i>Sprigings, Eric.</i> Co-authors: <i>R.Marshall, B.Elliott, L.Jennings</i>	399
245.	The Test Methodology used for the Evaluation of the Hermes Extra Vehicular Activity Glove and Preliminary Results <i>Thonnard, Jean-Louis.</i> Co-authors: <i>L.Plaghki, D.A.Nice</i>	401
246.	Analysis of Facial Wrinkling by the Finite Element Method <i>Tsuta, Toshio.</i> Co-authors: <i>C.L.Wang, K.Yamane</i>	402
247.	Performance Test to Evaluate Forefoot Stability of Basketball Shoes <i>Valiant, Gordon.</i> Co-author: <i>J.A.Himmelsbach</i>	405
248.	Identification of Inertial Parameters of Human Body <i>Xu, Mingtao.</i> Co-authors: <i>B.Zhao, C.Yang</i>	406

249.	The Rheological Effect Application at the Anthropomorphous Walking Control <i>Yurkevich, Vitold.</i> Co-authors: <i>B.S.Farber, I.S.Astapov, V.A.Vasenin</i>	408
 Section VII: Computer Modelling		
250.	A Structural Preoptimisation Method for the Computer Simulation of Biological Structure-Formation <i>Baumgartner, Andreas.</i> Co-author: <i>C.Mattheck</i>	409
251.	Javelin Release - Applied Optimal Control <i>Best, Russell.</i> Co-authors: <i>R.M.Bartlett, R.A.Sawyer</i>	410
252.	A Software Program for Running Motion Dynamics Analysis and Animation <i>Bourassa, Paul.</i>	412
253.	A Three Dimensional Simulation Model for the Development of New Airborne Movements in Gymnastics, Diving and Acrobatics <i>Brüggemann, Gert-Peter.</i> Co-author: <i>Y.Hong</i>	414
254.	An Investigation of the Mechanisms Contributing to Optimal Performance in Throwing <i>Edmonstone, Mary Ann.</i> Co-author: <i>A.E.Chapman</i>	415
255.	Effect of Wheelchair Propulsion on Shoulder Joint using a 3-D Model <i>Haghpanahi, M.</i> Co-authors: <i>M.Durali, F. Akbari</i>	416
256.	The Optimal Conditions of Vault and Regrasp in the Fly Movements on the Horizontal Bar <i>Qian, Jingguang.</i> Co-authors: <i>D.Yushen, Y.Qiuyong</i>	418
257.	A Study on the Partial Neural Network <i>Jingyu, Wu.</i> Co-authors: <i>W.Zhongguan, S.Jiabao</i>	419
258.	Numerical Prediction of Walking with a Stiff Knee <i>Koopman, Bart.</i> Co-author: <i>H.J.Grootenboer</i>	421
259.	A Biomechanical Analysis of Muscle Strength as a Limiting Factor in Standing Posture <i>Kuo, Arthur.</i> Co-author: <i>F.E.Zajac</i>	422
260.	Computer Simulation of Adaptive Biological Growth <i>Mattheck, Claus.</i>	424
261.	Simulation of General Human Locomotion <i>Meglan, Dwight.</i> Co-author: <i>N.Berne</i>	426
262.	A 3D Passive Mechanical Model of the Human Foot for use in Locomotion Synthesis <i>Meglan, Dwight.</i> Co-author: <i>N.Berne</i>	428
263.	Muscle Force Prediction During Human Gait <i>Thunnissen, Jan.</i> Co-authors: <i>H.J.Grootenboer, H.F.J.M.Koopman, H.J.de Jongh</i>	430
264.	The Contribution of Bi-Articular m.Gastrocnemius in Vertical Jumping: A Simulation Study <i>Van Soest, Arthur J.</i> Co-author: <i>M.F.Bobbert</i>	431
265.	Identification of Heel Strike Transients During Running <i>Voloshin, Arkady S.</i> Co-authors: <i>W.Kim, E.P.Salathe</i>	433

