



Poster Abstract Summary

(Ordered by poster session & theme)

P1 – Poster Session 1, Wednesday, July 6

P2 – Poster Session 2, Thursday, July 7

P3 – Poster Session III, Friday, July 8

Themes:

A - EMG recording, modeling, and signal processing

B - Motor performance and sports science

C - Sensorimotor control

D - Rehabilitation technologies

E - Movement disorders

F - Motor units

G - Neural Engineering

H - Neuromechanics

I - Novel measurement technologies

J - Ergonomics

K - Muscle physiology

A - EMG recording, modeling, and signal processing

Poster Session I

Wednesday, July 6

P1-A-1 Bilateral and unilateral training does not affect classification accuracy for prosthesis control

Usha Kuruganti¹, Victoria Chester¹, Ashirbad Pradhan²

¹University of New Brunswick, ²National Institute of Technology

P1-A-2 Assessment of muscular fatigue and force by double normalized surface electromyography spectrum - proof of concept

Robert Seibt¹, Monika Rieger¹, Benjamin Steinhilber¹

¹University Hospital Tübingen



P1-A-3 Concentric and eccentric muscle activation of patients with knee osteoarthritis during dynamic contractions - A categorized and probabilistic analysis.

Joao Pedro Batista Junior¹, Alexandre R. M. Pelegrinelli R. M. Pelegrinelli², Daniella C. Souza², Marcelo Taglietti², Sylvie C. F. A. von Werder³, Catherine Disselhorst-Klug³, Ligia M. Facci², Jefferson R. Cardoso²

¹Universidade Estadual de Londrina/Instituto Federal do Paraná, ²Laboratory of Biomechanics and Clinical Epidemiology, PAIFIT Research Group, ³Institute of Applied Medical Engineering

P1-A-4 EMG-force relationship of the lower posterior neck during isometric contractions

Riccardo Lo Martire¹, Kristofer Gladh¹, Anton Westman¹, Björn Äng¹

¹Karolinska Institutet

P1-A-5 A method for evaluation of dependency between diseased side and opposite side of hemiplegia patient during FES-Cycling by using transfer entropy

Mai Nozakura¹, Soichiro Morishita¹, Misato Ohdaira¹, Yinlai Jiang¹, Hiroshi Yokoi¹

¹The University of Electro-Communications

P1-A-7 Decomposition of Clinically-Detected EMG Signals Using Dynamic Time Warping and Spectral Clustering

Meena AbdelMaseeh¹, Daniel Stashuk¹

¹University of Waterloo

P1-A-8 Different responses of fingertip forces and muscle activity of the enslaved finger during dynamic tasks

Mojtaba Mirakhorlo¹, Dirkjan Veeger¹, Dick Stegeman², Huub Maas¹

¹Vrije university (VU), ²Radboud University Nijmegen Medical Centre

P1-A-9 Effect of yoga on balance, lumbopelvic stability and back muscles power in women

Areerat Suputtitada¹, Sompol Saganrungrasirikul¹, Kittikorn Singhabut¹

¹Chulalongkorn University

P1-A-10 Dynamic Curve Analysis of Surface EMG Patterns of Abdominal Muscle as a Function of Exercise and Load

Adam King¹, Rachel Meyer¹, Alex Sextro¹, Michael Bird¹

¹Truman State University

P1-A-11 Use of high density EMG grid recordings to characterize the level of injury in individuals sustaining cervical spinal cord injury

Babak Afsharipour¹, Milap Sandhu¹, Ghulam Rasool¹, William Rymer¹

¹Northwestern University



P1-A-12 Reliability of muscle fiber conduction velocity and fractal dimension of surface EMG during isometric contractions

Matteo Beretta-Piccoli¹, Corrado Cescon¹, Giuseppe D'Antona², Cristian Zampella², Ron Clijsen¹, Marco Barbero¹

¹University of Applied Sciences and Arts of Southern Switzerland, ²University of Pavia

B - Motor performance and sports science

P1-B-13 A comparison of knee joint kinematics and kinetics during landings in three one-leg hop tests (hop for distance, vertical hop and side hop) performed by female elite floorball athletes.

Jonas Markström¹, Eva Tengman¹, Helena Grip¹, Lina Schelin¹, Charlotte Häger¹

¹Umeå University

P1-B-14 The Kinematic Chain Ratio of Pronation-to-Supination of the Calcaneus and Internal-to-External Rotation of the Shank Affects Calcaneus Motion during Gait

Masahiro Edo¹, Sumiko Yamamoto²

¹Bunkyo Gakuin University, ²International University of Health and Welfare

P1-B-15 Effects of Non-local Fatigue on EMG Amplitude During Dynamic Resistance Exercise

Anthony Ciccone¹, Cory Schlabs¹, Joseph Weir¹

¹University of Kansas

P1-B-16 Electromyographic analysis of the soleus and vastus lateralis muscles during squat exercise with and without isometric contraction in the end of eccentric phase

Caluê Papcke¹, Keith Sato¹, Lisandra Edimundo¹, Eddy Krueger², Percy Nohama¹, Eduardo Scheeren¹

¹Pontificia Universidade Católica do Paraná, ²Universidade Tecnológica Federal do Paraná

P1-B-17 Muscle fatigue in vibration exercise at different frequencies

Lin Xu¹, Chiara Rabotti¹, Massimo Mischì¹

¹Eindhoven University of Technology

P1-B-18 Effects of Neuromuscular Training for Runners with Flexible Flatfoot and Related Running Injuries

Wenyin Chen¹, Fushiang Chang¹, Wendy Wang¹

¹National Yang Ming University

P1-B-19 Does longer application of kinisiotape delay the muscle fatigue of the knee joint during isotonic flexion/extension?

Joseph Pliner¹, Naira Campbell-Kyureghyan¹

¹University of Wisconsin-Milwaukee



P1-B-20 Shoulder problems in elite adolescent handball players - The Karolinska Handball Study

Martin Asker¹, Lena Holm¹, Henrik Källberg¹, Markus Waldén², Eva Skillgate¹

¹Karolinska Institutet, Institute of Environmental Medicine, ²Linköping University

P1-B-21 Shoulder strength among healthy adolescent elite handball players

Martin Asker¹, Lena Holm¹, Henrik Källberg¹, Markus Waldén², Eva Skillgate¹

¹Karolinska Institutet, Institute of Environmental Medicine, ²Linköping University

P1-B-22 Comparison of biomechanical characteristics of rowing performance between elite and non-elite scull rowers: a pilot study

Han Yeop Cho¹, Jin Sun Kim¹, Han Yeop Cho¹, Soya Yoon¹, Hae-Dong Lee¹

¹Yonsei University

P1-B-23 Effect of cryotherapy on eccentric exercise-induced muscle damage: a randomized clinical trial.

Liane Macedo¹, Daniel Borges¹, Caio Alano Lins¹, Jamilson Brasileiro¹

¹Federal University of Rio Grande do Norte

P1-B-24 Effect of whole body vibration on isokinetic performance and muscle activation of the quadriceps femoris: a randomized controlled trial

Daniel Borges¹, Liane Macedo¹, Caio Lins¹, Jamilson Brasileiro¹

¹UFRN

P1-B-25 Immediate effects of stretching exercises on the electromyographic activity of hamstring muscles, before and after performing physical activities: a randomized controlled trial

Manuele Jardim Pimentel¹, Rodrigo Marcel Valentim da Silva¹, Daniel Tezoni Borges¹, Liane de Brito Macedo¹, Jamilson Simões Brasileiro¹

¹Universidade Federal do Rio Grande do Norte

P1-B-26 Examination of Lower Limb Ambidextrous Execution of the Snap Down Technique in Folk Style Wrestling

Nicholas DeCastro¹, Tom Wu¹, Pamela Russell¹, Kathleen Laquale¹

¹Bridgewater State University

P1-B-27 Computer mouse design and ergonomic mouse pads influence wrist angle, forearm extensor and upper trapezius muscle activity

Sharika Udipi¹, Kylie Tucker¹, Sharika Udipi¹, Hweekoon Yeo¹, Torbjorn Selas¹, Michel Coppieters²

¹The University of Queensland, ²Vrije Universiteit Amsterdam



P1-B-28 Kinesio Taping promotes neither immediate nor delayed changes in neuromuscular performance in healthy, active women

