



DETAILED PROGRAMME



VIRTUAL

ESMAC

2020

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Introduction to Poster Session

09:00 - 09:10

Imaging/Modelling

Poster Session: Imaging and Modelling Posters

09:15 - 10:15

P001 - P003 Imaging and anatomy

P004 - P014 Modelling and simulation

P015 - P015 Sports and sports injury

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|------|--|------|
| P001 | The correlation of hamstring muscle functionality with hamstring muscle strength and ultrasound based hamstring muscle architecture parameters | P001 |
| | G. Karaca, <u>N.E. Akalan</u> , O.B. Gozubuyuk, S. Devran, H. Evrendilek, K. Onerge, G. Erturk (Turkey) | |
| P002 | Sitting postural alignment and relationship with quality of life in Adult Spinal Deformity | P002 |
| | <u>A. Massaad</u> , E. Saad, R. Rachkidi, G. Kawkabani, R.M. Saliby, M. Mekhael, I. Ghanem, K. Kharrat, V. Lafage, A. Assi (Lebanon) | |
| P003 | Trapezius muscle thickness measured by ultrasonography and its relation to shoulder motions and scapular muscle endurance after neck dissection | P003 |
| | <u>S. Ozyurek</u> , A.C. Kalkan, H.M. Bulbul, M.A. Kamar, A. Balci, E. Dogan, A.O. Ikiz, P. Keskinoglu, A. Genc (Turkey) | |
| P004 | Comparison of biarticular muscles effects on balance variation between bare-foot and wearing high-heel shoe conditions: experimental and simulation by OpenSim | P004 |
| | <u>F. Bagheri</u> , H. Barnamehei, M.R. Kharazi, A. Panahi, N. Golfeshan, M. Razaghi, M. Rostami, M. Barnamehei, N. Naghavi, S. Azad Jafarloo (Iran (Islamic Republic of)) | |
| P005 | Effect of wearing high-heel shoes on bi-articular muscle forces during gait: Musculoskeletal modeling by OpenSim | P005 |
| | <u>F. Bagheri</u> , M. Rostami, S. Shojaei (Iran (Islamic Republic of)) | |
| P006 | Simulation of pressure insole layouts for different applications | P006 |
| | <u>A. Ciniglio</u> , A. Guiotto, Z. Sawacha (Italy) | |
| P007 | Effect of Botulinum toxin A on muscle function in patients with cerebral palsy and its relation to gait | P007 |
| | <u>E. De Pieri</u> , J. Romkes, C. Wyss, C. Weidensteiner, E. Rutz, M. Garcia, R. Brunner (Switzerland) | |

- P008 **Predicting changes in the range of motion limitation of whiplash injured using neural networks** P008
A. Fidalgo Herrera, M.J. Martínez-Beltrán, J.C. de la Torre.Montero, G. Barton (Spain)
- P009 **Muscles kinetics effect on the generation of proximal to distal tasks: simulation of the knife hand block movement via OpenSim** P009
N. Golfeshan, M. Barnamehei, A. Rezaei, H. Barnamehei, M.R. Kharazi, M.A. Safaei (Iran (Islamic Republic of))
- P010 **Quantitative estimation of the effectiveness of plantar foot orthosis: a FEM approach** P010
A. Guiotto, M. Galuppo, G. Sartorato, Z. Sawacha (Italy)
- P011 **Muscle-tendon unit length-spastic muscle force data by combined intraoperative-musculoskeletal modelling work** P011
C.S. Kaya, C.A. Yucesoy (Turkey)
- P012 **Sensitivity evaluation of a musculoskeletal hand model using Latin hypercube sampling** P012
M. Melzner, L. Engelhardt, F. Süß, S. Dendorfer (Germany)
- P013 **A musculoskeletal model to perform high knee flexion tasks: application to ACL injury prevention.** P013
D. Pavan, E. Giacomini, S. Van Rossom, H. Hoang, I. Jonkers, Z. Sawacha (Italy)
- P014 **The effect of simplifying scaling methods of an upper limb musculoskeletal model on the joint angles** P014
R. Readioff, D. Blana, D. Mulla, F. Philp, N. Postans, E. Chadwick (United Kingdom)
- P015 **Upper body postures effect on neuromuscular activities of the lower limb during a squat: musculoskeletal modeling** P015
N. Golfeshan, H. Barnamehei, M. Torabigoudarzi, M. Karimidastjerdi, A. Panahi, A. Darman, M. Razaghi, M.R. Kharazi, M. Barnamehei, S. Azad Jafarloo (Iran (Islamic Republic of))

Movement Analysis

Poster Session: Movement Analysis Posters

09:15 - 10:15

- P016 - P017 Clinical reasoning and evidence
- P018 - P021 Coordination and motor control
- P022 - P022 Foot and ankle
- P023 - P041 Movement analysis methodology
- P042 - P044 Musculoskeletal disorders
- P045 - P045 Upper extremity and trunk
- P046 - P046 Sports and sports injury

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|------|--|------|
| P016 | Explaining automated gender classification of human gait F. Horst, <u>D. Slijepcevic</u> , M. Zeppelzauer, A.M. Raberger, S. Lapuschkin, W. Samek, W.I. Schöllhorn, C. Breiteneder, B. Horsak (Austria) | P016 |
| P017 | Influence of step width on the hip adduction moment during gait <u>F. Stief</u> , J. Holder, Z. Feja, A. Lotfohlapour, A. Meurer, J. Wilke (Germany) | P017 |
| P018 | There is a time shift between muscle synergies and kinematic synergies during normal gait S. Esmaeili, H. Karami, <u>M. Baniasad</u> , M. Shojaee fard, F. Farahmand (Switzerland) | P018 |
| P019 | Biofeedback-driven gaming to reduce muscle stretch reflexes <u>E. Flux</u> , R.C. van 't Veld, M.M. van der Krogt, E.H.F. van Asseldonk (Netherlands) | P019 |
| P020 | Dysmenorrhea and multitasking ability H. Kekliceck, <u>N. Sermenli Aydın</u> , H.B. Can, D. Dönmez Aydın, A.Z. Yilmazer Kayatekin, E. Uluçam (Turkey) | P020 |
| P021 | Immediate effect of scapular stabilisation exercises on shoulder and forearm muscles activation while playing the violin <u>C. Rousseau</u> , J.Y. Chi, B. Ackermann (United Kingdom) | P021 |
| P022 | Ankle Kinesio taping impacts on lower limbs biomechanics during countermovement jump among collegiate athletes with chronic ankle instability <u>J. Sarvestan</u> , Z. Kovacikova, Z. Svoboda, A. Needle (Czech Republic) | P022 |
| P023 | Does neuromuscular electrical stimulation have an effect on disability, pain, abdominal and lumbar muscle thickness in chronic low back pain? <u>E. Atlı</u> , D. Karagözoğlu Coşkunsu, O. Ozyemisci Taskiran, Z. Turan (Turkey) | P023 |
| P024 | Reliability of a dynamic calibration approach to 3DMA and comparison to standard methods. <u>A. Carman</u> (New Zealand) | P024 |