266. Optimal Rate of Crank Rotation as a Function of Crank Position for Maximal Muscle Power Output in Bicycling <i>Yoshihuku, Yasuo.</i>	435
 Section VIII: Gait Analysis	
267. The Roles of Each Leg of a Horse Evaluated from Leg Joint Angles <i>Amano, Katsuhiro.</i> Co-authors: <i>H.Sakuraoka, K.Ishii</i>	437
268. Temporal and Spatial Measures of Human Gait in a Clinical Setting <i>Day, Robert.</i> Co-authors: <i>K.E.Sloan, E.R.Scull</i>	438
269. Tibial Shock and Ground Reaction Forces During Running <i>Lafortune, Mario.</i>	440
270. On the Selection of Variables for Gait Characterisation <i>Lanshammar, Hakan.</i>	441
271. Advanced Reciprocating Gait Orthosis in Paraplegic Patients <i>Lissens, M.A.</i> Co-authors: <i>L.Peeraer, R.Lysens, A.Burssens</i>	443
272. Footprint Averaging in a Detecting Platform System <i>Macellari, Velio.</i> Co-author: <i>A.Lo Verde</i>	444
273. The Effect of Stride Length Manipulations on Ground Reaction Forces During Walking <i>Marsh, Tony.</i> Co-author: <i>P.E.Martin</i>	446
274. Effect of Speed and Frequency Changes on Mechanical Internal Work Rate in Walking: Experimental Data and Model Predictions <i>Minetti, Alberto Enrico.</i> Co-author: <i>F.Saibene</i>	448
275. Does the Constant Proportion Model Hold for Gait?: Kinematic and Electromyographic Evidence <i>Neal, Robert.</i> Co-authors: <i>B.Abernethy, C.Engstrom</i>	450
276. Activation Patterns of Individual Muscles in the Hip Flexor Synergy During Walking and Running <i>Nilsson, Johnny.</i> Co-authors: <i>E.Andersson, A.Thorstensson</i>	451
277. Application of a Treadmill/Force Plate System to the Kinematics of Pathological Gait <i>Ohmichi, Hitoshi.</i>	453
278. Effect of Obstacle Height and Width on Gait Patterns <i>Patla, Aftab E.</i> Co-author: <i>S.Rietdyk</i>	455
279. The Effect of Varying Initial Trunk Position on the Biomechanics of Standing Up <i>Shepherd, Roberta.</i>	456
280. Dynamic Loadings During Walking and Load Carrying <i>Simonsen, Erik B.</i> Co-authors: <i>P.Dyhre-Poulsen, M.Voigt, P.Aagaard, G.Sjogaard</i>	457
281. Dynamic Strategies and Motor Control of Human Walking <i>Simonsen, Erik B.</i> Co-authors: <i>P.Dhyre-Poulsen, M.Voigt, N.Fallentin, F.Bosen-Moller</i>	459
282. Factors Related to Rearfoot Kinematics During a Rapid Braking Movement <i>Simpson, Kathy.</i>	461

283. Within- and Between-Subject Variability in Normal Human Locomotion <i>Smith, Andrew.</i>	462
284. Effects of Velocity and Gradient on Temporal Kinematics During Downhill Walking <i>Tant, Cynthia.</i> Co-authors: <i>K.J.Simpson, P.Shewokis</i>	464
285. Intra-Limb Coordination in Standardbred Trotters <i>Van Den Bogert, Anton J.</i> Co-authors: <i>P.R.van Weeren, G.Bruin</i>	465
286. Motion Analysis of Walking During Step Over the Different Height of Obstacle: in Case of Aged Persons and Students <i>Watanabe, Kazuhiko.</i> Co-author: <i>T.Miyakawa</i>	467
287. Kinematic Descriptors of the Running Gait in the Greyhound Athlete <i>Zebas, Carole.</i> Co-authors: <i>R.Gillette, R.Hailey, T.Schoeberl, G.Kratzer,</i> <i>Y.Joseph</i>	469

Section IX: Anthropometry

288. Lower Limb Dimensions, Segmental and Segmental Bone Masses and Leg Mechanical Power in Nigerian Male Elite Judokas <i>Agbonjinmi, Ayodeji Peter.</i>	471
289. Geometry of the Male Trunk Analysed with the Help of Computerised Tomography <i>Erdmann, Włodzimierz S.</i>	472
290. Inertia of the Male Trunk Analysed with the Help of Computerised Tomography <i>Erdmann, Włodzimierz S.</i>	475
291. Age Related Changes in Ankle Joint Complex Range of Motion <i>Grimston, Susan.</i> Co-authors: <i>B.E.Hagel, J.R.Engsberg, D.A.Hanley</i>	476
292. Body Weight - a Mechanical Determinant of Bone Density in Premenopausal Women ? <i>McCulloch, Robert G.</i> Co-authors: <i>D.A.Bailey, R.L.Rasmussen</i>	478
293. Real-Time 3-Dimensional Imaging using Ultrasound <i>Milburn, Peter.</i> Co-authors: <i>A.Basu, E.Siores, D.Talbert</i>	480
294. Vibration Characteristics of the Human Body <i>Neal, Robert.</i> Co-authors: <i>F.Gatto, P.Swannell</i>	481
295. The Rotations in the Sternoclavicular and Acromioclavicular Joints <i>Pronk, Gijs M.</i> Co-author: <i>F.C.T.van der Helm</i>	483
296. Determination of Body Segment Parameters of Horses <i>Sakuraoka, Hiroshi.</i> Co-authors: <i>K.Amano, K.Ishii</i>	485
297. The Role of the Scapulothoracic Gliding Plane for Motions of the Shoulder Mechanism <i>Van Der Helm, Frans C.T.</i> Co-author: <i>G.M.Pronk</i>	486

