

ISG Tentative Programming

Sunday July 25th

12:30 pm: registration opens, Coffman Union

2:00 pm: Educational Lecture, 'Looking forward while working backward: reverse and anatomic total shoulder', Jonathan P. Braman, MD, Chief of Shoulder Surgery, The University of Minnesota

3:00 pm: Student Travel Award Research Presentations

Amee L. Seitz

Ursina Arnet

Jeffery W. Rankin

4:00 pm: Discussion Session – Shoulder Motion Measurement

5:00 – 7:00 pm: Opening Reception, Coffman Plaza

Monday July 26th

8:00 am: Continental Breakfast, Coffman Union

8:30 am - 12:00 pm: Platform Presentations

12:00 – 2:00 pm: Lunch and Poster Session

2:00 - 5:00 pm: Platform Presentations

5:00 - 7: pm: International Soccer!

Tuesday July 27th

8:00 am: Continental Breakfast, Coffman Union

8:30 am -12:00 pm: Platform Presentations

12:00 – 1:00 pm: Lunch and Business Meeting

1:00 – 4:00 pm: Platform Presentations

4:00 – 5:00 pm: Keynote Lecture: 'Biplane X-ray Analysis of In-Vivo Shoulder and Tendon Function', Dr. Michael J. Bey, PhD, Henry Ford Hospital

6:00 pm: Conference Closing Dinner

Accepted Platform Presentations:

Borstad J.D., Dashottar A.

Evaluating Five Posterior Shoulder Tightness Measurements.

Physical Therapy Division, School of Allied Medical Professions, The Ohio State University, Columbus, OH, USA.

Jaspers E., Feys H., Bruyninckx H., Molenaers G., Harlaar J., Klingels K., Desloovere K.
Upper Limb Kinematic Characteristics in Children with Hemiplegic Cerebral Palsy and Typically Developing Children.

Dept of Rehabilitation Sciences, Dept of Mechanical Engineering and Dept of Musculoskeletal Sciences, KULeuven, Belgium; Research Institute MOVE, University Medical Center, Amsterdam, The Netherlands; Clinical Motion Analysis Laboratory, University Hospital Pellenberg, Belgium; PhD fellowship of the Research Foundation Flanders, Belgium.

Phadke V., Ludewig P.M.

Study of the scapular muscle latency and deactivation time in people with and without shoulder impingement.

Program in Rehabilitation Sciences, The University Of Minnesota, Minneapolis, MN, USA.

Röderer G, Brianza S, Tami A, Schiuma D, Schwieger K, Scola A, Gebhard F.

Mechanical in Vitro Determination of Local Bone Quality in the Proximal Humerus. Technique and Correlation with Xtremect TM.

University, Department of Orthopedic Trauma, Steinhövelstraße 9, 89075 Ulm, Germany; AO Research Institute, Clavadelerstrasse 8, 7270 Davos Platz, Switzerland

Spinelli B.A., Ebaugh D.D Cannella M.

Measures of Scapular Control and Coordination: A Pilot Study.

Rehabilitation Sciences Research Laboratories, Drexel University, Philadelphia, PA, USA.

Cutti A. G., Ulrich, M.J.H., van Tuijl, E.A.B., Garofalo P., Veeger, D.J.

Ambulatory Measurement of the Scapulathoracic Motion: Accuracy of a Protocol Based on Inertial and Magnetic Sensors.

Department of Human Movement Sciences, VU University Amsterdam; Motion Analysis Laboratory, Centro Protesi INAIL, Vigorso di Budrio (Bo), Italy

Warner, M.B., Chappell, P.H., Stokes, M.J.

A Comparison Between the Acromion Marker Cluster and Scapular Locator Techniques for Measuring Scapular Kinematics During Upper Limb Elevation and Lowering.

School of Health Sciences and Electronics and Computer Science, University of Southampton, Southampton, UK.

Lemieux P.O., Hagemester N., Tétrault P., Nuño N.

Relationship Between the Proximal Humerus Anatomy and the Glenohumeral Joint Stability: A Numerical Sensitivity Study.

Laboratoire de recherche en Imagerie et Orthopédie, École de technologie supérieure, Montréal, Québec, Canada; Centre Hospitalier de l'Université de Montréal, Hôpital Notre-Dame, Montréal, Québec, Canada.

Camargo P.R., Phadke V., Ludewig P.M., Salvini, T.F.