- P025 **Evaluating 3D free-hand ultrasound as an alternative approach to register anatomical landmarks: a test-retest study in lean and overweight participants** P025
S. Durstberger, C. Schwab, M. Simonlehner, H. Kainz, A. Kranzl, B. Horsak (Austria)
- P026 **Potential use of a Smartphone test to assess balance and risk of falls among Parkinson disease' patients** P026
M. Inglés, M. Aguilar-Rodríguez, N. Sempere-Rubio, P. Serra-Añó (Spain)
- P027 **Sensitivity analysis of the SCoRE and SARA Methods for determining rotational axes during tibiofemoral movements using optical motion capture** P027
M. Keizer, E. Otten (Netherlands)
- P028 **Investigations of the effects of wearing twister on gait biomechanics in children with increased femoral anteversion: A Pilot Study** P028
F. Kılıç, N.E. Akalan, R. Sert, C. Sardoğan, K. Önerge, F. Bilgili (Turkey)
- P029 **Validity and reliability of horizontal measurement for head repositioning accuracy by laser** P029
A. Köseoğlu, D. Karagözoğlu Coşkunsu, E. Kaya Mutlu (Turkey)
- P030 **Different TOE-marker positions result in relevant alterations of foot kinematics** P030
B.K. Krautwurst, J. Schäfer, T. Dreher (Switzerland)
- P031 **Estimation of the hip joint centre in children with cerebral palsy** P031
O. Ozturk, F. Salami, M. Götze, İ. Demirbüken, M.G. Polat, S. Wolf (Germany)
- P032 **Reliability of a simplified kinematic model for clinical gait analysis.** P032
S. Pitarch-Corresa, C. Herrera-Ligero, J.Y. Torres-Villanueva, E. Medina-Ripoll, F. Parra-González, J. López-Pascual (Spain)
- P033 **Gait variability using waist- and ankle-worn inertial measurement units in healthy older adults** P033
T. Rantalainen, L. Karavirta, T. Rantanen, V. Linnamo (Finland)
- P034 **Estimation of lower limb segment orientation using Motion Envelopes: A preliminary study** P034
I. Roura, S.F. Paulo, S.B. Gonçalves, M. Tavares da Silva, D.S. Lopes (Portugal)
- P035 **The feasibility of automated detection of the aligned trunk in sitting directly from raw video using a depth camera** P035
M.B. Sánchez, R. Cunningham, P. Butler, I. Loram (United Kingdom)
- P036 **Evaluating the accuracy of a 3D free-hand ultrasound technique for bone segmentation in clinical gait analysis** P036
C. Schwab MSc, S. Durstberger, A. Kranzl, M. Simonlehner, H. Kainz, B. Horsak (Austria)
- P037 **Simple method for correcting hip joint center position in overweight subjects** P037
P. Swennen, V.S. Högerle, D.W.W. Heitzmann, S.I. Wolf (Germany)
- P038 **Using deep learning to track 3D kinematics** P038
M. Van Den Bogaart, S.M. Bruijn, J. Spildooren, J.H. van Dieën, P. Meyns (Belgium)

- P039 **The SWING test: a more reliable test than clinical passive tests for assessing hip sagittal mobility.** P039
C. Vassant, K. Rose-Dulcina, N. Lauper, D.E. Dominguez, S. Armand (Switzerland)
- P040 **Effect of sex and neck length on cervical kinematics: a functional data analyses approach** P040
V. William, M. Inglés, Á. Page, P. Serra-Añó (Spain)
- P041 **Symmetry function corresponds well to statistical parametric mapping dynamical measure of symmetry** P041
S. Winiarski, S. Jaroszczuk, K. Aleksandrowicz (Poland)
- P042 **Speed-related differences in walking pattern revealed by statistical parametric mapping** P042
S. Winiarski, S. Jaroszczuk, B. Pietraszewski (Poland)
- P043 **Evaluation of thoracic kyphosis and lumbar lordosis in adolescents** P043
B.B. Kılıç, H. Akgül, T. Kuru Çolak (Turkey)
- P044 **3D gait analysis along with classic radiographic assessment in Adult Spinal Deformity can explain 90% of quality of life outcomes** P044
R.M. Saliby, G. Kawkabani, M. Mekhael, A. Massaad, E. Saad, R. Rachkidi, I. Ghanem, G. Kreichati, V. Lafage, A. Assi (Lebanon)
- P045 **Effect of medial-lateral hand positions on glenohumeral and acromioclavicular joint kinematics during push-up exercise** P045
N. Golfeshan, S. Fatemigarakani, F. Aflatounian, A. Fattahzadeh, A. Maboudmanesh, T. Vojdani, A. Shaabani, N. Naghavi, M.A. Safaei, H. Barnamehei (Iran (Islamic Republic of))
- P046 **Acute effects of different whole-body-vibration frequencies on shoulder stability** P046
M. Morikawa, Y. Urabe, S. Kotoshiba, M. Yoshimi, N. Maeda (Japan)

Paediatric Disorders

Poster Session: Paediatric Disorders Posters

09:15 - 10:15

- P047 - P052 Clinical reasoning and evidence
- P053 - P053 Coordination and motor control
- P054 - P056 Foot and ankle
- P057 - P061 Musculoskeletal disorders
- P062 - P062 Normative studies
- P063 - P079 Paediatric neurological disorders
- P080 - P080 Robotic and assistive devices

- P047 **Spatio-temporal parameters and body of gait and body deformations in patients with osteogenesis imperfecta** P047
K. Graff, M. Kalinowska, E. Szczerbik, M. Jaworski, E. Jakubowska-Pietkiewicz, E. Jelonek, M. Syczewska (Poland)
- P048 **Prediction of outcome after selective dorsal rhizotomy remains challenging in children with cerebral palsy.** P048
C. Huenaerts, K. Desloovere, E. Papageorgiou, G. Molenaers, T. Maxine, J. Truyers, A. Van Campenhout (Belgium)
- P049 **Effect of simultaneous femoral derotation osteotomy and selective dorsal rhizotomy on gait in children with cerebral palsy: a pilot study.** P049
C. Huenaerts, K. Desloovere, H. Schreurs, A. Van Campenhout (Belgium)
- P050 **Investigation the effects of reading-tasking on gait parameters in healthy children** P050
K. Onerge, N.E. Akalan, R. Sert, H. Evrendilek, G. Gurkan, M. Caliskan, F. Bilgili (Turkey)
- P051 **Investigation of the relationship between plantar pressure behaviour and plantar surface sensitivity in children with idiopathic toe walking** P051
K. Onerge, R. Sert, N.E. Akalan, F. Bilgili (Turkey)
- P052 **Pattern-specific hypotheses based on multiple joint gait patterns to identify the optimal candidates for selective dorsal rhizotomy.** P052
E. Papageorgiou, E. Ortibus, K. Desloovere, A. Van Campenhout (Belgium)
- P053 **Dynamic knee valgus in preschool children – a cross-sectional study on 458 children using markerless motion capturing technology** P053
S. Harsted, L. Hestbæk, A. Holsgaard-Larsen, H. Hein Lauridsen (Denmark)
- P054 **Relationship between different methods to measure ankle range of motion in children with idiopathic toe walking** P054
M. Gwerder, M. Shiraishi, C. Hoang, R. Soangra, R. Beuttler, A. Aminian, M. Grant-Beuttler (Switzerland)
- P055 **Idiopathic toe-walking children utilise a similar portion of their moment-angle curve during gait as typically developing children** P055
C. Harkness-Armstrong, C. Maganaris, R. Walton, D. Wright, A. Bass, V. Baltzopoulos, T. O'Brien (United Kingdom)

