

Time**Tuesday, March 10th, 2009**

7:00 –8:00 am	Breakfast –<i>Exhibitor Area</i> (Registration 7:00 am –6:00 pm)
8:00 –10:00 am	Tutorial #1 –<i>Rooms 4–7</i> “Ultrasound Imaging of Muscle Deformity in Cerebral Palsy” Adam Shortland, Noelle Moreau, Martin Gough <u>2</u> CME/CEU Credits
10:00 –10:30 am	Break: Snacks in Exhibitor Area
10:30 am –12:30 pm	Tutorial #2 –<i>Rooms 4–7</i> “Musculoskeletal Modeling with OpenSim” Scott Delp <u>2</u> CME/CEU Credits
12:30 –1:30 pm	Lunch –<i>On your own</i>
1:30 –3:30 pm	Tutorial #3 –<i>Rooms 4–7</i> “Computer Adaptive Testing: An Emerging Method for Clinical Outcome Measurement” Anita Bagley, George Gorton, Carole A. Tucker <u>2</u> CME/CEU Credits
3:30 –4:00 pm	Break: Snacks in Exhibitor Area
4:00 –6:00 pm	Research Symposium –<i>Rooms 4–7</i> “GCMAS Research Directives Planning Initiative” Moderator: Tishya Wren <u>2</u> CME/CEU Credits
6:30 –7:30 pm	Welcome Reception –Sponsored by Vicon <i>Exhibitor Area</i>

Time

Wednesday, March 11th, 2009

7:00 –8:00 am	Breakfast – <i>Exhibitor Area</i>
7:00 –8:00 am	Sunrise #1 – <i>Room 4</i> “SAMSA: Standard Assessment of Motion System Accuracy” Nancy Denniston and Howard Hillstrom
8:00 –8:15 am	Welcome: James Carollo & Michael Schwartz – <i>Rooms 4–7</i>
8:15 –9:15 am	Keynote Address #1 – <i>Rooms 4–7</i> “What Do Rubber Bands, Penguins, and Kangaroos Have in Common?” Rodger Kram, PhD, University of Colorado, Boulder 1 CME/CEU Credit
9:15 –10:25 am	Podium Presentations – <i>Rooms 4–7</i> <i>Session 1: Orthoses and Protheses</i> Moderators: Adam Rozumalski & Tishya Wren 1 CME/CEU Credit
	<ul style="list-style-type: none"> Effectiveness of a New Supination Control Orthotic for the Flexible Flat Foot <i>W. J. Hurd, S. J. Kavros, K. R. Kaufman</i> Use of the Floor Reaction Ankle Foot Orthosis in Children with Cerebral Palsy: Efficacy and Indications Based Upon Quantitative Gait Analysis <i>B. M. Rogozinski, DPT; J. R. Davids, MD; R. B. Davis, PhD; G.G. Jameson, MA; D. W. Blackhurst, DrPH</i> Evaluating Mechanical Ankle Foot Orthosis Characteristics Using BRUCE: A Reliability Study <i>D.J. Bregman, A. Rozumalski, D. Koops, V. de Groot, M.H. Schwartz, J. Harlaar</i> Short and Longer Term Changes in Amputee Walking Patterns Due to Increased Prosthesis Inertia <i>J. D. Smith, P. E. Martin</i> Walking on Gravel Affects Variability and Dynamic Stability Differently in Non-Impaired Subjects and Traumatic Amputees <i>J. Dingwell, S.J. Scott, J. M. Wilken</i> Mediolateral Ground Reaction Impulses, Stride Length and Effective Limb Length of Amputees Turning vs. Nonamputees <i>A. Segal, MS; H. Sutton, BS; M. Orendurff, MS; J. Czerniecki, MD; G. Klute, PhD</i> Lower Extremity Rotation Moments for Amputees Turning Compared to Nonamputees <i>A. Segal, MS; H. Sutton, BS; M. Orendurff, MS; J. Czerniecki, MD; G. Klute, PhD</i>
10:25 – 11:05 am	Break: Snacks in Exhibitor Area
11:05 am –12:05 pm	Podium Presentations – <i>Rooms 4–7</i> <i>Session 2: Treatment Planning and Outcome</i> Moderators: Anita Bagley & Marjolein van der Krogt 1 CME/CEU Credit
	<ul style="list-style-type: none"> Gastrocnemius Muscle Tendon Unit Length: Clinical Assessment Versus Kinematic Assessment in Diabetic Subjects <i>D. Morgenroth, M. Orendurff, G. Bernatz, J. Schoen, E. Rohr, J. Czerniecki</i> Efficacy of Botulinum Toxine A Treatment in Children with Cerebral Palsy is Defined by Crucial Factors Within the Treatment Strategy <i>K. Desloovere, PhD; A. Van Campenhout, MD; K. Fagard, PT; K. Daniels, PT; V. Schörkhuber, PT; J. De Cat, PT; D. Severijns, PT; G. Molenaers, MD, PhD</i> Explicit Kinematic Criteria Predict Postoperative Improvements Following Surgical Lengthening of the Psoas Tendon in Patients with Cerebral Palsy <i>A. Rozumalski, MS; W. H. Truong, MD; M. H. Schwartz, PhD; C. Beattie, PT; T. F. Novacheck, MD</i> Distal Tibial Rotation Osteotomies Normalize Frontal Plane Knee Moments <i>B. MacWilliams, M. McMulkin, G. Baird, P. Stevens</i> Long-Term Outcomes of Orthopedic Surgery in Persons with Cerebral Palsy: Femoral Derotation Osteotomies