Three-dimensional shoulder kinematics after total clavicle resection: an individual case. Department of Physical Therapy, Federal University of São Carlos, Brazil; Department of Physical Medicine & Rehabilitation, University of Minnesota, USA.

Blana, D., Chadwick E.K., Kirsch R.F.

Performance of a feedforward-feedback FES controller in an individual with high tetraplegia. Department of Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; Department of Sport and Exercise Science, Aberystwyth University, Aberystwyth, Ceredigion, UK.

W.H.K. de Vries, H.E.J. Veeger, C.T.M. Baten, F.C.T. van der Helm.

Shoulder Joint Reaction Forces can be Estimated by Neural Networks. Department of Biomechanical Engineering, Faculty of Mechanical, Maritime & Materials Engineering, Delft University of Technology, the Netherlands, Roessingh Research & Development, Enschede, the Netherlands, Research Institute MOVE, Department of Human Movement Sciences, VU University Amsterdam, the Netherlands

Nikooyan A.A., Veeger H.E.J., Bolsterlee B., Westerhoff P., Graichen F., Bergmann G., Van der Helm F.C.T.

Development of an EMG-Assisted Musculoskeletal Model of the Shoulder and Elbow. Department of Biomechanical Engineering, Delft University of Technology, The Netherlands; Charité –Universitätsmedizin Berlin, Julius Wolff Institut, Germany.

Reynolds, J. F., Leduc, R. E., Kahnert, E. K. R., Ludewig, P. M.

Shoulder Joint and Muscle Exposure in Violin Musicians: A Three-Dimensional Kinematic and Electromyographic Exposure Variation Analysis. Reynolds Rehabilitation Enterprises, Minneapolis, MN, Biostatistics Department, and Program in Rehabilitation Sciences, The University Of Minnesota, Minneapolis, MN, USA, and Head and Neck Pain Clinic of Minnesota, Minneapolis, MN, USA.

Shorter, K., Lake, J., Smith, N., Lauder, M.

Acromion Cluster Reliability Under Dynamic Loading Conditions. Faculty of Sport, Education and Social Sciences, University of Chichester, Chichester, UK

Szucs K.A., Borstad J.D.

Capturing 3D Clavicle Kinematics: Validation of Surface Sensor. School of Allied Medical Professions, Physical Therapy Division, The Ohio State University, Columbus, OH, USA

Silldorff, M.D., Lane J.G., Lieber, R.L., Ward S.R.

Passive Mechanical Properties of the Human Supraspinatus and Infraspinatus Muscles.

Departments of Radiology, Orthopaedic Surgery, and Bioengineering, University of California and Veterans Administration Medical Centers, San Diego, CA, COAST Surgery Center, San Diego, CA

Chopp, J.N., O'Neill, J.M., Hurley, K., Dickerson, C.R.
Radiographic Examination of Humeral Head Migration After Fatiguing the Rotator Cuff.
Department of Kinesiology, University of Waterloo, Waterloo, ON, CA; St. Joseph's Hospital, Hamilton, ON, CA.

Chopp, J.N., Fischer, S.L., Dickerson, C.R.
Evaluating 3-D Scapular Kinematics Following a Fatiguing Protocol which causes Superior Humeral Head Migration.
Department of Kinesiology, University of Waterloo, Waterloo, ON, CA.

Kirsch, R.F., Blana, D., Donoghue, J.P., Hochberg, L.R., Simeral, J.D., Chadwick, E.K.
Control of a simulated human arm via an intracortical brain-computer interface.
Case Western Reserve University, Brown University, Massachusetts General Hospital, and Aberystwyth University.

P.B. de Witte, W. Visch, J. Schut, R.G.H.H. Nelissen, J.H. de Groot.
Muscle Activation Ratio - A Reliable EMG Measure and Potential Covariate of Subacromial Narrowing.
Orthopedics Department, Leiden University Medical Center, Leiden, the Netherlands;
Department of Movement Sciences, the Hague University of applied Sciences, the Hague, the Netherlands; Department of Rehabilitation, Leiden University Medical Center, Leiden, the Netherlands.

Suárez D.R., Nerkens W., Valstar E.R., Rozing P.M., van Keulen F.
Experimental Evaluation of Compression and Locking Screws in a Cementless Glenoid Component.
D. of Orthopaedics, Leiden University Medical Center, D. of Biomechanical Eng. and D. of Precision and Microsystems Eng, Delft University of Technology, The Netherlands.