- P056 **Differences in total gait quality of clubfoot patients with and without relapse when compared to healthy children** P056
S. Wijnands, A.T. Besselaar, L. Grin, L. van Oorschot, B. Vanwanseele, M.C. van der Steen (Belgium)
- P057 **Long-term results of medial open reduction surgery on pelvic and hip kinematics in children with developmental hip dislocation:A pilot study** P057
F. Bilgili, H. Evrendilek, N.E. Akalan, K. Onerge, E. Meric, Y. Temelli (Turkey)
- P058 **Investigation of the effects of insoles depending on hypermobility in children with increased femoral anteversion** P058
H. Evrendilek, N.E. Akalan, S. Kuchimov, K. Onerge, G. Karaca Yilmaz, G. Erturk Uzunoglu, F. Bilgili (Turkey)
- P059 **Disease-specific gait deviations in pediatric patients with X-linked hypophosphatemic rickets** P059
A. Kranzl, A. Raimann, A. Stauffer, G. Haeusler, R. Ganger, G. Mindler (Austria)
- P060 **Analysis of foot plantar pressure behavior of children with obstetric brachial plexus paralysis** P060
Y. Ozdemir, N.E. Akalan, S. Kuchimov, K. Önerge, S. Çolak, B. Dilek, S. Özkan (Turkey)
- P061 **Is there a relationship between muscle-tendon properties and a variety of functional tasks in children with cerebral palsy?** P061
M. Švehlík Priv.Dož. - PhD., C. Schranz, M. Tilp, A. Kruse (Austria)
- P062 **Muscle synergies in the upper limb during functional movements in typically developing children. Identification and reliability in the SHUEE tasks.** P062
R. Gross, N. Postans, S. Jarvis, R. Freeman, A. Roberts, C. Stewart, F. Leboeuf (France)
- P063 **Does therapeutic yoga have an impact on flexibility of bi-articular muscles of lower extremities in children with spastic cerebral palsy?** P063
D.M. Ahmed, E. Waly, N. Mohamed (Egypt)
- P064 **Efficacy and safety of abobotulinumtoxinA for upper-limb spasticity in children with cerebral palsy: Results from an international, phase 3 study** P064
M. BONIKOWSKI, M. Delgado, A. Tilton, J. Carranza, N. Dursun, R. Aydin, I. Maciag-Tymecka, J. Oleszek, E. Dabrowski, P. Picaut (Poland)
- P065 **Investigation of the effects of sensory processing problems on gait in children with cerebral palsy** P065
M. Celik, N.E. Akalan, F. Bilgili (Turkey)
- P066 **Exploring visual feedback modalities in Augmented Reality to control the walking speed of children with cerebral palsy. Experimental design protocol.** P066
A.L. Guinet, K. Neijib, S. Otmane, G. Bouyer, E. Desailly (France)
- P067 **Exploring visual feedback modalities in Augmented Reality to control the walking speed. Feasibility study.** P067
A.L. Guinet, G. Bouyer, S. Otmane, N. Khouri, E. Desailly (France)

- P068 **Asymmetric gait results in symmetric muscular demands in affected versus unaffected side ankle and knee extensors in hemiplegic CP children** P068
J.P. Kulmala, P. Haakana, J. Nurminen, Y. Elina, T. Niemelä, E. Marttinen-Rossi, H. Mäenpää, H. Piitulainen (Finland)
- P069 **Variance accounted for by one synergy lacks correlation with dyskinesia severity in children with cerebral palsy during upper limb activities** P069
M.G.Y. Louey, E. Passmore, D. Grayden, A. Harvey, M. Sangeux (Australia)
- P070 **Development of a novel non-contact intra-operative measurement system for guiding femoral derotation osteotomies** P070
S. McCormack, R. Walton, D. Wright, A. Bass, R. Foster, A. Eleuteri, A. Shortland, G. Barton (United Kingdom)
- P071 **Objective measurement of sitting, using pressure mapping. Clinical application in children with cerebral palsy.** P071
M. Nyström Eek, K. Lindh, K. Himmelmann (Sweden)
- P072 **The gait is less stable in children with cerebral palsy in normal and dual-task gait** P072
H. Piitulainen, J.P. Kulmala, H. Mäenpää, T. Rantalainen (Finland)
- P073 **Cortical proprioceptive processing is altered in children with diplegic cerebral palsy** P073
H. Piitulainen, T. Nurmi, J. Vallinoja, J. Jaatela, E. Ylitalo, H. Mäenpää (Finland)
- P074 **Accuracy and comparison of sensor-based gait speed estimations under laboratory and daily life conditions in children undergoing rehabilitation** P074
F. Rast, S. Aschwanden, R. Labruyère (Switzerland)
- P075 **Accuracy of sensor-based classification of clinically relevant motor activities in daily life of children with mobility impairments** P075
F. Rast, F. Jucker, R. Labruyère (Switzerland)
- P076 **Investigation of selective motor control problems gait alteration related for children with cerebral palsy** P076
C. Sardoğan, N.E. Akalan, R. Muammer, R. Sert, F. Bilgili (Turkey)
- P077 **The relationship between the Edinburgh Visual Gait Score and Gait Deviation Index** P077
C. Sardoğan, N.E. Akalan, R. Sert, K. Önerge, F. Bilgili (Turkey)
- P078 **Effects of plantar flexor muscle weakness on children with spastic cerebral palsy – pilot study** P078
R. Sert, N.E. Akalan, K. Önerge, C. Sardoğan, F. Bilgili (Turkey)
- P079 **An explorative study on the nature of impaired motor development in late preterm infants at 4 months corrected age** P079
S. Üzer, B. Deliloğlu, Y.C. Wu, N. Duman, M. Hadders-Algra (Turkey)
- P080 **Robot-assisted therapy for upper extremity rehabilitation in Erb-Duchenne palsy: a case report** P080
I. Akgün, E.E. Avci, E. Timurtaş, İ. Demirbüken, M.G. Polat (Turkey)

Adult/Ageing

Poster Session: Adult/Ageing Posters

09:15 - 10:15

- P081 - P087 Adult neurological disorders
- P088 - P088 Clinical reasoning and evidence
- P089 - P089 Coordination and motor control
- P090 - P091 Elderly
- P092 - P093 Foot and ankle
- P094 - P096 Normative studies
- P097 - P097 Physical activity methodology
- P098 - P098 Robotic and assistive devices
- P099 - P099 Sports and sports injury
- P100 - P102 Stability and fall risk
- P103 - P104 Upper extremity and trunk