Section X: Orthopaedics & Tissues

298. Hemodynamic and Endocrine Responses During Lower Body Negative Pressure (LBNP) in Bedridden Disabled Patients <i>Akataki, Kumi.</i> Co-authors: <i>K.Mita, K.Itoh, N.Suzuki, K.Koyama, N.Ishida</i>	489
--	-----

299. Biphase Creep Indentation Studies of Bovine Growth Plate Cartilage <i>Alberts, L.Russell. Co-author: W.A.Abdul-Shafi</i>	491
300. The Study of Biomechanical Properties of Some Human and Animal Bones <i>Babayev, Elyas P. O.</i>	492
301. A Comparison of Muscle Stiffness Measures Obtained by the Free Oscillation and Quick Release Techniques <i>Bach, Tim M. Co-authors: P.J.McNair, G.A.Wood</i>	494
302. Asymmetric Deformation of Cylindrical Biological Shells <i>Badriev, Ildar. Co-authors: R.N.Miftakhov, R.R.Shagidullin</i>	495
303. Dental Endosseus Implantology: a New Approach to Bone Repair <i>Casolo, Federico. Co-author: G.Vrespa</i>	496
304. Study of Acetabular Coverage and its Application to Dysplastic Hips <i>Chang, Guan-Liang. Co-authors: R.M.Lin, Y.L.Chou</i>	498
305. Biomechanical Analysis and Computer Surgery Simulation of the Patellofemoral Joint <i>Cheng, Cheng-Kung. Co-authors: N.K.Yao, H.C.Liu</i>	499
306. Lumbar Spine Kinematics Obtained from Videofluoroscopy <i>Cholewicki, Jacek. Co-author: S.M.McGill</i>	501
307. Study on Surface and Tissue Pressures Related to Pressure Sore <i>Chou, You-Li. Co-authors: J.H.Kang, G.L.Chang</i>	502
308. Study on Interfacial Union Between Bone and Tendon <i>Chou, You-Li. Co-authors: Y.C.Tien, G.L.Chang, S.Y.Lin</i>	503
309. Spontaneous Variability of Regional Hemodynamics <i>Di Rienzo, Marco. Co-authors: P.Castiglioni, A.Daffonchio, A.Ferrari, A.Pedotti</i>	504
310. Comparison of Different Posterior Fixation Devices in Stabilisation of Thoraco-Lumbar Fractures - an In-Vitro Biomechanical Study <i>Diop, Amadou. Co-author: F.Lavaste</i>	506
311. A Biomechanical Analysis of the Temporomandibular Joint (TMJ): a Mechanical Model for the Condylar Translation During Mouth Opening <i>Falkenstrom, Che Hsin. Co-authors: J.P.van Loon, G.Boering, J.C.Cool</i>	507
312. Variable Load and Neuromuscular Control Mechanisms <i>Gollhofer, Albert.</i>	509
313. In Vivo Creep of the Cervical Spine <i>Gooch, Linda. Co-authors: L.T.Twomey, H.B.Lee</i>	511
314. Chondromalacia Patellae and Intraosseous Pressure <i>Graf, Jurgen. Co-authors: R.Christophers, F.U.Niethard</i>	512
315. Properties of the Diaphragm Parallel Tendon <i>Griffiths, Robert. Co-authors: R.E.Shadwick, P.J.Berger</i>	514
316. Skeletal Adaptation to Mechanical Stresses: the Linea Aspera as a Buttress to Femoral Curvature <i>Hay, Alistair.</i>	515
317. Material Properties of the Host Medium as a Determinant of Cancellous Bone Screw Extraction Mechanics <i>Hearn, Trevor. Co-authors: J.F.Surowiak, J.Schatzker, J.P.Szalai</i>	517