<p><i>S. Öunpuu, MSc.; C. Nomides, DPT; M. Westwell, PT, MS; D. Roller, PT; K. Bell, MS; D. Tyburski; M. Solomito, BSBE; P. DeLuca, MD; E. Weber, MD</i></p> <ul style="list-style-type: none"> • Cost Comparison of Initial and Subsequent Surgeries Between Patients with and without Pre-Operative Gait Analysis <i>T. A. L. Wren, M. Kalisvaart, C. Ghatan, S. A. Rethlefsen, R. Hara, M. Sheng, L. S. Chan, R. M. Kay</i> 	
12:05 – 1:10 pm	Commission for Motion Laboratory Accreditation Workshop <i>Peak Lounge, 27th Floor</i>
1:10 – 2:30 pm	Podium Presentations – Rooms 4–7 <i>Session 3: Orthopaedics</i> Moderators: Pam Thomason & Noelle Moreau <u>1</u> CME/CEU Credit
<ul style="list-style-type: none"> • The Effect of Static Standing Posture on Dynamic Walking Kinematics: Comparison of a Patella Marker vs a Thigh Wand <i>M. L. McMullin, PhD; A. B. Gordon, MPT</i> • Gait Patterns in Children with Limb Length Discrepancy <i>M. Aiona, K. P. Do, K. Emara, R. Dorociak, R. Pierce</i> • Gait Asymmetry Following THA - Anterior vs Lateral Approach <i>V. Lugade, A. Wu, L.-S. Chou</i> • Functional Assessment of Stair Negotiation Following Total and Resurfacing Hip Arthroplasty <i>M. Bhowmik-Stoker, M. W. Shrader, M. C. Jacofsky</i> • The Role of Unopposed Quadriceps Forces in Loading the Anterior Cruciate Ligament During Jump Landing <i>J. Hashemi, R. Breighner, T.H. Jang, N. Chandrashekar, S. Ekwaro-Osire, J. R. Slauterbeck</i> • A Comparison by Motion Analysis of Anterior Cruciate Ligament Reconstruction Using a Patellar Tendon vs a Hamstring Tendon Autograft <i>A.L. Aguinaldo, H.G. Chambers</i> • Prehab Effects on Sit-to-Stand in Knee OA Patients Prior to TKA <i>P. M. Quesada, N. Campbell-Kyureghyan, A. M. Swank, R. V. Topp</i> • Effects of Gait Training with Real-Time Biofeedback on Knee Adduction Moments During Walking in Adults With Knee OA <i>P. Teran-Yengle, N. A. Segal, N. F. Johnston, B. Singh, J. C. Torner, R. Wallace, H. J. Yack</i> 	
2:30 – 3:00 pm	Break: Snacks in Exhibitor Area
3:00 – 6:00 pm	Exhibitor Area Open
3:00 – 4:00 pm	Poster Odd Attended –Sponsored by Vicon <i>Foyer</i>
4:00 – 5:00 pm	Poster Even Attended –Sponsored by Vicon <i>Foyer</i>
5:00 – 6:00 pm	Student Mixer – Sponsored by Innovative Sports Training (back of Room 4)
6:00 – 8:00 pm	User Group Meetings: Motion Analysis (Room 5-6) Vicon (Bubba Gump's)