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|------|---|------|
| P081 | Differences in the way Parkinson's and control participants increase walking speed E. Aldayil, A. Kerr (United Kingdom) | P081 |
| P082 | Ambulation and cognitive factors associated with muscle function in adults with spina bifida M. Bendt , E. Butler Forslund, E. Franzén (Sweden) | P082 |
| P083 | Investigation of scapular dyskinesis and trapezius muscle thickness after neck dissection in patients with head and neck cancer A.C. Kalkan , S. Ozyurek, H.M. Bulbul, M.A. Kamar, A. Balci, E. Dogan, A.O. Ikiz, P. Keskinoglu, A. Genc (Turkey) | P083 |
| P084 | EMG analysis across different tasks improves prevention screenings in diabetes. W. Piatkowska , F. Spolaor, A. Guiotto, G. Guarneri, A. Avogaro, Z. Sawacha (Italy) | P084 |
| P085 | Reliability of strain analyses on the supraspinatus muscle in patients with multiple sclerosis M. Thorning , H.H. Nielsen, K.L. Lambertsen, L.H. Frich, H.B. Jensen, J.S. Dahl, J. Hjarbaek, A. Holsgaard-Larsen (Denmark) | P085 |
| P086 | Very high frequency versus low & high frequency Subthalamic Deep Brain Stimulation on gait in Parkinson's disease: A preliminary study M. Yanardag , E.G. Yiğit Tekkanat, N. Durmaz Çelik, S. Özkan, M. Vural, Ş. Torun (Turkey) | P086 |
| P087 | Emotion and brain state based freezing of gait occurrence analysis with electroencephalography data B. Yurdem , A. Ozkurt, U. Eliyi, T. Kahraman, G. Duran, B. Donmez Colakoglu, P. Keskinoglu, A. Genc (Turkey) | P087 |
| P088 | Effect of ankle sprain Brostrom surgery on the lower extremity kinematics chain during sit-to-stand task A. Aminishahsavarani , H. Barnamehei, F. Khazaei, E. Karimi, M. Beigi, | P088 |

- B. Valiollahi, N. Golfeshan, N. Naghavi, M. Barnamehei, M.R. Kharazi (Iran (Islamic Republic of))
- P089 **Analysis of gait adaptation pattern according to the change of slope angle during walking in young non-disabled adults.** P089
D. Park, J. Lim, D.W. Rha (Korea (Republic of))
- P090 **The effect of accessing workplace heights on plantar pressure distribution in elderly** P090
S. Atreya, U. Sharma, S. Anand (India)
- P091 **Sagittal spinal malalignment is the main driver of gait alterations in Adult Spinal Deformity** P091
E. Saad, G. Kawkabani, R. Rachkidi, R.M. Saliby, M. Mekhael, A. Massaad, I. Ghanem, V. Lafage, W. Skalli, A. Assi (Lebanon)
- P092 **The relationship between ankle eversion to inversion strength ratio and postural balance control in healthy individuals.** P092
E.E. Avci, E. Senocak, İ. Akgün, E. Timurtas, İ. Demirbüken, M.G. Polat (Turkey)
- P093 **The influence of estrogen levels across the menstrual cycle on plantar loading and dynamic postural control in healthy females.** P093
E.E. Avci, E. Senocak, İ. Akgün, E. Timurtaş, İ. Demirbüken, M.G. Polat (Turkey)
- P094 **Effects of fatigue on spatiotemporal characteristics of healthy individuals** P094
A. Demirel, D. Onan, O. Ulger (Turkey)
- P095 **Calculation of pressure sensor-based normative gait and posture parameters in healthy subjects** P095
S. Sağlam, A. Vural, İ. Solaroğlu, K. Akar (Turkey)
- P096 **Usability of modified tandem walking test for vestibular hypofunction diagnosis in young adults** P096
E. Şenocak, K. Gamze, C. Çelikyurt, A. Aktürk (Turkey)
- P097 **The effects of two different supervised exercise trainings on aerobic capacity and pulmonary functions in type 2 diabetes** P097
E. Şenocak, E. Timurtaş, İ. Demirbüken, Y. Sertbaş, M.G. Polat (Turkey)
- P098 **The effect of robotic rehabilitation for recovery of hand functions in patients with acute stroke: pilot study** P098
S. Akçay, D. Karagözoğlu Coşkunsu, Ö. Erkan Oğul, D.K. Akyol, N. Öztürk, Y. Krespi (Turkey)
- P099 **The difference of muscle fatigue in forearm during propelling a wheelchair with and without a badminton racquet** P099
K. Fukui, U. Yukio, M. Noriaki, M. Masanori, S. Junpei (Japan)
- P100 **Investigation the effect of Graston Technique on strength and postural stabilization in individuals with asymptomatic dynamic knee valgus** P100
P. Pişirici, B.U. Şakul (Turkey)
- P101 **Postural stability during quiet standing in obese and non-obese adults with type 2 diabetes mellitus** P101
E. Timurtaş, İ. Demirbüken, E.E. Avci, İ. Akgün, M.G. Polat (Turkey)
- P102 **The relationship between sit-to-stand task and fat tissue & lean body mass.** P102

- E. Timurtaş, İ. Demirbüken, A. Ender Ersin, Y. Sertbaş, I. Akgün, M.G. Polat (Turkey)
- P103 **Effect of low-intensity and slow-movement shoulder external rotation exercise on muscle contraction characteristics in the infraspinatus muscle** P103
- S. Kotoshiba, Y. Urabe, M. Morikawa, M. Yoshimi, N. Maeda (Japan)
- P104 **Alteration of sitting and standing kinematics and its impact on quality of life in Adult Spinal Deformity** P104
- E. Saad, G. Kawkabani, R.M. Saliby, M. Mekhael, E. Jaber, S. Jabre, I. Ghanem, R. Rachkidi, V. Lafage, A. Assi (Lebanon)

AGM

10:30 - 11:00

Annual General Meeting and when it opens a short description: Annual General Meeting for ESMAC members.

Awards and Introduction to Oral Sessions

11:45 - 12:00

Room 1

Imaging/Modelling

Plenary Session: Imaging and Modelling

12:00 - 13:00

- Chair: Zimi Sawacha (Italy)
Chair: Lynn Bar-On (Netherlands)
- 12:00 Invited Speaker: Ilse Jonkers 101
- 12:10 **An EMG-informed modelling approach to estimate muscle forces and activations in Parkinson's disease subjects** 001
Speaker: Marco Romanato (Italy)
- 12:20 **A neuromechanical model that accounts for history-dependent muscle mechanics can identify individual-specific neural contributions to joint hyper-resistance.** 002
Speaker: Jente Willaert (Belgium)
- 12:30 **Lack of hip and knee joint extension in children with cerebral palsy contribute to pathological femoral bone growth** 003
Speaker: Hans Kainz (Austria)
- 12:40 **Influence of TAL-TATS surgery on energy production of Triceps Surae - a musculoskeletal modeling evaluation** 004
Speaker: Rosa Visscher (Switzerland)
- 12:50 **Medial gastrocnemius muscle and tendon interaction during gait in typically developing children and children with cerebral palsy** 005
Speaker: Francesco Cenni (Belgium)

Movement Analysis

Plenary Session: Movement Analysis

13:15 - 14:15

- Chair: Anders Holsgaard-Larsen (Denmark)
Chair: Morgan Sangeux (Australia)
- 13:15 Invited Speaker: John Henley (USA) 102
- 13:25 **Deep learning for automated pose estimation of infants at home from smart phone videos** 006
Speaker: Elyse Passmore (Australia)
- 13:35 **Automatic video tracking using deep learning in dyskinetic cerebral palsy** 007
Speaker: Helga Haberfehlner (Netherlands)