Hurd WJ, Hooke A, Morrow MM, Kaufman KR.
Shoulder Characteristics in a Youth Baseball Pitcher Diagnosed with Little Leaguer's Elbow: A Case Study Comparison.
Biomechanics and Motion Analysis Laboratories, Division of Orthopedic Research
Mayo Clinic, Rochester, USA.

Morrow M.M., Kaufman K.R., An K.N.
Scapula Kinematics in Wheelchair Propulsion.
Biomechanics and Motion Analysis Laboratories, Division of Orthopedic Research
Mayo Clinic, Rochester, USA.

Giphart J.E., Dewing C.B., Elser F., Krong J.P., Peterson D.S., Torry M.R., Millett P.J.
Does Biceps Tenodesis Increase Glenohumeral Translations During Overhead Motions? An in vivo Biplane Fluoroscopy Study.
Steadman Philippon Research Institute, Vail, CO, USA, Department of Orthopaedic Surgery, Naval Medical Center, San Diego, CA, USA, Abteilung für Unfallchirurgie, Klinikum rechts der Isar, Technischen Universität München, Munich, Germany, and Steadman Clinic, Vail, CO, USA.

Frère J., Göpfert B., Slawinski J., Tourny-Chollet C.
Wavelet-EMG-Analysis of Shoulder Muscles During a Power Backward Giant Swing on High Bar.
CETAPS laboratory EA 3832, Faculty of Sports Sciences, University of Rouen, France, Laboratory of Biomechanics & Biocalorimetry, University of Basel, Switzerland and Research Center for Expertise, Scientific Department of Team Lagardère, Paris, France.

Lagacé PY., Billuart F., Ohl X., Skalli W., Tétreault P., de Guise J., Hagemester N.
Biplanar X-ray for the study of gleno-humeral translations: preliminary results in healthy and rotator cuff-deficient subjects.
Laboratoire de recherche en imagerie et orthopédie, École de technologie supérieure, Montréal, QUÉ, Canada; Centre de recherche du Centre hospitalier de l'Université de Montréal, Montréal, QUÉ, Canada; Laboratoire de Biomécanique, École Nationale Supérieure d'Arts et Métiers, Paris, France; Service d'orthopédie, Centre hospitalier de l'Université de Montréal, Montréal, QUÉ, Canada.

Shashank Raina, Jill L. McNitt-Gray, Sara Mulroy, Philip S. Requejo.
Effect of Increased Load on Scapular Kinematics During Wheelchair Propulsion in Users with Paraplegia and Tetraplegia.
Depts. of Biomedical Engineering, Kinesiology, Biological Sciences, USC, LA, CA, Pathokinesiology Laboratory, Rancho Los Amigos National Rehabilitation Center, Downey, CA.

van Drongelen S., van der Woude, L.H.V., Veeger H.E.J.
Load on the Shoulder Complex During Wheelchair ADL.
Swiss Paraplegic Research, Nottwil, Switzerland, Center for Human Movement Sciences and Center for Rehabilitation, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands, Faculty of Human Movement Sciences, VU University, Amsterdam, The Netherlands, Department of Mechanical, Maritime and Materials Engineering, Delft University of Technology, The Netherlands.

Arnet U., van Drongelen S., van der Woude L.H.V., Veeger H.E.J.
Load on the shoulder in handcycling and hand rim wheelchair propulsion.
Swiss Paraplegic Research, Nottwil, Switzerland, Center for Human Movement Sciences, Center for Rehabilitation, University Medical Center Groningen, Groningen, The Netherlands, Faculty of Human Movement Sciences, Research Institute MOVE, VU University, Amsterdam, The Netherlands, Department of Mechanical, Maritime and Materials Engineering, Delft University of Technology, The Netherlands.

Krystyna Gielo-Perczak.

Static Middle Deltoid Muscle restraint to Superior-Inferior Translation of the Glenohumeral Joint.

Department of Biomedical Engineering, Worcester Polytechnic Institute, Worcester, MA, USA.

Lake S.P., Miller K.S., Elliott D.M., Soslowsky L.J.

Inhomogeneous Multiaxial Tensile Properties, Fiber Alignment and Realignment Under Load of Human Supraspinatus Tendon.

McKay Orthopaedic Research Laboratory, University of Pennsylvania, Philadelphia, PA, USA; Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, USA.

Cole, P.A., Schroder, L.K., Gauger E.M.