Jamilson Brasileiro¹, Caio Lins¹, Daniel Borges¹, Karinna Costa¹, Liane Macedo¹

¹Federal University Of Rio Grande Do Norte

C - Sensorimotor control

P1-C-29 Quantification of the expression of the flexion synergy using reach kinematics in pediatric hemiplegia

Nayo Hill¹, Julius Dewald¹

¹Northwestern University

P1-C-30 Priming the motor cortex by electrical stimulation of back muscles

Edith Elgueta Cancino¹, Hugo Masse-Alarie², Siobhan Schabrun¹, Paul Hodges¹

¹University of Queensland, ²Université Laval

P1-C-31 Effect of Movement Velocity on Hip and Knee Muscle Onset Latency During a Single Leg Squat in Subjects with and Without Patellofemoral Pain Syndrome

Ignacio Orozco-Chavez¹, Guillermo Mendez-Rebolledo¹

¹University of Talca

P1-C-32 Contributions of vestibular and somatosensory systems to quiet standing in sighted and congenitally blind people

Masaki Iguchi¹, Hideki Kadone², Richard Shields³

¹Tsukuba University of Technology, ²University of Tsukuba, ³University of Iowa

P1-C-33 Decomposition of gyroscopic trunk sway for clinical assessment of standing balance

Tomas Bäcklund¹, Fredrik Ohberg¹, Helena Grip¹, Nina Sundström¹

¹Umeå University

P1-C-34 Relationship between center of pressure and medio-lateral directions in the functional reach test: clinical projection in spinal cord injury

J. Claudio López-Monárdez¹, Valeska Gatica-Rojas¹

¹Universidad de Talca

P1-C-35 Effect of body weight support on muscle activities during walking and running using a lower body positive pressure treadmill in healthy adults

Kiyotaka Kamibayashi¹, Shodai Yoshida¹, Taku Wakahara¹, Kojiro Ishii¹, Yoshinobu Ohira¹

¹Doshisha University



P1-C-36 The effect of acute pain and motor learning on sensorimotor integration and accuracy using a motor tracing task

Erin Dancey¹, Bernadette Murphy¹, Paul Yielder¹, Danielle Andrew¹

¹UOIT

P1-C-37 Effect of neuromuscular electrical stimulation on motor cortex excitability upon release of tonic muscle contraction

Kenichi Sugawara¹, Shigeo Tanabe¹, Tomotaka Suzuki², Toshio Higashi³

¹Fujita Health University, ²Kanagawa University of Human Services, ³Nagasaki University

P1-C-38 Trunk muscle activation during position-control tasks in sitting

Martin Eriksson Crommert¹, Kylie Tucker², Paul Hodges²

¹University Health Care Research Centre, Örebro University, ²The University of Queensland

P1-C-39 Altered integration of proprioceptive information for balance control is linked with prospective falls

Wolbert van den Hoorn¹, Graham Kerr², Jaap van Dieën³

¹The University of Queensland, Centre of Clinical Research Excellence in Spinal Pain, Injury & Health,

²Movement Neuroscience Program, Institute of Health and Biomedical Innovation, Queensland University, ³MOVE Research Institute Amsterdam

D - Rehabilitation technologies

P1-D-40 Spike timing-dependent plasticity in lower-limb muscles after incomplete spinal cord injury

Mike Urbin¹, Monica Perez¹

¹University of Miami School of Medicine

P1-D-41 Distributed stimulation to augment force evoked with functional electrical stimulation

Alie Buckmire¹, Andrew Fuglevand¹, Danielle Lockwood¹

¹University of Arizona

P1-D-42 Long latency responses induced by Robotic Neuromodulatory Rehabilitation System for Paired Associative Stimulation

Euisun Kim¹, Jun Ueda¹, Minoru Shinohara¹, Ilya Kovalenko¹

¹Georgia Institute of Technology

P1-D-43 'Off-the-shelf' foot orthoses change knee load during walking in people with patellofemoral pain and mobile feet

Natalie Collins¹, Harvi Hart², Jason Bonacci³, Bill Vicenzino¹, Kay Crossley²



¹The University of Queensland, ²La Trobe University, ³Deakin University

P1-D-44 Activity-dependent axonal hyperpolarization contributes to NMES-induced contraction fatigability

Minh Luu¹, David Collins¹, Kelvin Jones¹

¹University of Alberta

P1-D-45 Performance and brain activation during slow speed and anatomical motion movie observation

Akio Ueda¹, Hiroshi Kurumadani¹, Toru Sunagawa¹

¹Hiroshima University

P1-D-46 Evidence-based prescription of shoulder rehabilitation exercises as determined by EMG

David Hawkes¹, Simon Frostick¹

¹University of Liverpool

P1-D-47 The effect of circumferential pressure on soleus muscle stiffness

James Agostinucci¹, Peter Blanpied¹

¹University of Rhode Island

P1-D-48 Effects on cervical spine kinematics following Ergo-Motor intervention: an integrated approach combining motor control training and ergonomics

Sharon Tsang¹, Billy CL So¹, LK Hung², SW Law², Grace PY Szeto¹

¹The Hong Kong Polytechnic University, ²Chinese University of Hong Kong

P1-D-49 Validity of estimation of pelvic floor muscle activation through transperineal ultrasound imaging in women

Cindy Auchincloss¹, Stephanie Thibault-Gagnon¹, Ryan Graham², Linda McLean²

¹Queen's University, ²University of Ottawa

P1-D-50 System Identification of Two Degrees of Freedom EMG-Force at the Hand-Wrist Using Dynamic Models

Chenyun Dai¹, Carlos Martinez-Luna², Thane Hunt², Ziling Zhu¹, Todd Farrell², Edward Clancy¹

¹Worcester Polytechnic Institute, ²Liberating Technologies, Inc.

P1-D-51 In vivo characterization of muscle viscoelastic properties using shear wave elastography

Allison Wang¹, Eric Perreault¹, Sabrina Lee¹

¹Northwestern University

P1-D-52 Reorganization of neuromuscular coordination when learning new cycling tasks



Diego Torricelli¹, Cristiano De Marchis², Daniel Nemati Tobaruela³, Filipe Barroso¹, Jose Pons¹

¹Consejo Superior de Investigaciones Científicas, ²Università Roma Tre, ³University Carlos III

E - Movement disorders

P1-E-53 Changes in the respiratory and the stomatognathic system caused by idiopathic scoliosis

Saulo Fabrin¹, Bárbara de Lima Lucas¹, Edson Donizetti Verri¹, Eloisa Maria Gatti Regueiro², Evandro Marianetti Fioco¹, Marcelo Palinkas¹, Danilo Stefani Esposto¹, Nayara Soares¹, Oswaldo Stamato Taube¹, Simone Ceilio Hallak Regalo¹

¹University of São Paulo, ²UNIFAFIBE- University Center

P1-E-54 Functional analysis of the stomatognathic system in individuals with fibromyalgia syndrome

Victor Nepomuceno¹, Bruno Ferreira¹, Gabriel Silva¹, Marcelo Palinkas¹, Oswaldo Luiz Taube², Selma Siéssere¹, Marisa Semprini¹, Simone Cecilio Regalo¹

¹University of São Paulo, ²University Center Bebedouro

P1-E-55 Effects of regionally selective activation of trunk muscles on dimensions of upper and lower thoraxes during respiration

Riho Higashi¹, Naoya Nishida², Tatsuya Ishizuka³, Yukisato Ishida⁴, Fujiyasu Kakizaki⁴

¹IMS group Itabashi Chuo Medical Center, Tokyo, Japan, ²Sonoda Second Hospital, ³IMS group Tokyo Nephro Urology Center Yamato Hospital, ⁴Bunkyo Gakuin University

P1-E-56 Evaluation and analysis of respiratory muscle strength of patients with multiple sclerosis

Marília Martins de Oliveira Pupim¹, Michelle Bazilio Milan¹, Saulo Fabrin², Danilo Stefani Esposto², Gabriel Pádua da Silva², Evandro Matianetti Fioco², Simone Cecilio Hallak Regalo², Edson Donizetti Verri²

¹Claretiano University Center, ²University of São Paulo

P1-E-57 Analysis of the chewing in women post-mastectomy - pilot study

Danilo Esposto¹, Marcelo Palinkas², Saulo Fabrin³, Bárbara Lucas⁴, Edson Verri², Paulo Vasconcelos², Vânia Ferreira¹, Elaine Guirro¹, Eduardo Chedid², Simone Regalo²