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|-------|---|-----|
| 13:45 | Markerless movement tracking using a machine-learning algorithm to assess arm movements during gait in children with HIV encephalopathy Speaker: Maaike Eken (South Africa) | O08 |
| 13:55 | Approaching human precision on automatic markerless tracking of human movements Speaker: Daniel Groos (Norway) | O09 |
| 14:05 | Uncertainty about uncertainty: $\pm 5^\circ$ might not mean what you think Speaker: Elizabeth Boyer (USA) | O10 |

Paediatric Disorders

Plenary Session: Paediatric Disorders

14:30 - 15:30

- | | | |
|-------|---|-----|
| | Chair: Martin Švehlík (Austria) | |
| | Chair: Marije Goudriaan (Netherlands) | |
| 14:30 | Invited Speaker: Bernard Dan | I03 |
| 14:40 | Idiopathic toe-walking children have an increased plantarflexor effective mechanical advantage compared to typically developing children Speaker: Carla Harkness-Armstrong (United Kingdom) | O11 |
| 14:50 | Aggressive spasticity management during childhood does not result in improved quality of life among adults with cerebral palsy Speaker: Meghan Munger (USA) | O12 |
| 15:00 | The effect of prolonged moderate-intensity walking on muscle fatigue and neuromuscular control in children with cerebral palsy Speaker: Sanne Ettema (Netherlands) | O13 |
| 15:10 | Videogame-based balance training while standing does not affect reactive gait stability after slip perturbations in children with cerebral palsy Speaker: Pieter Meyns (Belgium) | O14 |
| 15:20 | Longitudinal alterations of gait features in growing boys with Duchenne muscular dystrophy Speaker: Ines Vandekerckhove (Belgium) | O15 |

Adult/Ageing

Plenary Session: Adults/Ageing

15:45 - 16:45

| | | |
|-------|--|-----|
| | Chair: Ayman Assi (Lebanon) | |
| | Chair: Han Houdijk (Netherlands) | |
| 15:45 | Invited Speaker: Sebastian Wolf (Germany) | I04 |
| 15:55 | Walk this way: elderly walk like the young, just more slowly | O16 |
| | Speaker: Lizeth Sloom (Germany) | |
| 16:05 | Lower-limb coordination during gait: the effects of age and walking surface. | O17 |
| | Speaker: Patrick Ippersiel (Canada) | |
| 16:15 | How do people after stroke adapt step parameters and margins of stability at different walking speeds? | O18 |
| | Speaker: Laura Hak (Netherlands) | |
| 16:25 | One session of Split-Belt Treadmill Training can affect gait adaptation in people with Parkinson's disease and Freezing of Gait | O19 |
| | Speaker: Jana Seuthe (Germany) | |
| 16:35 | Factors associated with walking activity in adults with cerebral palsy | O20 |
| | Speaker: M Wade Shrader (USA) | |

Introduction to Poster Session

16:45 - 16:55

Imaging/Modelling

Poster Session: Imaging and Modelling Posters

17:00 - 18:15

| | |
|-------------|-------------------------------|
| P105 - P106 | Foot and ankle |
| P107 - P109 | Imaging and anatomy |
| P110 - P111 | Modelling and simulation |
| P112 - P113 | Movement analysis methodology |
| P114 - P114 | Musculoskeletal disorders |
| P115 - P116 | Prosthetics and orthotics |
| P117 - P117 | Robotic and assistive devices |
| P118 - P118 | Upper extremity and trunk |

- P105 **Simulation of flat-foot gait with and without running shoes by evaluation of hip kinematics and balance control variations via OpenSim** P105
H. Barnamehei, M. Karimidastjerdi, M. Torabigoudarzi, M.R. Kharazi, M. Barnamehei, N. Golfeshan, N. Naghavi, S. Azad Jafarloo, M. Ghorbani (USA)
- P106 **Marker placement sensitivity in the Oxford and Rizzoli Foot Models in adults and children** P106
W. Schallig MSc, J. van den Noort, G. Streekstra, M. Maas, J. Harlaar, M. van der Krogt (Netherlands)
- P107 **Effect of botulinum toxin type-A injections on medial gastrocnemius muscle morphology in children with spastic cerebral palsy: a follow-up study.** P107
N. De Beukelaer, G. Weide, T. Dewit, J. Uytterhoeven, N. Peeters, M. Corvelyn, J. Deschrevel, S. Prinsen, A. Van Campenhout, K. Desloovere (Belgium)
- P108 **Comfortable walking with an ultrasound device: can children maintain a typical gait pattern?** P108
E. Flux, W.S. Dirks, A.I. Buizer, M.M. van der Krogt, L. Bar-On (Netherlands)
- P109 **Speckle tracking ultrasonography for assessment of skeletal muscle strain in m. soleus. A validity and reliability study on healthy participants.** P109
P. Schmidt, C. Lestrup, M. Thorning, L.H. Frich, A. Holsgaard-Larsen (Denmark)
- P110 **Cervical spine intervertebral kinematics estimated from inverse kinematics and compared to dynamic X-ray data** P110
H. Barnamehei, Y. Zhou, X. Zhang, A. Vasavada (USA)
- P111 **Intrinsic foot muscle forces: a possible biomarker of diabetes** P111
A. Ciniglio, M. Acquaviva, A. Guiotto, M. Tiago, H. Hoang, G. Guarneri, A. Avogaro, I. Jonkers, Z. Sawacha (Italy)
- P112 **Database generation for markerless tracking based on Deep Learning networks** P112
A.V. Ruescas Nicolau, E. Parrilla Bernabé, E. Medina Ripoll, D. Garrido Jaén, S. Alemany Mut (Spain)
- P113 **An in vitro validation method for inertial-sensor-to-bone alignment** P113
I. Weygers, M. Kok, T. Seel, F. Olsson, H. De Vroey, D. Shah, O. Taylan, H. Hallez, L. Scheys, K. Claeys (Belgium)
- P114 **Impact of a combination of functional adaptations on the lower limb joints using a visual feedback approach** P114
T. Legrand, N. Equey, H. Younesian, A. Campeau-Lecours, K. Turcot (Canada)
- P115 **3D-printed foot prosthesis during gait: comparison with two standard prostheses** P115
S. Hitzeroth, M. Rehg, A. Hogan, U. Trinler (Germany)
- P116 **Applicability and usability of an immersive virtual reality-based balance control exergame for prosthetic users: a pilot study with healthy individuals** P116

B. Horsak, M. Simonlehner, L. Schöffner, J. Maureder, C. Schwab,
A.M. Raberger, M. Zeller, M. Husinsky (Austria)

P117 **Resistance-as-needed (RAN) control for a wearable and soft hand exoskeleton** P117

X. Xiong, P. Manoonpong (Denmark)

P118 **Chest wall motion capture as a reliable method for assessing pulmonary function in idiopathic scoliosis** P118