Surgical and Functional Outcomes after Operative Management of Extra-articular Glenoid Neck and Scapula Body Fractures.

Department of Orthopaedic Surgery, University of Minnesota, Minneapolis, MN; Division of Orthopaedic Trauma, Department of Orthopaedic Surgery, Regions Hospital, St Paul, MN.

Gauger E.M., Cole, P.A., Talbot, M., Schroder, L.K., Anavian, J.

Extra-articular Malunions of the Scapula: A comparison of Functional Outcome Before and After Reconstruction.

Department of Orthopaedic Surgery, University of Minnesota, Minneapolis, MN, USA; Department of Orthopaedic Surgery, Regions Hospital, St Paul, MN, USA; Department of Orthopaedic Surgery, Canadian Field Hospital, Petawawa, ON, CANADA; Department of Orthopaedic Surgery, Brown University, Providence, RI, USA.

Rankin, J.W., Kwarciak, A.M., Richter, W.M., Neptune, R.R.

The Influence of Altering Push Force Effectiveness on Mechanical Efficiency during Wheelchair Propulsion.

Department of Mechanical Engineering, The University of Texas at Austin, Austin, TX, USA; MAX Mobility LLC, Antioch, TN, USA

Seitz, A.L., Reinold, M.M., Gill IV, T.J., Thigpen, C.A.

Scapular Kinematics are Altered in the Throwing Shoulder of Asymptomatic Professional Baseball Players.

Virginia Commonwealth University- Medical College of Virginia Campus, Richmond, VA, USA, Boston Red Sox Baseball Club, Boston, MA, USA, Massachusetts General Hospital Sports Medicine, Boston, MA, USA, Proaxis Therapy Resources, Greenville, SC, USA, Duke University, Durham, NC, USA

Accepted Poster Presentations:

Ribeiro Andrea, Pascoal Augusto Gil.

The External Shoulder Rotation Range-of-Motion on Thrower Athletes.

Faculty of Human Kinetics – Technical University of Lisbon.

Gauger E.M., Wijdicks C.A., Schroder L.K., Ludewig P.M., Cole P.A.
Improved Outcome after Reconstruction of Ipsilateral Scapula Malunion and Clavicle Nonunion Demonstrated by Functional Outcome and Novel Kinematic Technique.
Department of Orthopaedic Surgery, University of Minnesota, Minneapolis, MN; Division of Orthopaedic Trauma, Department of Orthopaedic Surgery, Regions Hospital, St Paul, MN; Orthopaedic Biomechanics Laboratory, Department of Orthopaedic Surgery, University of Minnesota, Minneapolis, MN; Program in Physical Therapy, Department of Physical Medicine and Rehabilitation, The University of Minnesota, Minneapolis, MN, USA.

Alexander W. Hooke, Krista A. Coleman Wood, Diane M. Serfling, Meegan Van Straaten and Kenton R. Kaufman.
Repeatability of Palpation Dependent Scapular Kinematics.
Motion Analysis Laboratories, Division of Orthopedic Research, Mayo Clinic, Rochester, USA.

Petersen, B.W.; Nystrom, C.S.; Pham, T. D.; Hybben, N. M.; Camargo, P. R.; Phadke, V, Braman, J. P.; LaPrade, R. F.; Ludewig, P.M.
Effects of Elevation Angle and Plane of Motion on Subacromial and Internal Impingement.
Physical Therapy, University of Minnesota-Twin Cities, Minneapolis, MN, USA; Orthopaedic Surgery, University of Minnesota-Twin Cities, Minneapolis, MN, USA.

Sarkar S., Ludewig P.M.
Comparison of ISB Recommended Humeral Coordinate Systems.
Program in Rehabilitation Sciences, The University Of Minnesota, Minneapolis, MN, USA.

Symeonidis I., Bortot, D., Peldschus S., Bengler K.
Protocol for the study of detailed arm motion during reaching, grasping and releasing action of a seated human.
Institute for legal Medicine, University of Munich, Germany, Chair of Ergonomics, Technical University of Munich, Germany.

Cieminski, C.J., LaPrade R.F., Phadke V., Klappa S.G., Ludewig P.M.
The Validity and Reliability of a Radiographic Technique in the Measurement of Humeral Retroversion.
Program in Rehabilitation Sciences and Department of Orthopedic Surgery, The University Of Minnesota, Minneapolis, MN, USA; Doctor of Physical Therapy Program, St. Catherine University, Minneapolis, MN, USA.