¹Ribeirão Preto Medical School, University of São Paulo, ²School of Dentistry of Ribeirão Preto, University of São Paulo, ³Ribeirão Preto Medical School, University of São Paulo, Brazil, ⁴Federal University of Jataí

P1-E-58 Length dependence of the shear elastic properties of the biceps brachii after stroke

Andrew Lai¹, Nina Suresh¹, Xiaogang Hu², Zev Rymer¹

¹Northwestern University, ²University of North Carolina/ North Carolina State University

P1-E-59 Acute Intermittent Hypoxia Augments Upper Limb Neuromotor Function in Persons with Spinal Cord Injury



Milap Sandhu¹, Babak Afsharipour¹, Ghulam Rasool¹, Andres Cardona¹, William Zev Rymer¹

¹Rehabilitation Institute of Chicago

P1-E-60 Evaluation of the masticatory and cervical muscles in women post-mastectomy - pilot study

Danilo Esposto¹, Marcelo Palinkas², Saulo Fabrin², Bárbara Lucas³, Edson Verri², Paulo Vasconcelos², Vânia Ferreira¹, Elaine Guirro¹, Eduardo Chedid², Simone Regalo²

¹Ribeirão Preto Medical School, University of São Paulo, ²School of Dentistry of Ribeirão Preto, University of São Paulo, ³Federal University of Jataí

P1-E-61 Effect of total knee arthroplasty on balancing capacity after sudden perturbation in patients with bilateral knee osteoarthritis

Gréta Szabó¹, Gergely Nagymáté¹, Rita Kiss¹

¹Budapest University of Technology and Economics

P1-E-62 Spastic Semitendinosus Muscle of Cerebral Palsy Patients Tested Intra-operatively Does Get Affected by Epimuscular Myofascial Force Transmission but Shows no Abnormal Mechanics

Can Yucesoy¹, Cemre Su Kaya¹, Yener Temelli², Filiz Ates³

¹Bogazici University, ²Istanbul University, ³Waseda University

P1-E-63 Influence of the ataxia on the masticatory efficiency

Bruno Ferreira¹, Ligia Napolitano Gonçalves², Veridiana Arnoni², Gabriel Silva¹, Camila Gonçalves², Isabela Regalo², Sandra Rancan², Oswaldo Stamato Taube², Selma Siéssere², Simone Hallak Regalo²

¹School of Medicine of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil, ²School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil

P1-E-64 Characterization of Passive Muscle Viscoelastic Properties in Hemiplegic Stroke

Ghulam Rasool¹, Allison Wang², William Rymer¹, Sabrina Lee²

¹Rehabilitation Institute of Chicago, ²Northwestern University

P1-E-65 Older and young adults with chronic low back pain present increased back muscle fatigue

Alexandre Nowotny¹, Edgar Vieira², Marcos Cabrera³, Leandro Altimari⁴, Andreo Aguiar¹, Adriana Carvalho¹, Marcio Oliveira¹, Rubens da Silva¹

¹Universidade Norte do Parana (UNOPAR), ²Florida International University, ³Universidade Estadual de Londrina (UEL), ⁴Universidade Estadual de Londrina

F - Motor units

P1-F-66 Motor unit firing pattern of vastus lateralis muscle and its association with the strength capacity in the elderly



KOHEI WATANABE¹, Ales Holobar², Motoki Kouzaki³, Madoka Ogawa⁴, Hiroshi Akima⁴, Toshio Moritani³

¹Chukyo University, ²University of Maribor, ³Kyoto University, ⁴Nagoya University

P1-F-67 Effect of posture on motor unit control investigated by decomposition techniques in adults after stroke

Mizuki Daimon¹, Koji Ohata¹, Ryosuke Kitatani¹, Yu Hashiguchi¹, Ayaka Maeda¹, Shihomi Kawasaki¹, Masanori Wakida¹

¹Kyoto University

P1-F-68 Evaluation of neuromuscular activation and force tracking accuracy during isometric sine-wave force exertion

Aya Tomita¹, Hiroshi Akima¹

¹Nagoya University

P1-F-69 Cutaneous post-synaptic potentials from the in vivo cat

Christopher Thompson¹, Michael Johnson², Matthieu Chardon², Francesco Negro³, Dario Farina³, Charles Heckman²

¹Temple University, ²Northwestern University, ³University Medical Center, Georg-August University

P1-F-70 Motor unit synchronization during linear motor commands

Sarah Hruby¹, Hsaun Kang¹, Ina Joshi¹, David Hurley¹, Francesco Negro², Dario Farina², Jules Dewald¹, Charles Heckman¹, Christopher Thompson³

¹Northwestern University, ²Georg-August University, ³Temple University

P1-F-71 Motor axon excitability properties of the human gastrocnemius and soleus muscles

Cliff Klein¹, Chen Ning Zhao¹, Hui Liu¹, Ping Zhou¹

¹Guangdong Provincial Work Injury Rehabilitation Center

P1-F-72 Evaluation of the neuromuscular fatigue in long-lasting cardiothoracic surgeries, using multi-channel EMG

Tiago Lopes¹, Miguel Correia¹

¹Faculdade de Engenharia da Universidade do Porto

G - Neural Engineering

P1-G-73 Feasibility study on effects of free bubble insole for walking

Tohru Kiryu¹, Toshio Murayama², Kentaroh Yamaguchi³, Kensuke Otsuka³

¹Graduate School of Science & Technology, Niigata University, ²Graduate School of Education, Niigata University, ³Grad School of Science & Technol, Niigata University



P1-G-74 Mitigating the effect of wrist kinematics on pattern recognition control

Adenike Adewuyi¹, Levi Hargrove¹, Todd Kuiken¹

¹Northwestern University

P1-G-75 Towards the restoration of hand function using fully wireless cortically-controlled functional electrical stimulation

Juan Gallego¹, Stephanie Naufel¹, Steven Lanier¹, Lee Miller¹

¹Northwestern University

Poster Session II

Thursday, July 7

A - EMG recording, modeling, and signal processing

P2-A-1 A Systematic Analysis of the Relationship between Fine Wire and Surface Electromyography Onset Detection with and without the Teager Kaiser Energy Operator

Andrew Tweedell¹, Courtney Webster¹, Matthew Tenan¹

¹Army Research Laboratory

P2-A-2 Continuous frequency change of SEMG for a transition period between knee extension and knee flexion during pedaling

Kenichi Kaneko¹, Hitoshi Makabe², Kazuyuki Mito³, Kazuyoshi Sakamoto³

¹Fuji University, ²Yamagata Prefectural University of Health Sciences, ³University of Electro-Communications

P2-A-3 An Investigation of the Surface Electromyography-to-Force Relationship During Fatiguing Static Elbow Flexion

Paul Leuty¹, Chad Sutherland¹, Jim Potvin², Joel Cort¹

¹University of Windsor, ²McMaster University

P2-A-4 Wearable wireless multichannel sEMG acquisition system

Luigi Cerone¹, Marco Gazzoni¹

¹Politecnico di Torino - LISiN

P2-A-5 Geometry-related variations in CMAP distribution over the soleus: a simulation study

Alberto Botter¹, Taian Vieira¹

¹Politecnico di Torino - LISiN



P2-A-6 Spike shape analysis of mechanomyogram during linear torque decrement in fresh and fatigued muscle

Renata Andrzejewska¹, Artur Jaskólski¹, Jarosław Marusiak¹, Anna Jaskolska¹, Claudio Orizio²

¹University School of Physical Education, Wrocław, ²University of Brescia

P2-A-7 A closed-loop neuromuscular simulation can provide insights into the origins and task-dependencies of force fluctuations.