K. Nicholson, J. Salazar-Torres, P. Gabos, F. Miller, J. Henley, S. Shah (USA)

Movement Analysis

Poster Session: Movement Analysis Posters

17:00 - 18:15

P119 - P131 Movement analysis methodology

P132 - P133 Musculoskeletal disorders

P134 - P135 Normative studies

P136 - P137 Physical activity methodology

P138 - P139 Prosthetics and orthotics

P140 - P143 Sports and sports injury

P144 - P145 Upper extremity and trunk

P119 **Can the ground reaction vector be an alternative to conventional gait model to estimate knee adduction moment?** P119

M. Baniasad, M. Shojaee Fard, F. Farahmand, K. Aminian (Switzerland)

P120 **Reliability and repeatability of real world data gait analysis in children** P120

A. Ciniglio, F. Michieletto, F. Cibir, F. Spolaor, A. Guiotto, Z. Sawacha (Italy)

P121 **Analysis of the effects of technical marker location on kinematic analysis using a 4D body scanner** P121

H. Del Rosario Martínez, A.V. Ruescas Nicolau, E. Parrilla Bernabé,
D. Garrido Jaén, J. López Pascual (Spain)

P122 **Gait analysis driven cluster analysis of diabetic patients: novel subgroups and their association with clinical outcomes in a 15-years follow-up** P122

A. Guiotto, M. Soldan, F. Silvestri, F. Spolaor, G. Guarneri,
A. Avogaro, Z. Sawacha (Italy)

P123 **Examination of differences in backward walking within a young and an old population: A quantitative cross-sectional survey.** P123

F. Lindskog, H. Axelson, R. Tranberg, L. Kollén, M. Tullberg, R. Zügner (Sweden)

P124 **Ground reaction forces of two twins during gait: one healthy and one with spastic cerebral palsy** P124

M. Marchitto, S. Otmani, B. Watier (France)

- P125 **The effect of habituation on differences in energy cost between overground and treadmill walking in typically developing children** P125
L. Oudenhoven, S. Ettema, A. Dallmeijer, E. Muselaars, A. Buizer, M. van der Krogt (Netherlands)
- P126 **Reliability intra- and inter-assessor of the conventional gait model: a single center-based study.** P126
A. Pouliot Laforte, A. Parent, Y. Cherni, B. Sinclair, L. Ballaz (Canada)
- P127 **Estimation of a midfoot joint centre in typically developed adults using functional calibration methods** P127
F. Salami, J. Leboucher, M. Götze, S. Hagmann, S.I. Wolf (Germany)
- P128 **A comparison of clinically and kinematically identified spatio-temporal parameters in cerebral palsy gait** P128
S. Sansgiri, R. Visscher, N.B. Singh, M. Freslier, J. Harlaar, W.R. Taylor, R. Brunner (Netherlands)
- P129 **Taking a moment to consider the medial knee thrust: gait modifications to reduce the 3D knee moment.** P129
H. Shepherd, G. Barton, M. Robinson, L. Ranganath (United Kingdom)
- P130 **Feature selection from markerless movement recordings to assess dystonia in children with cerebral palsy.** P130
K.L. Stolk, M. Schwartz, M.M. van der Krogt, S.S. van de Ven, L.A. Bonouvrié, J. Harlaar, A.I. Buizer, H. Haberfehlner (Netherlands)
- P131 **A multi-task, multi-center motion analysis protocol: reliability assessment in healthy individuals** P131
K. Tulchin-Francis, A. Anderson, S. Backus, D. Catelli, M. Harris Hayes, M. Lamontagne, C. Lewis, D. Podeszwa (Canada)
- P132 **Statistical comparison of contact forces and moments in the knee joint during walking in participants with and without valgus malalignment** P132
J. Holder, S. van Drongelen, A. Meurer, F. Stief (Germany)
- P133 **Preoperative gait compensation patterns in unilateral hip osteoarthritis patients: do they persist one year postoperatively?** P133
S. Van Drongelen, B. Stetter, F. Stief, A. Meurer, H. Böhm (Germany)
- P134 **Effects of smartphone use during walking on kinetic gait parameters: Preliminary results of a crossover study on an instrumented treadmill** P134
S. Durstberger, W. Klaus, P. Putz (Austria)
- P135 **The contribution of passive moments to inter-segmental moments during gait: a systematic review** P135
A. Koussou, R. Dumas, E. Desailly (France)
- P136 **Week-long protocol to monitor physical activity intensity and impact loading in children** P136
D. Catelli, S. Carsen, M. Lamontagne (Canada)
- P137 **Cable pull – an alternative method for the isometric maximum force measurement** P137
F. Huber, U. Rembor, D. Heinrich, A. Kraft, K. Kuhn, A. Hogan, U. Trinler (Germany)

| | | |
|------|---|------|
| P138 | Can the least dynamic length variation criterion be used to improve the pistoning estimation of persons with a transfemoral amputation? <u>J. Leboucher</u> , F. Salami, D. Heitzmann, S. Scharr, M. Alimusaj, S. Wolf (Germany) | P138 |
| P139 | A novel method for measuring AFO stiffness using motion capture <u>T. Niiler</u> , S. Hackett (USA) | P139 |
| P140 | Statistical Parametric Mapping in table tennis topspin backhand shot – inter-individual differences in angular movement <u>Z. Bańkosz</u> , S. Winiarski (Poland) | P140 |
| P141 | Reliability and accuracy of an on field methodology for ACL risk of injury screening <u>A. Ciniglio</u> , M. Donadello, F. Spolaor, A. Guiotto, D. Pavan, F. Cibir, Z. Sawacha (Italy) | P141 |
| P142 | On the field biomechanical analysis of side-stepping and landing mechanisms in rugby players. <u>D. Pavan</u> , A. Ciniglio, F. Cibir, G. Fantin, B. Meneghin, A. Cazzolato, Z. Sawacha (Italy) | P142 |
| P143 | Using a decision tree learning algorithm to classify injury status in adolescent males following return-to-activity criteria <u>C. Warren</u> , C.I. Girard, N.J. Romanchuk, M.J. Del Bel, S. Carsen, D.L. Benoit (Canada) | P143 |
| P144 | Development of a methodology for the biomechanical assessment of subjects with lateral epicondylitis. <u>C. Herrera-Ligero</u> , E. Medina-Ripoll, S. Pitarch-Corresa, Ú. Martínez-Iranzo, J. López-Pascual, M.J. Vivas-Broseta, I. Bermejo-Bosch (Spain) | P144 |
| P145 | Postural effects of chair height when playing the cello <u>C. Rousseau</u> , P. Garden, G. Barton, V. Baltzopoulos (United Kingdom) | P145 |

Paediatric Disorders

Poster Session: Paediatric Disorders Posters

17:00 - 18:15

- P146 - P146 Coordination and motor control
- P147 - P147 Foot and ankle
- P148 - P148 Normative studies
- P149 - P174 Paediatric neurological disorders
- P175 - P176 Prosthetics and orthotics
- P177 - P179 Upper extremity and trunk