Time

Thursday, March 12th, 2009

7:00 –8:00 am	Breakfast –Exhibitor Area (Registration 6:30am –3:00pm)
7:00 –8:00 am	<p style="text-align: center;">Sunrise #2 –Room 4 “Surgical Correction of Crouch Gait via Extension Osteotomy and Patellar Tendon Advancement” Tom Novacheck</p>
8:15 –9:15 am	<p style="text-align: center;">Keynote Address #2 –Rooms 4–7 “Dynamic Walking: How to Locomote with Economy, Speed, and Stability” Arthur Kuo, PhD, University of Michigan <u>1 CME/CEU Credit</u></p>
9:15 –10:25 am	<p style="text-align: center;">Podium Presentations –Rooms 4–7 <i>Session 4: Work and Energy</i> Moderators: Adam Shortland & Gordon Alderink <u>1 CME/CEU Credit</u></p>
	<ul style="list-style-type: none"> • External Mechanical Limb Work in Children with Cerebral Palsy <i>M. J. Kurz, W. Stuberger, S. DeJong, and R. Harbourne</i> • Interrelationships Among Work, Energy Transfer, and the Cost of Walking in Children <i>B. R. Umberger, S. Augsburg, J. Resig, D. Oeffinger, R. Shapiro, C. Tytkowski</i> • Kinematics, Metabolic Cost and External Work Done During Walking with a Forward Assistive Force <i>B. Bennett</i> • Effect Of Walking Speed on Mechanical Recovery and Internal Work after Stroke <i>B. Roewer, C. Henderson, D. Reisman, J. Higginson</i> • Muscle Contributions to Propulsion and Support During Running <i>S. R. Hamner, C. T. John, J. S. Higginson, S. L. Delp</i> • Gait Classification Depends on Walking Speed <i>M. M. van der Krogt, C. A. M. Doorenbosch, J. G. Becher, J. Harlaar</i> • Crouch Gait Patterns Derived from Cluster Analysis are Related to Clinical Parameters and Surgical Interventions <i>A. Rozumalski, MS; M. H. Schwartz, PhD</i>
10:25 – 11:05 am	Break: Snacks in Exhibitor Area
11:05 am –12:15 pm	<p style="text-align: center;">Podium Presentations –Rooms 4–7 <i>Session 5: Simulation</i> Moderators: Mark McMulkin & Caroline Stewart <u>1 CME/CEU Credit</u></p>
	<ul style="list-style-type: none"> • Influence of Gait Analysis on Decision Making for Hamstring Lengthening Surgery <i>T. A. L. Wren, R. E. Bowen, N. Y. Otsuka, A. A. Scaduto, L. S. Chan, M. Sheng, R. Hara, R. M. Kay</i> • Predicting Changes in Knee Flexion after Hamstrings Lengthening Surgery <i>J. L. Hicks, M. H. Schwartz, S. L. Delp</i> • Accuracy of Six DOF Joint Kinematics During Normal and Pathological Gait: A Simulation Study <i>A. Schmitz, D. Thelen, D. Bruening, F. Buczek</i> • Accelerations Produced by Gastrocnemius and Soleus During Crouch Gait <i>K. Steele, A. Seth, J. Hicks, M. H. Schwartz, S. Delp</i> • Understanding Stiff-Knee Gait - A Dynamic Walking Approach <i>M. M. van der Krogt, D. J. J. Bregman, S. H. Collins, C. A. M. Doorenbosch, J. Harlaar, M. Wisse</i> • Electrical Stimulation of Rectus Femoris During Pre-Swing Diminishes Knee Flexion During Swing <i>A. Hernández, D. Thelen</i> • Mechanism of Improved Knee Flexion after Rectus Femoris Transfer Surgery <i>M. D. Fox, J. A. Reinbolt, S. Öunpuu, S. L. Delp</i>
12:15 –1:15 pm	Business Lunch –Room 4