Akira Nagamori¹, Chris Laine¹, Kian Jaleddini¹, Francisco Valero-Cuevas¹

¹University of Southern California

P2-A-8 Evaluation of external anal sphincter innervation asymmetry in obstetrics

Vita Zacesta¹, Dace Rezeberga¹, Haralds Plaudis², Kristina Drusany-Staric³, Corrado Cescon⁴

¹Riga Stradins University, ²Riga East Clinical University Hospital, ³University Medical Centre Ljubljana, ⁴University of Applied Sciences and Arts of Southern Switzerland

B - Motor performance and sports science

P2-B-9 The Effects of Fatigue in Backward Skating in Ice Hockey

Tom Wu¹, David Pearsall², Pamela Russell¹, Yuko Imanaka¹

¹Bridgewater State University, ²McGill University

P2-B-10 The Effects of Load Mass Variations on Front and Back Squat Movement Coordination Pattern

Tom Wu¹, Joo-sung Kim²

¹Bridgewater State University, ²Texas State University

P2-B-11 Effect of whole-body vibration on isokinetic performance and muscle activation in individuals submitted to Anterior Cruciate Ligament reconstruction

Karina Costa¹, Daniel Borges¹, Liane Macedo¹, Caio L¹, Samara Melo¹, Jamilson Brasileiro¹

¹UFRN

P2-B-12 Effects of low level laser therapy on electromyographic activity after muscular fatigue: randomized, controlled, and blinded trial

Rodrigo Marcel Valentim da Silva¹, Manuele Jardim Pimentel¹, Liane de Brito Macedo¹, Daniel Tezoni Borges¹, Jamilson Simões Brasileiro¹

¹Universidade Federal do Rio Grande do Norte

P2-B-13 Relationship between the transverse palmar arch in the hand and the intrinsic hand muscles during reach-to-grasp motion for an object of different size

Kurumadani Hiroshi¹, Okajo Misuho¹, Sunagawa Toru¹



¹Hiroshima University

P2-B-14 Supersonic Shear Imaging is a non-invasive method to early detect muscle damage

Lilian Lacourpaille¹, Antoine Nordez¹, Valentin Doguet¹, Ricardo Andrade¹, François Hug¹, Gaël Guilhem²

¹Universite of Nantes, Human Sport Sciences, ²French National Institute of Sport

P2-B-15 Effect of unilateral fatigue in the knee extensors on crank power during sprint cycling

Rosie Bourke¹, Guillaume Millet², David Rouffet¹

¹Victoria University, ²University of Calgary

P2-B-16 The effect of external support on force and COP performance after ankle plantarflexors fatigue in athletes with ankle instability during lateral drop landing

Cheng-Feng Lin¹, Wan-Ching Lee¹

¹National Cheng Kung University

P2-B-17 The influence of kinesio tape and ankle brace on the lower extremity joint motion in fatigued unstable ankles during lateral drop landing

Cheng-Feng Lin¹, Wan-Ching Lee¹

¹National Cheng Kung University

P2-B-18 Development of a Diagnostic System for Shoulder Disorder Using Musculoskeletal Simulation

Po-Hsun Huang¹, Wo-Jan Tseng², Bing-Shiang Yang¹

¹National Chiao Tung University, ²National Taiwan University Hospital Hsin-Chu Branch

P2-B-19 Reliability of the CANTAB cognitive assessment battery over short duration repeated measurements

Michael Williams-Bell¹, Shawna Buren², Steven Passmore³, Bernadette Murphy²

¹Durham College, ²University of Ontario Institute of Technology, ³University of Manitoba

C - Sensorimotor control

P2-C-20 The skinny on vibration detection; how to generate skin feedback from the soles of the feet

Leah Bent¹, Nicholas Strzalkowski¹

¹University of Guelph

P2-C-21 The effects of an 8-week stabilization exercise program on trunk muscle thickness and activation as measured with ultrasound imaging in patients with chronic low back pain

Christian Lariviere¹, Sharon Henry², Dany Gagnon³, Richard Preuss⁴, Jean-Pierre Dumas⁵



¹Institut de réadaptation Gingras-Lindsay-de-Montréal, ²The University of Vermont Medical Center, ³Université de Montréal, ⁴McGill University, ⁵Université de Sherbrooke

P2-C-23 Does continuous visual feedback mediate motor learning and consolidation? Insights into landing strategies based on extrinsic and intrinsic information

Adam Grinberg¹, Dario Liebermann¹

¹Tel Aviv University

P2-C-24 Unaware motor response induced during biological movement visual stimulus - Physiological effects of an augmented reality system for therapy in sensory-motor disorders-

Fuminari Kaneko¹, Eriko Shibata¹, Yoshihiro Itaguchi¹

¹Sapporo Medical University

P2-C-25 Low back skin sensitivity has minimal impact on active lumbar spine proprioception and stability in healthy adults

Shawn Beaudette¹, Katelyn Larson¹, Dennis Larson¹, Stephen Brown¹

¹University of Guelph

P2-C-26 Split-Belt Treadmill Adaptation in Transtibial Amputees

Oliver Kannape¹

¹University of Central Lancashire

P2-C-27 No gender effect in pinch grip coordination after lateral transfer in brain among stroke survivors

seyed Hadi Salehi¹, Na Jin Seo¹

¹Loyola maymount university

P2-C-28 People with chronic low back pain show reduced movement complexity during daily activities

Leonardo Gizzi¹, Oliver Röhrle¹, Frank Petzke², Deborah Falla²

¹Inst. Applied Mechanics, University Stuttgart, ²Universitätsmedizin Göttingen Georg-August-Universität

P2-C-29 The potential functional consequences of the distribution of fat infiltration in the neck muscles

James Elliott¹, Anneli Peolsson², Janne West², Rebecca Abbott¹, Ulrika Åslund², Anette Karlsson², Olof Dahlqvist Leinhard²

¹Northwestern University, ²Linköping University

P2-C-30 Measures of local dynamic stability at the ankle joint before and after a fatiguing protocol reveal subsets of polarised behaviours in young healthy adults



Denise McGrath¹, Christopher Millar²

¹University College Dublin, ²Ulster University

E - Movement disorders

P2-E-31 Impact of amyotrophic lateral sclerosis in the system stomatognathic

Ligia Maria Napolitano Gonçalves¹, Jaime Eduardo Cecilio Hallak², Bárbara de Lima Lucas¹, Wilson Marques Júnior², Marcelo Palinkas¹, Sandra Valéria Rancan¹, Paulo Batista de Vasconcelos¹, Marisa Semprini¹, Selma Siéssere¹, Simone Cecilio Hallak Regalo¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo, ²School of Medicine of Ribeirão Preto, University of São Paulo

P2-E-32 Acupuncture applied to the branches of the facial nerve for the rehabilitation of bell's facial paralysis

Saulo Fabrin¹, Bárbara de Lima Lucas¹, Edson Donizetti Verri¹, Danilo Stefani Esposto¹, Marcelo Palinkas¹, Edson Alves Barros Jr², Michelle Bazilio Milan², Evandro Marianetti Fioco¹, Marília Pupim², Oswaldo Stamato Taube¹, Simone Cecilio Hallak Regalo¹

¹University of São Paulo, ²Claretiano University Center

P2-E-33 Finger movement control and associated brain activity responses post-stroke

Anna-Maria Johansson¹, Helena Grip², Andrew Strong², Jonas Selling², Louise Rönnqvist³, Carl-Johan Boraxbekk², Charlotte Häger²

¹Umeå University, ²Umeå University, ³Psychology, Umeå University

P2-E-34 Concentric and isometric torques are affected by diabetes but the eccentric remains unchanged due to diabetes or polyneuropathy

Jean Ferreira¹, Isabel Sacco², Cristina Sartor², Tania Salvini¹

¹Federal University of Sao Carlos, ²University of Sao Paulo

P2-E-35 Effect of back pain on trunk strength capacity and muscle activity patterns during isokinetic and sudden trunk loading in adolescent athletes

Steffen Mueller¹, Josefine Stoll¹, Michael Cassel¹, Juliane Mueller¹, Tilman Engel¹, Frank Mayer¹

¹University of Potsdam

P2-E-37 Functional analysis of lower limbs in individuals infected with the human immunodeficiency virus

Gabriel Silva¹, Bruno Ferreira¹, Veridiana Arnoni¹, Edson Verri¹, Camila Gonçalves², Paulo Vasconcelos¹, Maria Aparecida Vasconcelos¹, Selma Siéssere¹, Isabela Regalo¹, Marisa Semprini¹, Alcyone Machado¹, Simone Cecilio Regalo¹

¹University of São Paulo, ²Federal University of Uberlandia



P2-E-38 A systematic review of torso motor control impairments in adolescents with idiopathic scoliosis (ais) with implications for the planning of conservative interventions