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|------|---|------|
| P146 | Do children with cerebral dysfunction walk differently than healthy children under dual task conditions? : A meta -analysis <u>E. Cinar</u> , I. Gagnon (Canada) | P146 |
| P147 | Kinetics and kinematic differences in idiopathic toe walking children M. Shiraishi, C. Hoang, M. Grant-Beuttler, R. Beuttler, A. Aminian, <u>R. Soangra</u> (USA) | P147 |
| P148 | Comparison of lower-limb load impacts in active and less active children during a week-long protocol <u>D. Catelli</u> , D. Stone, S. Carsen, M. Lamontagne (Canada) | P148 |
| P149 | Hip kinetics, kinematics, and motor control differences between normal and leg length discrepancy (LLD) children during gait: simulation and experimental <u>H. Barnamehei</u> , A. Bana Derakhshan, A. Zomorodi, M. Mohammad Ali, N. Golfeshan, N. Naghavi, M.R. Kharazi (USA) | P149 |
| P150 | Gait improvement with decreased tibialis anterior recruitment after botulinum toxin injections into peroneus longus in children with hemiparetic cerebral palsy <u>C. Boulay</u> , S. Pesenti, G. Authier, A. Merlo, M. Sangeux, B. Chabrol, J.L. Jouve, J.M. Gracies (France) | P150 |
| P151 | Long-term outcomes of femoral derotation osteotomy in individuals with cerebral <u>E. Boyer</u> , E. Duffy, K. Walt, A. Munoz, M. Healy, M. Schwartz, T. Novacheck (USA) | P151 |
| P152 | Prevalence of overweight and obesity in Irish ambulant children with cerebral palsy presenting for gait analysis. <u>K. Brady</u> , D. Kiernan, C. Nikolopoulou (Ireland) | P152 |
| P153 | Biofeedback-driven gaming to improve EMG patterns during gait in children with cerebral palsy <u>E. Flux</u> , O.A. Atteveld, L. Bar-On, A.I. Buizer, J. Harlaar, M.M. van der Krogt (Netherlands) | P153 |
| P154 | Sensitivity of Conventional Gait Model to lower limb marker misplacement <u>M. Fonseca</u> , M. Bergere, F. Leboeuf, R. Dumas, S. Armand (Switzerland) | P154 |

| | | |
|------|--|------|
| P155 | Clinically applicable assessment of passive stiffness and stretch reflex responses using a portable device in children with cerebral palsy. <u>J. Gillett</u> , H. Greaves, A. Bass, D.M. Wright, R. Walton, C.N. Maganaris, G.J. Barton, V. Baltzopoulos, T.D. O'Brien (United Kingdom) | P155 |
| P156 | Effects of cognitive and motor dual-task on spatiotemporal gait parameters in children and adolescents with Cerebral Palsy <u>P. Haakana</u> , J. Nurminen, J.P. Kulmala, T. Niemelä, E. Marttinen Rossi, H. Mäenpää, H. Piitulainen (Finland) | P156 |
| P157 | Strength changes after six and twelve weeks of resistance training in children with spastic cerebral palsy <u>B. Hanssen</u> , N. Peeters, J. Uytterhoeven, L. Peeters, L. Bar-On, M. Degelaen, P. Calders, G. Molenaers, A. Van Campenhout, K. Desloovere (Belgium) | P157 |
| P158 | Limits of stability in children diagnosed with Idiopathic Toe Walking C. Hoang, M. Shiraishi, R. Beuttler, M. Grant-Beuttler, A. Aminian, <u>R. Soangra</u> (USA) | P158 |
| P159 | Relationship between gait and perceived mobility in patients with Arthrogryposis Multiplex Congenita – can we optimize orthoses? <u>M. Hoesl</u> , F. Zollner, F. Afifi, S. Brosseder, M. Kröner, S. Nader (Germany) | P159 |
| P160 | Effects of treatment with reciprocal inhibition on gait function in children with cerebral palsy. <u>M. Kofoed-Hansen</u> , J. Bencke, M. Speedtsberg, T. Torabi, J. Michelsen, C. Wong (Denmark) | P160 |
| P161 | Effect of robotic rehabilitation on parameters of frequency analysis of EMG signal in children with cerebral palsy <u>P. Kutilek</u> , S. Viteckova, Z. Dragana, M. Sorfova, J. Hejda, P. Volf, I. Cikajlo, K. Groleger-Srsen (Czech Republic) | P161 |
| P162 | Effect of robotic rehabilitation on symmetry of lower limb movement of children with cerebral palsy <u>P. Kutilek</u> , S. Viteckova, D. Zarkovic, M. Sorfova, P. Volf, J. Hejda, I. Cikajlo, K. Groleger-Srsen (Czech Republic) | P162 |
| P163 | Sagittal plane gait kinematics in children with CP in barefoot, shod and AFO-footwear conditions. <u>L. Lecount</u> , E. Pratt, A. Scarfe, L. Milner, S. Hewitt, W. Dickens (United Kingdom) | P163 |
| P164 | Knee joint position sense in children with motor disorders <u>C. Lidbeck</u> , M. Eriksson, A. Ericson, M. Reimeringer, Å. Bartonek (Sweden) | P164 |
| P165 | Prevalence of triceps suralis lengthening among crouch gait in cerebral palsy <u>L. Machado Neto</u> , C. Santini, G. Auler Brodt, E. Pflug Comparsi (Brazil) | P165 |
| P166 | The relation between clinical tests and gait data in hip flexion contracture due to cerebral palsy. <u>L. Machado Neto</u> , C. Santini, G. Auler Brodt, E. Plug Comparsi (Brazil) | P166 |
| P167 | Crouch gait or flexed-knee gait in cerebral palsy – Is there a difference? A systematic review <u>A. Marron</u> , K. Brady, R. O'Sullivan (Ireland) | P167 |
| P168 | Outcomes of intensive versus minimal spasticity management strategies on individuals with cerebral palsy: preliminary results of a | P168 |

- long-term multi-center study**
M. Munger, B.P.J. Chen, E. Duffy, T. Novacheck, B. MacWilliams, L. Carter, M. McMulkin, S. Mader, B. Hayes, M. Schwartz (USA)
- P169 **Perceived limitations of walking in individuals with cerebral palsy** P169
J. Nelson, E. Boyer (USA)
- P170 **Morphological alterations between spasticity subtypes in lower limb muscles of children with spastic cerebral palsy** P170
N. Peeters, B. Hanssen, N. De Beukelaer, T. Dewit, G. Weide, B. Dan, L. Bar-On, A. Van Campenhout, C. Van den Broeck, K. Desloovere (Belgium)
- P171 **Cluster analysis of electromyographic data in children with Fragile X Syndrome and controls** P171
W. Piatkowska, Z. Sawacha, F. Spolaor, M. Romanato, S. Voltan, F. Cibir, D. Pavan, A. Guiotto, R. Polli, A. Murgia (Italy)
- P172 **A pre- and postoperative evaluation of femoral derotation osteotomy on coronal plane kinematics and kinetics of children with cerebral palsy.** P172
A. Royle, E. Pratt, L. Milner, L. Lecount, W. Dickens (United Kingdom)
- P173 **Alterations in surface EMG during gait in children with Fragile X Syndrome** P173
Z. Sawacha, F. Spolaor, W. Piatkowska, F. Cibir, D. Pavan, A. Guiotto, R. Polli, M. Ricca, A. Murgia (Italy)
- P174 **The Gait Outcomes Assessment List (GOAL) Questionnaire: Replication of validation in a Gait Analysis Center** P174
J. Stout, K. Walt, A. Georgiadis (USA)
- P175 **Who benefits most from Posterior Leaf Spring AFOs? - An analysis of children with acquired and congenital central neurological deficits** P175
M. Hoesl, F. Afifi, S. Nader, S. Berweck (Germany)
- P176 **Comparison of dorsiflexion motion allowed by solid and flexible ankle-foot orthoses during gait for children with cerebral palsy and equinus** P176
K. Kane, K. Musselman, J. Lanovaz (Canada)
- P177 **The relationship between trunk and lower limb biomechanics during gait in children with cerebral palsy.** P177
D. Kiernan, C.K. Simms (Ireland)
- P178 **Three-dimensional upper limb movement characteristics in children and youth with dyskinetic cerebral palsy** P178
I. Vanmechelen, S. Bekteshi, M. Konings, H. Feys, K. Desloovere, J.M. Aerts, E. Monbaliu (Belgium)
- P179 **Upper limb movement characteristics of children and youth with dyskinetic cerebral palsy – a sensor approach** P179
I. Vanmechelen, S. Bekteshi, M. Konings, H. Feys, K. Desloovere, J.M. Aerts, E. Monbaliu (Belgium)