1:15 –2:45 pm	<p align="center">Podium Presentations –Rooms 4–7 Session 6: Foot and Ankle Moderators: Steve Piazza & Tom Novacheck <u>1</u> CME/CEU Credit</p>
	<ul style="list-style-type: none"> • Long Term Follow-Up after Comprehensive Clubfoot Surgery <i>A. Graf; S. Hassani, MS; A. Flanagan; A. Caudill; J. Krzak; J. Long, PhD; K. N. Kuo, MD; G. F. Harris PhD; P. Smith, MD</i> • A Comparison of Children with a History of Clubfoot Which Underwent Surgical or Ponseti Treatment <i>C. Church, J. Coplan, A. Thabet, D. Kowtharapu, N. Lennon, S. Marchesi, J. Henley, R. Starr, D. Mason, M. Belthur, J. Herzenberg, F. Miller</i> • Ankle Kinematics and Kinetics Following Non Operative Treatment for Clubfoot <i>K. A. Jeans, MS; L. A. Karol, MD; R. E. Hawary, MD</i> • Plantar Pressures Vary Across Elliptical Trainers and Compared to Walking <i>J. M. Burnfield, B. R. Barber, T. W. Buster, A. P. Taylor</i> • Correlation Between Plantar Pressure and Oxford Foot Model Kinematics in Clubfoot <i>J. McCahill, J. Stebbins, C. Giacomozzi, T. Theologis</i> • Kinematic Analysis of Foot Motion in Children with Diplegic and Hemiplegic Patterns of Cerebral Palsy <i>N. Lennon MS, PT; C. Church MPT; D. Taylor DPT; S. Marchesi PhD; J. Henley PhD; F. Miller MD</i> • Kinematics of the Unaffected Foot in Hemiplegic Cerebral Palsy <i>J. Bates, MSc; J. Stebbins, Dphil; T. Theologis FRCS</i> • Comparative Motion of the Foot During Walking for Men, Women and Children <i>J. Stebbins, T. Theologis</i> • A Comparison of Multi-Segment Foot Motion During Overground and Treadmill Walking <i>K. Tulchin, MS; M. Orendurff, MS</i>
2:45 –7:00 pm	Tour Option #1: Denver Art Museum and Wine Testing (same location) (3:00 -7:00 pm Exhibitor Tear Down - Rooms 1-3)
2:45 –7:45 pm	Tour Option #2: Coors Brewery and Red Rocks Amphitheater
2:45 –6:00 pm	Tour Option #3: Center for Gait and Movement Analysis (CGMA) – The Children’s Hospital