318.	The Effects of Ligament Sectioning and Internal Fixation on Bending Stiffness of the Pelvic Ring <i>Hearn, Trevor.</i> Co-authors: <i>M.Tile, A.Schopfer, D.DiAngelo, M.Vrahas, L.Malisano, J.Powell</i>	518
319.	The Effect of Position of Immobilisation on Resting Length, Resting Stiffness and Weight of Rabbit Soleus Muscle <i>Herbert, Rob.</i> Co-authors: <i>R.J.Balnave, A.Jones, R.M.Smith</i>	520
320.	The Differential Stress Flow Profile as a Quality Criterion of Joint Prostheses <i>Herzog, Toni.</i> Co-authors: <i>M.Walther, H.Schmid</i>	522
321.	The Influence of the Systematic Wushu Training upon the Lines of Calcaneous Sponge <i>Hu, Sheng-Yu.</i>	523
322.	Studies on the Innervation of the Medial Meniscus in Rabbit Knee Joint <i>Hu, Sheng-Yu.</i> Co-authors: <i>Z.R.Tuo, Z.T.Hung</i>	524
323.	Estimating Force-EMG Parameters for the Torso using Principal Components Regression <i>Hughes, Richard.</i> Co-author: <i>D.B.Chaffin</i>	525
324.	Shock Absorbing Characteristics of Human Heel Properties <i>Kinoshita, Hiroshi.</i> Co-authors: <i>T.Ogawa, K.Arimoto, K.Kuzuhara, K.Ikuta</i>	527
325.	Strains Within the Lumbar Vertebral Column Related to a Full Range of Flexion <i>Kippers, Vaughan.</i> Co-author: <i>A.W.Parker</i>	529
326.	Fractal Characterization of Wear Particles from Human Joints <i>Kirk, Thomas.</i> Co-author: <i>G.W.Stachowiak</i>	530
327.	The Chemistry and Morphology of the Articular Surface <i>Kirk, Thomas.</i> Co-authors: <i>A.S.Wilson, G.W.Stachowiak</i>	532
328.	Bone Remodeling: Comparing Local Adaptation and Global Optimisation <i>Kuiper, Jan Herman.</i> Co-authors: <i>R.Huiskes, H.Weinans</i>	534
329.	Impact Test for Examining Joint Characteristics <i>Kwong, Kevin.</i> Co-author: <i>J.H.Evans</i>	535
330.	In Vivo Measurement of Ribcage Stiffness <i>Lee, Michael.</i> Co-authors: <i>S.Hill, J.Scullin</i>	537
331.	Biomechanics of Spinal Posteroanterior Mobilisation <i>Lee, Raymond.</i> Co-author: <i>J.Evans</i>	539
332.	Tensile Properties of Twisted Anterior Cruciate Ligaments <i>Mak, Arthur.</i> Co-authors: <i>D.Fang, Y.Yuan, A.C.W.Yeung</i>	540
333.	The Biomechanical Responses of a Skin Layer to Surface Loadings <i>Mak, Arthur.</i> Co-authors: <i>Q.Wang, L.Huang</i>	542
334.	The Feasibility and Timing of Gradual Screw Removal During Fracture Healing with Internal Plating <i>Mak, Arthur.</i> Co-author: <i>E.T.H.Wong</i>	544
335.	Lumbar Loads from Moments about Three Orthopaedic Axes: Developing the Architecture of a 3-D Occupational Low Back Model <i>McGill, Stuart M.</i>	545
336.	Knee Effusion and Quadriceps Muscles Strength <i>McNair, Pete.</i> Co-authors: <i>R.N.Marshall, K.Maguire</i>	547