Adult/Ageing

Poster Session: Adult/Ageing Posters

17:00 - 18:15

P180 - P186 Adult neurological disorders

P187 - P187 Elderly

P188 - P189 Foot and ankle

P190 - P190 Movement analysis

P191 - P191 Musculoskeletal disorders

P192 - P196 Prosthesis and orthotics

P197 - P197 Robotics and assistive devices

P198 - P199 Sports and sports injury

P200 - P202 Stability and fall risk

- P180 **Investigation of effect of different virtual reality environments on saccadic eye movement; construct validity testing in healthy older adults** P180
Y. Imaoka, A. Flury, E.D. de Bruin (Switzerland)
- P181 **Long term outcomes of ambulatory function in adults with cerebral palsy: evaluating change from adolescence** P181
N. Lennon, C. Church, M.W. Shrader, W. Robinson, J. Salazar-Torres, J. Henley, T. Niiler, F. Miller (USA)
- P182 **Muscle activation and deactivation dynamics in Parkinson's Disease patients** P182
M. Romanato, F. Spolaor, W. Piatkowska, D. Volpe, Z. Sawacha (Italy)
- P183 **Changes in muscular and postural control after proprioceptive focal stimulation with Equistasi® device in middle-moderate Parkinson's disease** P183
F. Spolaor, M. Romanato, A. Guiotto, A. Peppe, D. Volpe, Z. Sawacha (Italy)
- P184 **Evaluation of spatiotemporal characteristics of the six-minute walking test using inertial measurement units among individuals with lower limb amputation** P184
H. Younesian, T. Thomas, L. Miramand, S. Beausoleil, K. Turcot (Canada)
- P185 **A home-based exercise and activity modification program in patients with acetabular retroversion and excessive anterior pelvic tilt** P185
A.F. Brekke, S. Overgaard, B. Mussmann, E. Poulsen, A. Holsgaard-Larsen (Denmark)
- P186 **Dual-task effect on gait in adolescents: How does it change in different health profile?** P186
E. Cinar, B.D. Weedon, P. Esser, S. Joshi, Y.C. Liu, A. Delextrat, J. Collett, D.N. Springett, H. Dawes (Canada)
- P187 **Gait parameters during the Timed Up-and-Go dual-task test: A validation study of video-recorded data.** P187
A.C. Åberg, H.B. Åhman, F. Olsson, O. Tarassova, Y. Cedervall, T. Arndt, V. Giedraitis, K. Halvorsen (Sweden)

- P188 **Effects of 12 different heel rocker designs, configured with different rocker radii, apex positions and apex angles, on plantar pressure** P188
A. Malki, J.M. Hijmans, L. van Kouwenhove, R. Dekker, G.J. Verkerke (Netherlands)
- P189 **How are midfoot (i.e.Chopart and Lisfranc joint) kinematics altered in adolescents with CP with plano-valgus feet, compared to healthy subjects?** P189
M. Piening, W. Schallig, M.M. Witbreuk, A.I. Buizer, M.M. van der Krogt (Netherlands)
- P190 **Gait analysis using stride interval of left and right foot in single time series under normal and neurodegenerative diseased conditions** P190
A.Q. Abbasi, W. Nahm, M. Manshad (Germany)
- P191 **The impact of training in virtual reality on balance in patients after total knee replacement is relatively slight** P191
A. Hadamus, D. Białoszewski, E. Urbaniak, A.J. Kowalska, K. Wydra, R. Boratyński, A. Kobza, W. Marczyński (Poland)
- P192 **Effect of design of assisting devices on the lower body muscular activities during gait with crutch executed by amputees** P192
H. Barnamehei, P. Shamloo, N. Golfeshan, N. Naghavi, M. Barnamehei, M.R. Kharazi, S. Azad Jafarloo (USA)
- P193 **Energy cost of walking in people after lower limb amputation: a systematic review and meta-analysis** P193
S. Ettema, E. Kal, H. Houdijk (Netherlands)
- P194 **A flexible prosthetic foot influences the choice of gait-strategy, for persons with a transtibial amputation, while walking up a ramp** P194
D. Heitzmann, J. Block, S.I. Wolf, M. Alimusaj (Germany)
- P195 **Effects on prosthetic foot ankle power on transfemoral amputee gait** P195
E. Proebsting, B. Altenburg, M. Bellmann, T. Schmalz, K. Krug (Germany)
- P196 **Characteristics of sound side knee loading parameters of 53 trans-tibial amputees** P196
E. Proebsting, M. Bellmann, T. Schmalz, A. Hahn (Germany)
- P197 **Unilateral non-electric assistive walking device helps neurological patients to improve gait patterns** P197
B. Feodoroff, V. Blümer (Germany)
- P198 **Post-rehabilitation knee proprioception after anterior cruciate ligament reconstruction. Joint position sense in relation to performance of an obstacle clearance task** P198
A. Grinberg, A. Strong, C. Häger (Sweden)
- P199 **Dynamics of femur muscle recovery after ACL reconstruction with various tendon grafts.** P199
T. Serebryak (Russian Federation)
- P200 **Swing limb biomechanics and minimum toe clearance in rheumatoid arthritis post-menopausal women fallers and non-fallers** P200
M. Bhudarally, P. Aleixo, T. Atalaia, J. Abrantes (Portugal)

- P201 **Controlling the ground reaction force angle characterises better recovery following a single forward falling slip in young and older adults.** P201
H. Debelle, C. Maganaris, T. O'Brien (United Kingdom)
- P202 **Assessment of functional mobility in blind individuals: a case study** P202
R.B. Parreira, L.B. Cordeiro, M.B. Albuquerque, M.S. França, M.E.A. Soares, V.R.E. Freitas, D.C.S. Cardoso, J.B.P. Lopes, M. Galli, C. Oliveira (Brazil)

Closing

18:15 - 18:30