Time**Friday, March 13th, 2009**

7:00 –8:00 am	Breakfast –Foyer (Registration 7:00 am –9:00 am)
7:00 –8:00 am	Sunrise #3 –Room 4 “Analyzing Gait Analysis: A New Perspective on Clinical Interpretation” Richard Baker
8:15 –9:15 am	Keynote Address #3 –Rooms 4–7 “Dystonia, Spasticity, and the Anatomy of Abnormal Reflexes” Terence Sanger, MD, PhD, Stanford University <u>1</u> CME/CEU Credit
9:15 –10:15 am	Podium Presentations –Rooms 1–3 <i>Session 7a Vascular & Neuromuscular Disorders</i> <i>Moderators: Kirsten Tulchin, Dennis Matthews</i> <u>1</u> CME/CEU Credit
	<ul style="list-style-type: none"> • Rating Scales for Dystonia in Children with Cerebral Palsy: Reliability and Evaluation of the Burke Fahn Marshden Scale and the Barry Albright Dystonia Scale <i>E. Monbaliu, MSc PT; E. Ortibus, MD; F. Roelens, MD; K. Desloovere, PhD Kinesiologist; H. Isselée, PhD PT; P. Prinzie, PhD; P. De Cock, PhD MD; H. Feys, PhD PT</i> • Parkinson's Disease Influences Kinematic Regularity of a Simple Leg Swing Task <i>V. Ivkovic, J. Bloom, B. McNeil, M. J. Kurz</i> • Kinematic and Kinetic Gait Parameters and EMG Activity in Children with Haemophilia and Age-Matched Controls <i>D. Stephensen, W. I. Drechsler, M. Winter, O. M. Scott</i> • Lower Extremity Joint Kinetics are Altered in Patients with Unilateral Peripheral Arterial Disease <i>P. Koutakis, J. M. Yentes, S. A. Myers, J. P. Kaipust, J. M. Johanning, I. Pipinos, N. Stergiou</i> • Classification of the Gait Patterns of Boys with Duchenne Muscular Dystrophy (DMD) and the Relationship to Function <i>S. S. Thomas, MA; C. E. Buckon, MS; A. Nicorici, BS; A. Bagley, PhD; C. M. McDonald MD; M. D. Sussman, MD</i> • Breathing Pattern in Muscular Dystrophy <i>M. Romei, M. G. D'Angelo, G. P. Comi, S. Bonato, D. Colombo, A. C. Turconi, A. Aliverti, N. Bresolin</i>
9:15 –10:15 am	Podium Presentations –Rooms 4–7 <i>Session 7b: Case Studies</i> <i>Moderators: Sylvia Ounpuu & Mike Aiona</i> <u>1</u> CME/CEU Credit
	<ul style="list-style-type: none"> • Comparison of Ground Reaction and Articulated Ankle Foot Orthoses in a Child with Lumbosacral Myelomeningocele <i>K. Kane, BScPT; J. Barden, PhD</i> • "If Everything is Fine, Why Do I Keep Tripping?" A Case Study <i>S. Sohrweide, PT; T. Novacheck, MD</i> • Gait Analysis with Dynamic EMG for Decision-Making in an Adult with a Foot Drop of Unknown Etiology: A Case Study <i>V. J. Eberly, S. J. Mulroy, V. C. Eberly, J. Perry</i> • Gait Analysis to Determine Changes in Gait Pattern due to Fatigue in a Child with Cerebral Palsy Spastic Diplegia <i>E. M. Godwin, PT, PhD PCS; C. R. Spero, MD</i> • Case Study: MH Pre and Post Single Event Multilevel Surgery - An Illustration of the Use of the Movement Analysis Profile to Monitor Progress <i>P. Thomason, R. Baker, K. Graham</i> • Gait Analysis for Treatment Decision-Making in Persons with Cerebral Palsy <i>S. Ounpuu, MSc; C. Nomides, DPT; M. Westwell, MS, PT; J. Zahradnik, MD</i>

10:15 – 10:45 am	Break/Room Change
10:45 am – 12:00 pm	Podium Presentations – Rooms 1–3 <i>Session 8a: a. Rehabilitation b. EMG</i> Moderators: Amy Bodkin, Michael Orendurff <u>1 CME/CEU Credit</u>
	<ul style="list-style-type: none"> • Resistance Training Alters Joint Moments and Powers in Multiple Sclerosis Patients Independent of Disease Severity <i>J. M. Huisinga, M. L. Filipi, N. Stergiou</i> • Effects of Locomotor Treadmill Training on Gait Symmetry in Acute Stroke <i>S. Coleman, K. McCain, F. Pollo</i> • The Effect of Body Weight Support Treadmill Training on Paretic Leg Contribution in Hemiparetic Walking in Persons with Chronic Stroke <i>E. N. Ozimek, S. Combs, E. L. Dugan</i> • Surface EMG Does Not Accurately Reflect Rectus Femoris Activity Throughout the Gait Cycle: The Influence of Vasti Crosstalk in Multiple Gait Conditions <i>K. M. Barr, A. L. Miller, K. B. Chapin</i> • Electromyography is Better in Quantifying Muscular Demands Than Joint Moments When Co-Contraction Exists <i>C. J. Chen, L.-S. Chou</i> • Dynamic Stability of EMG Patterns in Young and Elderly Gait <i>H. G. Kang, J. B. Dingwell</i>
10:45 am – 12:00 pm	Podium Presentations – Rooms 4–7 <i>Session 8b: a. Support Surfaces b. Upper Extremity</i> Moderators: Nessie Haideri, Roy Davis <u>1 CME/CEU Credit</u>
	<ul style="list-style-type: none"> • The Influence of Heel Height on Utilized Coefficient of Friction During Walking <i>M. G. Blanchette, MS; C. M. Powers, PhD, PT</i> • Effect of Surface Incline on Multi-Segment Foot Kinematics <i>K. Tulchin, MS; M. Orendurff, MS</i> • Support Surface and Visual Field Translations Affect Variability and Dynamic Stability of Walking Differently <i>P. M. McAndrew, J. B. Dingwell, J. M. Wilken</i> • Do Humans Optimally Exploit Redundancy to Control Step Variability During Walking? <i>J. B. Dingwell, J. John, J. P. Cusumano</i> • Shoulder Demands Across Manual Wheelchair Activities <i>M. M. B. Morrow, W. J. Hurd, K.-N. An, K. R. Kaufman</i> • Grip Force Production in the Assisting Hand on Performance of a Bimanual Task: Applications to Hemiplegic Cerebral Palsy <i>J. Valvano, J. Davis, N. Denniston, T. Boulter, T. Nicklas, and J. J. Carollo</i> • Upper Extremity Kinetics and Outcomes Assessment During Crutch-Assisted Gait in Children with Myelomeningocele <i>B. Slavens, P. Sturm, G. Harris</i>
12:00 – 12:15 pm	Awards Presentation – Rooms 5 – 7

<p>12:30 –3:00 pm</p>	<p align="center">Technical Symposium–Rooms 1-3</p> <p align="center">“Biomechanical Models: As Simple as Possible, but no Simpler”</p> <p>12:30 –1:45 Title: Introduction to DW and MMS Presenters: <i>Scott Delp PhD and Art Kuo PhD</i></p> <p>1:45 – 2:30 Title: Research presentations: Applications to clinical practice Presenters: <i>Rick Neptune PhD and Max Donelan PhD</i></p> <p>2:30 –3:00 Panel Discussion and responses to participant’s questions Panel discussants: <i>Scott Delp PhD, Max Donelon PhD, Roger Kram PhD, Art Kuo PhD, Rick Neptune PhD, Caroline Stewart PhD, Marjolein van der Krogt MSc.</i></p> <p align="center"><u>3</u> CME/CEU Credits</p>
<p>3:15 –5:45 pm</p>	<p align="center">Clinical Symposium –Rooms 1–3</p> <p align="center">“Evaluation of Dystonia on the Motion Analysis Laboratory: Application to Cerebral Palsy”</p> <p>3:15 – 3:45 Title: Dystonia in children with cerebral palsy: Diagnosis and intervention. Presenter: <i>Terence Sanger MD, PhD</i></p> <p>3:45 – 4:25 Title: Clinical assessment of dystonia in the motion analysis laboratory: Visual assessment tools and observational assessment during motion analysis. Presenters: <i>Kim Wesdock PT and Cammie Beattie PT</i></p> <p>4:25 – 5:00 Title: Motion analysis tools to differentiate dystonia only, spasticity only and dystonia mixed and spasticity. Presenters: <i>Diane Damiano PhD and Katharine Alter MD</i></p> <p>5:00 – 5:45 Title: Case Examples and Panel Discussion Panel discussants: <i>Katharine Alter MD, Diane Damiano PhD, Susan Rethlefsen PT, Dennis Matthews MD, Freeman Miller MD and Terence Sanger MD</i></p> <p align="center"><u>3</u> CME/CEU Credits</p>
<p>6:30 –7:30 pm</p>	<p align="center">Happy Hour / Game Hour – Rooms 1–3/Foyer</p>
<p>7:30 –11:30 pm</p>	<p align="center">Gala Dinner – Sponsored by AMTI Rooms 4–7 Entertainment by Wild 6</p>