337. Stiffness of Hamstring Muscles in ACL Deficient Subjects <i>McNair, Pete.</i> Co-authors: <i>G.A.Wood, R.N.Marshall</i>	548
338. Analysis of Composite Motion in Cervical Disc Segments <i>Milne, Nick.</i>	550
339. Biomechanics of the Alar and Transverse Ligaments <i>Möller, Jörg.</i> Co-authors: <i>L.P.Nolte, M.M.Panjabi</i>	552
340. Estimating In-Vivo Ligament Length During Dynamic Movements <i>Morlock, Michael.</i> Co-author: <i>B.M.Nigg</i>	553
341. People in Different Ages Do Show Different Hip-Joint Mechanics <i>Müller-Gerbl, Magdalena.</i> Co-authors: <i>R.Putz, R.Kierse</i>	555
342. Relationship Between Loading History and Subchondral Bone Density Distribution in the Glenoid Cavity <i>Müller-Gerbl, Magdalena.</i> Co-authors: <i>R.Putz, R.Kenn</i>	557
343. Simulation Analysis of a Comprehensive Torso Biomechanical Model <i>Nussbaum, Maury.</i> Co-authors: <i>D.B.Chaffin, R.E.Hughes, P.J.Moga</i>	559
344. The Rheology of Synovial Fluid <i>O'Neill, Philippa.</i> Co-author: <i>G.W.Stachowiak</i>	560
345. Experimental Study on Relationship Between Expired CO ² and Cardiac Output with Computerised Detection During Intermittent Positive Pressure Ventilation (IPPV) <i>Pallotti, Giovanni.</i> Co-authors: <i>S.Faenza, S.Baroncini, E.Bernardi, C.Fraccarol, P.Petrini, G.Martinelli, G.Licandro, E.Sarti, M.G.Pallotti, P.Petazzoni</i>	562
346. Correlations Between the Histomorphometry, Radiology and Mechanical Properties of Human Femoral Bone <i>Pearcy, Mark.</i> Co-authors: <i>S.Matthews, N.L.Fazzalari, I.Parkinson, B.Manthey, D.W.Howie</i>	563
347. Axial Rotation of Lumbar Intervertebral Joints in Forward Flexion <i>Pearcy, Mark.</i> Co-author: <i>R.J.Hindle</i>	565
348. 3D Modeling of the Lumbar Spine: an Application to the Study of Posterior Fixation Devices <i>Robin, Stéphane.</i> Co-authors: <i>F.Lavaste, W.Skalli</i>	566
349. Propagation of Surface Acoustic Waves in the Models of Soft Biological Tissues <i>Shorokhov, Vladimir.</i> Co-authors: <i>V.N.Voronkov, A.N.Klishko</i>	568
350. Electrical Stimulation in Rehabilitation - the Royal Perth Hospital Experience <i>Sloane, Karen.</i> Co-authors: <i>L.A.Bremner, R.E.Day, E.R.Scul</i>	570
351. Biomechanical Effects of Conventional and Percutaneous Disectomy - a Comparative In-Vitro Study <i>Steffen, Reinhard.</i> Co-authors: <i>L.P.Nolte, E.Schopphoff, J.Kramer, J.Möller</i>	571
352. Specificity in Joint Range of Motion <i>Taylor, Nigel A.</i> Co-authors: <i>D.J.Chambers, C.G.Millar</i>	572
353. Lubrication of a Cystoscopic Sheath <i>Tomita, Naohide.</i> Co-authors: <i>K.Ikeuchi, Y.Uyama, R.Sekine, S.Tamai, Y.Hirao, E.Okajima, Y.Ikada</i>	574

354.	Load Measurements on the UTX-Orthosis <i>Van Leerdam, Nils.</i> Co-author: <i>J.C.Cool</i>	575
355.	Elasticity in Human Jumping <i>Voigt, Michael.</i> Co-authors: <i>E.B.Simonsen, P.Dyhre-Poulsen</i>	577
356.	In Vitro Mechanical Testing of the Ligaments of the Human Foot <i>Walker, Lloyd.</i> Co-author: <i>A.C.Nicol</i>	579
357.	Fixation of Unstable Intertrochanter Osteotomies <i>Xu, Xinxiang.</i> Co-authors: <i>Y.Qian, J.Liu</i>	581
358.	Microstructural Characterisation and X-Ray Microanalysis of Human Bone <i>Yahia, L'Hocine.</i> Co-authors: <i>C.Armand, J.M.Dorlot, A.Meunier</i>	582
359.	Rheological Properties of the Human Lumbar Spine Ligaments <i>Yahia, L'Hocine.</i> Co-authors: <i>J.Audet, G.Drouin</i>	583
360.	The Biomechanical Properties of an Intra-Articular Ligament in the Process of Maturation and Ageing <i>Yasuhara, Masahiro.</i> Co-authors: <i>S.Takai, N.Inoue, Y.Hirasawa</i>	585
361.	Inference of Varied Training Methods of Electrical Stimulation on the Elastic Stiffness of Tendon through the Velocity of the Movement of the Limb <i>Ye, Wei.</i>	586
362.	Assessment of Long Bone Angulation <i>Younger, Alastair.</i> Co-authors: <i>S.J.Tredwell, W.G.Mackenzie</i>	587
363.	Forces Measured During Femoral Lengthening in Children <i>Younger, Alastair.</i> Co-authors: <i>W.G.Mackenzie, J.B.Morrison</i>	589
364.	Optimised Biophysical Bone Tissue Growth Stimulator <i>Yurkevich, Vitold.</i> Co-authors: <i>B.S.Farber, V.I.Shumejko, L.P.Belov</i>	591
365.	Augmentation in Heat Transfer in Suspension Flow through Tubes with Irregular Walls <i>Zamankhan, Piroz.</i>	592
366.	Moderate-Exercise-Related Adaptations in Mechanics and Matrix Composition of Immature Femoral Neck and Lumbar Vertebra <i>Zernicke, Ronald.</i> Co-author: <i>G.J.Salem</i>	594