Fatemeh Aslanzadeh¹, Eric Parent², Brian MacIntosh²

¹University of Calgary, ²University of Alberta

P2-E-39 Effects of low vision and blindness in complex postural

Nayara Soares¹, Edson Verri², Saulo Fabrin², Selma Siéssere¹, Victor Rodrigues Nepomuceno¹, Paulo Batista de Vasconcelos¹, Marcelo Palinkas¹, Simone Cecílio Hallak Regalo¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil, ²School of Physical Therapy of Batatais, Claretiano University Center, Batatais, Brazil

P2-E-40 Superficial tissue compression effects in muscle tone of patients with encephalic vascular accident

Camila Gonçalves¹, Gabriel Silva², Bruno Ferreira², Veridiana Arnoni², Saulo Fabrin², Crislaine Lima³, Vanessa Dias³, Edson Verri², Simone Cecilio Regalo²

¹Federal University of Uberlandia, Brazil, ²University of Sao Paulo, Brazil, ³School of Physical Therapy of Bebedouro, UNIFAFIBE

P2-E-41 Investigation of Oxygenation Difference during Sternocleidomastoid Isometric Contraction for Clients with Mechanical Neck Disorder

Po-Ching Yang¹, Chia-Chi Yang², Yung Chang², Lan-Yuen Guo¹

¹Kaohsiung Medical University, ²National Cheng Kung University

P2-E-42 Functional analysis of the stomatognathic system in individuals with multiple sclerosis

Gabriel Silva¹, Bruno Ferreira¹, Veridiana Arnoni¹, Edson Verri¹, Camila Gonçalves², Isabela Regalo¹, Selma Siéssere¹, Marisa Semprini¹, Simone Cecilio Regalo¹

¹University of São Paulo, ²Federal University of Uberlandia

P2-E-43 Midfoot Kinematics During Adult Gait

Victoria Chester¹, Usha Kuruganti¹, Jeffrey Grant¹

¹University of New Brunswick

P2-E-44 The strategies on turning while walking after stroke

Takahito Nakamura¹, Fumihiko Hoshi²

¹Rehabilitation Amakusa hospital, ²Graduate school of Saitama Prefectural University

H - Neuromechanics

P2-H-45 Muscle synergies underlying sit-to-stand tasks and their relationship with kinematic characteristics



Hiroki Hanawa¹, Keisuke Kubota², Takanori Kokubun³, Tatsuya Marumo⁴, Keita Murata⁵, Fumihiko Hoshi³

¹Higashi Saitama general Hospital, ²Ishii Clinic, ³Saitama prefectural University, ⁴Ageo Chuou general Hospital, ⁵Rehabilitation Amakusa Hospital

P2-H-46 The importance of feed-forward control in posture stability

Chihiro Edamatsu¹, Kouki Takahashi², Kazuki Kusumoto¹, Masataka Yamamoto¹, Takeshi Miyakawa³

¹ Kurashiki University of Science and The Arts, ²Tokyo Ariake University of Medical and Health Sciences, ³Kawasaki University of Medical Welfare

P2-H-47 Threat of perturbation effects on anticipatory postural control

Angel Phanthanourak¹, Taylor Cleworth², Allan Adkin¹, Mark Carpenter², Craig Tokuno¹

¹Brock University, ²University of British Columbia

P2-H-48 Age-related Differences in Neuromuscular and Morphological Characteristics of Plantar Flexors

Boram Han¹, Dae-Yeon Lee², Sung-Cheol Lee¹, Hae-Dong Lee¹

¹Yonsei University, ²Dangnam University

P2-H-49 Musculoskeletal Modeling driven by Electromyograms processed via Bayesian Filtering Techniques

Massimo Sartori¹, David Hofmann²

¹University Medical Center, Göttingen, ²Emory University

P2-H-50 Shear wave speed measurements during isometric contractions of stroke-impaired medial gastrocnemius and tibialis anterior

James Pisano¹, Sabrina Lee¹, Kristen Jakubowski¹

¹Northwestern University

P2-H-51 The interaction of biceps and brachioradialis for the control of elbow flexion and extension movements

Sylvie von Werder¹, Catherine Disselhorst-Klug¹

¹Institute for Applied Medical Engineering, RWTH Aachen University

P2-H-52 Center of pressure mean velocity predicts single limb stance time in experts and novices

Ana Gomez-del Campo¹, Andrew Sawers², Aiden Payne¹, Lena Ting³

¹Georgia Institute of Technology, ²University of Illinois at Chicago, ³Emory University

I - Novel measurement technologies



P2-I-54 New Mechanomyogram / Electromyogram Hybrid Transducer for evaluation of muscle contraction during cycling-wheelchair exercise

Hisao Oka¹, Shin-ichi Fukuhara²

¹Okayama University, ²University of Medical Welfare

P2-I-55 Evaluation of Muscle Contraction using 5×5 MMG Array Sensor, 64 Channel sEMG Multichannel Sensor and Ultrasonic Image Equipment

Hisao Oka¹, Shin-ichi Fukuhara²

¹Okayama University, ²Kawasaki University of Medical Welfare

P2-I-56 Inter-rater reliability of kinematic assessment of upper extremity movement based on inertial sensors - A pilot study

Fredrik Öhberg¹, Tomas Bäcklund¹, Nina Sundström¹, Helena Grip¹

¹Umeå University

P2-I-57 Reliability of helical axis parameters during glenohumeral rotation

Corrado Cescon¹, Marco Conti², Francesco Bozzetti¹, Filippo Ghirlanda¹, Marco Barbero¹

¹University of Applied Sciences and Arts of Southern Switzerland, ²MedSport

P2-I-58 Development of Flexible Microneedle Electrodes for Recording of Surface EMG

Kevin Krieger¹, Madeleine Lowery¹, Eoin O'Cearbhaill¹

¹University College Dublin

P2-I-59 Evaluation of shoulder rotation axis during three different tasks

Corrado Cescon¹, Francesco Bozzetti¹, Filippo Ghirlanda¹, Marco Conti², Marco Barbero¹

¹University of Applied Sciences and Arts of Southern Switzerland, ²MedSport

P2-I-60 Automatic Image Processing of Ultrasound Elastography for Obtaining Muscle Shear Modulus by Removing Connective Tissue Data

Ellenor Brown¹, Yasuhide Yoshitake², Jun Ueda¹, Minoru Shinohara¹

¹Georgia Institute of Technology, ²National Institute of Sports and Fitness, Kanoya

P2-I-61 Is foot mobility related to age in people with anterior knee pain?

Natalie Collins¹, Bill Vicenzino¹, Kay Crossley²

¹The University of Queensland, ²La Trobe University

P2-I-62 Posture of the head and trunk in sitting: quantification of alignment

María Sánchez¹, Ian Loram¹, John Darby¹, Paul Holmes¹, Penelope Butler²

¹Manchester Metropolitan University, ²The Movement Centre



P2-I-63 Passive and active stiffness of the neck extensor muscles is depth-dependent

Angela Dieterich¹, Ricardo Andrade², Guillaume Le Sant², Deborah Falla¹, Frank Petzke¹, Francois Hug², Antoine Nordez²

¹University Medical Center Goettingen, ²University of Nantes

P2-I-64 A Preliminary Study on Measurement of Surgery Procedures with Multi-Channel Surface EMG signals

Hideo Nakamura¹, Kenji Yoshida², Kenta Takayasu¹

¹Osaka Electro-Communication University, ²Kansai Medical University

P2-I-65 Real-time ultrasound cervical muscle segmentation: with application to monitoring and diagnosis of cervical dystonia

Ryan Cunningham¹, Peter Harding¹, Ian Loram¹

¹Manchester Metropolitan University

P2-I-66 Addition of a verbal dual task results in reduced right arm swing while walking and men are more susceptible

Tim Killeen¹, Christopher Easthope¹, Lilla Lörincz², Linard Filli², Armin Curt¹, Björn Zörner¹, Marc Bolliger¹

¹University Hospital Balgrist, ²University Hospital Zurich

J - Ergonomics

P2-J -67 Change in the lateral axis of high-heeled shoes on the frontal plane

Takshi Nakayama¹, Tomokazu Muto¹

¹Tokyo University of Technology

P2-J -68 The effect of Palm Supporter to writing for Patients with Essential Tremor

Kazuyoshi Sakamoto¹

¹The University of Electro-Communications

P2-J -69 The effect of Palm Supporter to writing letters for Patients with Essential Tremor

Kazuyoshi Sakamoto¹

¹The University of Electro-Communications

P2-J -70 A study of tissue oxygenation in neck and forearm muscles during mobile phone tasks

Grace Szeto¹, KH Ting¹, Tsun Sum Cheung¹, Cheuk Wing Lai¹, Chi Fai Law¹, Wing Yin Lee¹, Chun Sum Yeung¹

¹The Hong Kong Polytechnic University



P2-J -71 Effects of one-sided loading on trunk muscle activity patterns in healthy subjects and back pain patients

Juliane Müller¹, Tilman Engel¹, Steffen Müller¹, Martin Wolter¹, Josefine Stoll¹, Frank Mayer¹

¹University of Potsdam

P2-J -72 Estimating Expert-Based Functional Assessment Scores Using Sensor Data

Fatemeh Noushin Golabchi¹, Giacomo Severini¹, Phil Reaston², Mary Reaston², Paolo Bonato¹

¹Harvard Medical School, ²Emerge Diagnostics

P2-J -73 A study of neck muscle activity during mobile phone texting and association with flexion relaxation phenomenon

Kelvin Pun¹

¹The Chinese University of Hong Kong

P2-J -74 The effect of a prolonged standing exposure on lower leg volume and muscle fatigue

Benjamin Steinhilber¹, Robert Seibt¹, Rudolf Wall¹, Monika Rieger¹

¹University Hospital Tuebingen

P2-75 Whitney Young Innovation Team: Project Trouve

Martin Lozano¹, Emilio Reyes¹, Christian Vasquez¹, Samantha Bachand¹, Ricardo Reyes¹, Pablo Sanchez¹

¹Whitney Young High School

Poster Session III

Friday, July 8

A - EMG recording, modeling, and signal processing

P3-A-1 An innovative modular wireless system for the acquisition of surface EMG signals

Luigi Cerone¹, Enrico Merlo², Alberto Botter¹, Taian Vieira¹, Andrea Bottin², Marco Gazzoni¹

¹Politecnico di Torino - LISiN, ²OT Bioelettronica s.n.c.

P3-A-2 Investigation of Force and EMG Measures in Competitive Swimmers

Usha Kuruganti¹, Victoria Chester¹, Cassandra Mooney¹

¹University of New Brunswick

P3-A-3 Evaluating Decomposition Methods for Electromyographic Characterization of Neuromuscular Disorders

Meena AbdelMaseeh¹, Daniel Stashuk¹



¹University of Waterloo

P3-A-4 Muscle activation patterns when standing on wedges and being exposed to lateral perturbation

Yun-Ju Lee¹, Bing Chen¹, Mohan Ganesan¹, Kwan-Hwa Lin², Alexander Aruin¹

¹University of Illinois at Chicago, ²Tzu Chi University

P3-A-5 Errors in RMS amplitude estimation attributable to the Inter Electrode Distance of the surface EMG electrode grids

Subaryani Soedirdjo¹, Babak Afsharipour², Paolo Cattarello³, Roberto Merletti⁴

¹Politecnico di Torino, Laboratory of Engineering of Neuromuscular System and Motor Rehabilitation,

²Northwestern University, ³Laboratory of Engineering of Neuromuscular System and Motor Rehabilitation, ⁴Politecnico di Torino

P3-A-6 The Hand Function of Stroke Patients in the View of Surface Electromyography

Petra Bastlova¹, Barbora Kolarova¹, Lucie Szmekova¹, Alois Krobot¹

¹Palacky University, Faculty of Health Sciences

P3-A-8 Effects of core muscle pre-activation on the recruitment of the hip muscles during therapeutic hip exercises

Sharon Tsang¹, Amanda Lam¹, Melody Ng¹, Cherri Tsui¹, Kiki Ng¹, Benjamin Yiu¹

¹The Hong Kong Polytechnic University

P3-A-9 Impaired hand function is related to increased alpha band coherence between intermediate deltoid and wrist/finger flexors after stroke: preliminary findings

Yiyun Lan¹, Jun Yao¹, Jules Dewald¹

¹Northwestern University

P3-A-10 Exploring sex differences in cervical spine muscle activity during sudden head perturbations in hockey players

Chad Debison-Larabie¹, Bernadette Murphy¹, Michael Holmes¹

¹University of Ontario Institute of Technology

P3-A-11 Accurate identification of motor unit activity during dynamic tasks of the forearm muscles: perspectives for prosthetic control

Tamas Kapelner¹, Francesco Negro¹, Dario Farina¹

¹Institute for Neurorehabilitation Systems

P3-A-12 Identification of sEMG-Torque Dynamics May Reveal the Underlying Control Strategy

Mahsa Golkar¹, Kian Jalaleddini², Robert Kearney¹



¹McGill University, ²University of Southern California

B - Motor performance and sports science

P3-B-13 Electromyographic analysis of the scapular muscles in rehabilitation exercise: a cross-sectional study

Guillermo Mendez-Rebolledo¹, Marcela Nuñez-Valenzuela¹, Arline Rodriguez-Soto¹, Valeska Gatica-Rojas¹

¹University of Talca

P3-B-14 8-week vibration training of the elbow flexors by force modulation

Lin Xu¹, Marco Cardinal², Chiara Rabotti¹, Bogdan Beju¹, Massimo Mischi¹

¹Eindhoven University of Technology, ²Aspire Academy

P3-B-16 Different sagittal movements of trunk and pelvis dependent on trunk rotation direction at half-hip free sitting posture: Assessment comparable with gait analysis

Mio Hayashi¹, Tatsuya Ishizuka², Naoya Nishida³, Kenichiro Nishie¹, Hiroki Tsuchiya⁴, Hiroyuki Kobayashi¹, Yukisato Ishida¹, Fujiyasu Kakizaki¹

¹Bunkyo Gakuin University, ²IMS group Tokyo Nephro Urology Center Yamato Hospital, ³Sonoda Second Hospital,, ⁴Tachibanadai Hospital

P3-B-17 Contribution of bilateral asymmetry in hip joint movements and trunk motion to the smooth propulsion in gait of normal adults

Kenichiro Nishie¹, Hiroyuki Kobayashi², Tatsuya Ishizuka³, Yukisato Ishida¹, Fujiyasu Kakizaki¹

¹Bunkyo Gakuin University, ²IMS Group Shinkatsushika Hospital, Tokyo, Japan, ³IMS Group Tokyo Nephro Urology Center Yamato Hospital

P3-B-18 Is there an age difference in voluntary activation during maximal dynamic contractions with elbow flexor muscles?

Vianney Rozand¹, Jonathon Senefeld¹, Hamidollah Hassanlouei¹, Sandra Hunter¹

¹Marquette University

P3-B-19 Influence of an Acute Bout of Self-Myofascial Release on the Expression of Isometric Knee Extension Force and Electromyographic and Mechanomyographic Signals of the Quadriceps Musculature

David Cornell¹, Kyle Ebersole¹, Elizabeth Ford¹

¹University of Wisconsin-Milwaukee

P3-B-20 Laterally selective stimulation of laterodorsal muscles affects the bilateral deviation in trunk alignment

Kengo Sasagawa¹, Yuki Honma², Ayumi Mohara³, Yoshihiro Aramaki⁴, Kazuya Tame⁵, Tetsuro Hirayama⁵, Tatsuya Ishizuka⁶, Yukisato Ishida¹, Fujiyasu Kakizaki¹



¹Bunkyo Gakuin University, ²IMS group Clover no Sato IMS Care Kaupili Itabashi, ³IMS group Katsushika Royal Care Center, ⁴IMS group Itabashi chuo medical center, ⁵Hiro-o Orthopedics Clinic, ⁶IMS group Tokyo Nephro Urology Center Yamato Hospital

P3-B-21 Spatial EMG signal properties in human biceps femoris muscle during running on the treadmill

Kazuyuki Mito¹, Ryuta Inano¹, Tota Mizuno¹, Naoaki Itakura¹

¹The University of Electro-Communications

P3-B-22 Relationship between dynamic postural control ability with voluntary sway and passive sway and lower limb muscle activity

Toshio Murayama¹, Tamaki Ohta²

¹Faculty of Education, University of Niigata, ²Nekoyama Miyao Hospital

P3-B-23 Do whole body vibration training boost sprint and reactive agility in tennis players?

Ismail Bayram¹, Eren Kaya¹, Ali Onur Cerrah¹, Hayri Ertan¹, Deniz Simsek¹

¹Anadolu University

P3-B-24 Running related gluteus medius muscle function in health and injury: A systematic review with meta-analysis

Adam Semciw¹, Rachel Neate², Tania Pizzari²

¹The University of Queensland, ²La Trobe University

P3-B-25 Biomechanical Strategies of Drop Jump Depending on Human Knee Extensor Eccentric Strength

Jeonghoon Oh¹, Sae Yong Lee¹, Sung-Cheol Lee¹, Hae-Dong Lee¹

¹Yonsei University

P3-B-26 Effect of bilateral fatigue in the knee extensor muscles on crank power during sprint cycling

Steven O'Bryan¹, Janet Taylor², David Rouffet¹

¹Institute of Sport Exercise and Active Living (ISEAL), ²Neuroscience Research Australia

P3-B-28 Changes in postural control and dual task performance following an ultramarathon

Dean Smith¹, Joshua Haworth², Eric Brooks¹, Julie Cousins¹

¹Miami University - Oxford, ²Johns Hopkins School of Medicine, Kennedy Krieger Institute

P3-B-29 Kinematics Comparison between Dominant and Non-Dominant Lower Limbs in Thai Boxing

William Trial¹, Tong-Ching (Tom) Wu¹



¹Bridgewater State University

P3-B-30 Forearm muscle function investigated by EMG in tennis players suffering from tennis elbow

Omid Alizadehkaiyat¹, Simon Frostick²

¹Liverpool Hope University, ²University of Liverpool

P3-B-31 Neuromuscular efficiency of trunk muscles is decreased during an acute pain episode in low back pain patients

Stephan Kopinski¹, Martin Wolter¹, Tilman Engel¹, Steffen Müller¹, Frank Mayer¹

¹University Outpatient Clinic Potsdam

P3-B-32 Drop jump kinematic curves differ for ACL-deficient and ACL-reconstructed individuals ~20 years post-injury compared to controls

Kim Hébert-Losier¹, Lina Schelin², Eva Tengman², Jonas Selling², Andrew Strong², Charlotte Häger²

¹National Sports Complex, ²Umeå university

C - Sensorimotor control

P3-C-33 Modulations of correlated neural oscillations for improving muscle coactivation control due to repetition and practice

Nayef Ahmar¹, Minoru Shinohara¹

¹Georgia Institute of Technology

P3-C-34 Neural control of human precision and power grips

Toshiki Tazoe¹, Monica Perez¹

¹University of Miami

P3-C-35 Test-retest reliability of a novel supine knee joint position sense test.

Andrew Strong¹, Charlotte Häger¹, Eva Tengman¹, Divya Srinivasan²

¹Umeå University, ²Virginia Polytech Institute and State University

P3-C-36 Does the motor cortex contribute to electrically-evoked contractions in humans?

Emily Ainsley¹, Yoshino Okuma¹, David Collins¹

¹University of Alberta

P3-C-37 Is human walking behavior better predicted by energetics or stability: a case-study involving human-structure interactions

Varun Joshi¹, Manoj Srinivasan¹

¹The Ohio State University



P3-C-38 FES Control for Restoring Complex Functional Hindlimb Movements in the Rat

Maria Jantz¹, Amina Kinkhabwala¹, Juan Gallego¹, Lee Miller¹, Matthew Tresch¹

¹Northwestern University

P3-C-39 Muscular reflex responses of trunk and lower limb muscles following unexpected gait perturbations in people with and without back pain

Tilman Engel¹, Juliane Mueller¹, Stephan Kopinski¹, Konstantina Intziegianni¹, Antje Reschke¹, Steffen Mueller¹, Frank Mayer¹

¹University Outpatient Clinic Potsdam

P3-C-40 Impact of neck muscle fatigue on scapulohumeral kinematics in subclinical neck pain vs asymptomatic controls

Mahboobeh Zabihhosseini¹, Michael Holmes¹, Samuel Howarth², Brad Ferguson³, Bernadette Murphy¹

¹University of Ontario Institute of Technology, ²Canadian Memorial Chiropractic College, ³ProTX Services

P3-C-41 Joint learning during dyadic haptic interaction

Dalia De Santis¹, Edwin Johnatan Avila Mireles², Valentina Squeri², Pietro Morasso², Jacopo Zenzeri²

¹Northwestern University and Rehabilitation Institute of Chicago, ²Istituto Italiano di tecnologia

P3-C-42 Effects of a compression garment on sensory feedback transmission in the upper limb

Trevor Barss¹, Greg E Pearcey², Bridget Munro³, E Paul Zehr²

¹Human Neurophysiology Lab, University of Alberta, ²Rehabilitation Neuroscience Lab, University of Victoria, ³Nike Exploration Team

P3-C-43 Human upright, postural control: Is sagittal centre of mass location controlled to a prior?

Ian Loram¹, Vasilios Baltzopoulos², Irene Di Giulio³

¹Ian Loram, ²Brunel University, ³University College London

D - Rehabilitation technologies

P3-D-44 The effects of exercise in combination with other conventional antidepressant therapies in treating individuals suffering with Major Depressive Disorder.

Joanne Gourgouvelis¹, Paul Yelder¹, Hushyar Behbahani¹, Bernadette Murphy¹

¹University of Ontario Institute of Technology

P3-D-45 Effects of flexion-extension in upper and lower cervical spines on the laterality of upper and lower thoracic shapes

Taiichi Koseki¹, Tetsuro Hirayama¹, Tatsuya Ishizuka², Naoya Nishida³, Tsutomu Fujihara¹, Hirohisa Koseki¹, Yukisato Ishida⁴, Fujiyasu Kakizaki⁴



¹Hiro-o Orthopedics Clinic, ² Course of Medical Science in Graduate School of Tokyo Medical University, ³Department of Rehabilitation, Sonoda Second Hospital, ⁴Graduate School of Bunkyo Gakuin University

P3-D-46 Effects of variation in trunk lateral deviation on respiratory function in relation to thicknesses of rectus abdominis and lateral abdominal group muscles

Tsutomu Fujihara¹, Michie Okazaki², Tetsuro Hirayama¹, Tatsuya Ishizuka³, Taiichi Koseki¹, Kazuya Tame¹, Tomoko Kawasaki¹, Fumiya Inagaki¹, Hirohisa Koseki¹, Yukisato Ishida⁴, Fujiyasu Kakizaki⁴

¹Hiro-o Orthopedics Clinic, ²Azabujuban Primary Medical Support, ³Course of Medical Science in Graduate School of Tokyo Medical University, ⁴Graduate School of Bunkyo Gakuin University

P3-D-47 Difference in the acute effect of kinesthetic illusion induced by visual stimulus and action observation on the upper-limb voluntary movement after stroke: a single-case study

Toru Inada¹, Fuminari Kaneko², Naoki Matsuda¹, Satoshi Koyama¹, Junichi Maruyama¹, Junya Shindo¹

¹Asahikawa Rehabilitation Hospital, ²Sapporo Medical University

P3-D-48 ULNAR - Upper Limb functional Assessment and Rehabilitation: tools and methods

Sofia Marques¹, Pedro Fonseca², Ana Rita Pinheiro³, Cláudia Silva³, Miguel Correia¹

¹Faculdade de Engenharia da Universidade do Porto, Instituto de Engenharia de Sistemas e Computadores, ²Laboratório de Biomecânica do Porto - LABIOMEPE, ³Escola Superior de Tecnologia da Saúde do Porto - Instituto Politécnico do Porto/ Centro de Estudos

P3-D-49 A comparison of three types of neuromuscular electrical stimulation for reducing contraction fatigue of the quadriceps muscles

Francisca Claveria¹, David Collins¹, Jenny Lou²

¹University of Alberta, ²University of Toronto

P3-D-50 Task-specific movements generated by EMG-FES facilitate cortical beta band modulation for hand rehabilitation in individuals with moderate to severe stroke.

Kevin Wilkins¹, Julius Dewald¹, Jun Yao¹

¹Northwestern University

P3-D-51 Nintendo Wii decrease spasticity and improves standing balance in cerebral palsy

Valeska Gatica-Rojas¹, Ricardo Cartes-Velásquez², Guillermo Mendez-Rebolledo¹, Eduardo Guzman-Muñoz¹

¹Universidad de Talca, ²Universidad de Concepción

P3-D-52 Onset and cessation timing of seven lower limb muscles during walking in patients with diabetes with and without sensory neuropathy and persons without diabetes

Jonas Martens¹, Filip Staes¹, Giovanni Matricali², Frank Nobels¹, Philip Roosen³, Jos Tits⁴, Kevin Deschamps¹



¹KU Leuven, ²UZ Leuven/KU Leuven, ³University Ghent, ⁴Ziekenhuis Oost-Limburg

P3-D-53 Influence of using T-Cane on variability of stride interval at a self-selected gait speed

Hitoshi Makabe¹, Yuka Takahashi², Hitomi Take³, Kenichi Kaneko⁴, Kazuyoshi Sakamoto⁵

¹Yamagata Prefectural University of Health Sciences, ²Yabuki Hospital, ³Shin-Kaminokawa Hospital,
⁴Fuji University, ⁵University of Electro-Communications

P3-D-54 Reproducibility of the motion generated by a master-slave system developed using neuromuscular electrical stimulation based on kinematic parameters

Naoyuki Kataishi¹, Fuminari Kaneko¹, Eriko Shibata¹

¹Sapporo medical university

P3-D-55 Effect of Visual Feedback on Quality and Consistency of Upper Limb Movement in Stroke Patients

Daniel Simonsen¹, Mirjana Popovic², Erika Spaich¹, Ole Andersen¹

¹Aalborg University, ²University of Belgrade

P3-D-56 Effects of augmented verbal feedback in the ankle electrical activity and torque of typical individuals

Alessandra Matias¹, Ulisses Taddei², Francis Trombini-Souza³, Jane Pires², Renan Calori², João Daré², Milene Dalfolo², Fernanda Ribeiro², Pamela Santana², Rafael Inoue², João Pedro Panighel², Isabel Sacco²

¹USP, ²University of Sao Paulo - USP, ³School of Physical Therapy, University of Pernambuco

E - Movement disorders

P3-E-57 Influence of the Mandibular Tori in the stomatognathic system function

Láise Angélica Mendes Rodrigues¹, José Mendes da Silva¹, Cássia Pérola dos Anjos Braga Pires¹, Graziela de Luca Canto², Paulo Batista de Vasconcelos³, Simone Cecilio Hallak Regalo³

¹School of Dentistry of UNIMONTES, ²Federal University Florianópolis, ³School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto

P3-E-58 Latissimus Dorsi, Maximus Gluteus And Biceps Femoris Activation In People With Sacroiliac Joint Dysfunction

Laura Sánchez¹, Carolina Ramírez¹, Ana Beatriz Oliveira²

¹Industrial University of Santander, ²Federal University of Sao Carlos

P3-E-59 Subject-specific classification of startle elicited by postural perturbation

Rosalind Heckman¹, Eric Perreault¹

¹Northwestern University

P3-E-60 Analysis of electromyographic fatigue of masticatory muscles in osteoporotic individuals



Veridiana Arnoni¹, Luiz Gustavo Sousa¹, Paulo Vasconcelos¹, Bruno Ferreira¹, Marcelo Palinkas¹, Marisa Semprini¹, Priscila Scalize¹, Oswaldo Luiz Taube¹, Bárbara de Lima Lucas¹, Simone Cecilio Hallak Regalo¹, Selma Siéssere¹

¹University of Sao Paulo, Ribeirao Preto

P3-E-61 EMG analysis of cervical muscles after acupuncture in women with dysfunction temporomandibular

Odinê Maria Rêgo Bechara¹, Marcelo Palinkas¹, Marisa Semprini¹, Bárbara de Lima Lucas¹, Paulo Batista de Vasconcelos¹, Selma Siéssere¹, Simone Cecilio Hallak Regalo¹, César Bataglion¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo

P3-E-62 Assessing muscular activation of patients with specific low back pain during daily activities

Michael Ferdinand Bergamo¹, Catherine Disselhorst-Klug¹

¹RWTH Aachen University | University Hospital Aachen

P3-E-63 Linear and Rotational Acceleration of the Head on Snowboard Beginner's Falls during Freestyle Snowboarding

Toshihiko Hashimoto¹

¹Ryotokuji University

P3-E-64 Relationship between co-contraction ratio and knee adduction moment in knee osteoarthritis subjects

Luiz Fernando Approbato Selistre¹, Theresa Nakagawa¹, Glauca Gonçalves¹, Marina Petrella¹, Stela Mattiello¹, Richard Jones²

¹Federal University of Sao Carlos, ²University of Salford

P3-E-65 Quantification of head movement when testing segmental trunk control

María Sánchez¹, Ian Loram¹, John Darby¹, Paul Holmes¹, Penelope Butler²

¹Manchester Metropolitan University, ²The Movement Centre

P3-E-66 Impact of rheumatoid arthritis in stomatognathic system of the women

Marcelo Palinkas¹, Bárbara de Lima Lucas¹, Marisa Semprini¹, Oswaldo Luiz Satamoto Taube², Laíse Angélica Mendes Rodrigues³, Selma Siéssere¹, Simone Cecilio Hallak Regalo¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto, ²School of Physical Therapy of Bebedouro, UNIFAFIBE-University Center, Bebedouro, ³School of Dentistry of UNIMONTES, University of Montes Claros, Minas Gerais

K - Muscle physiology

P3-K-67 The effect of carbohydrate supplementation to muscle fatigue trend in training of table tennis



Mai Kitamura¹, Kei kamijima², Yukihiko Ushiyama¹, Tohru Kiryu¹

¹Niigata.Univ, ²Niigata Institute of Technoligy

P3-K-68 Influence of data precision on quantifying skeletal muscle movement in ultrasound images

Diego Miguez¹, Ian Loram¹, Emma Hodson-Tole¹, Peter Harding¹

¹Manchester Metropolitan University

P3-K-69 Muscle material properties of stroke-impaired plantarflexor muscles

Kristen Jakubowski¹, Ada Terman¹, Ricardo Santana¹, Sabrina Lee¹

¹Northwestern University

P3-K-70 Effects of rheumatoid arthritis in masticatory cycles of the women

Simone Cecilio Hallak Regalo¹, Bárbara de Lima Lucas¹, Oswaldo Luis Stamato Taube², Laise Angélica Mendes Rodrigues¹, Selma Siéssere¹, Isabela Hallak Regalo¹, Marisa Semprini¹, Marcelo Palinkas¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto, ²School of Physical Therapy of Bebedouro, UNIFAFIBE

P3-K-71 Impact of complete implant-supported dentures anchored in the zygomatic bone in stomatognathic system

Marcelo Palinkas¹, Moara de Rossi¹, Carla Santos¹, Marisa Semprini¹, Lígia Oliveira¹, Selma Siéssere¹, Isabela Regalo¹, Edmilson Oliveira¹, Reginaldo Migliorança¹, Simone Cecilio Regalo¹, Barbara Lucas¹

¹University of Sao Paulo, Ribeirao Preto

P3-K-72 Fat infiltration of the Paretic Upper Limb in Individuals with Chronic Hemiparetic Stroke: Preliminary Results

Lindsay Garmirian¹, Ryan Schmid¹, Marie Wasielweski¹, Ana Maria Acosta¹, Todd Parish¹, Jules Dewald¹

¹Northwestern University

P3-K-73 Greater fatigability among type 2 diabetics without neuropathy is not associated with disruption of neuromuscular propagation or corticomotor excitability

Jonathon Senefeld¹, Alison Harmer², Sandra Hunter¹

¹Marquette University, ²University of Sydney

P3-K-74 Intra-rater reliability and agreement in the ankle electromyography activity EMG during sit to stand in healthy young adults

Odair Bacca Ramirez¹, María Patiño Segura¹, Esperanza Herrera Villabona¹, Jose Barela²

¹Industrial University of Santander, ²Cruzeiro do Sul University

P3-K-75 Ageing and electromyographic fatigue patterns of masticatory muscles



International Society of
Electrophysiology and Kinesiology

ISEK 2016 Poster Abstract

Ligia Franco Oliveira¹, Bárbara de Lima Lucas¹, Marisa Semprini¹, Selma Siéssere¹, Flávia Argentato Cecilio¹, Paulo Batista de Vasconcelos¹, Luiz Gustavo de Sousa¹, Simone Cecilio Hallak Regalo¹, Marcelo Palinkas¹

¹School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto