University at Buffalo Department of Orthopaedics



**RESEARCH NEWSLETTER**

***Volume 3, December 2015***

***June A. and Eugene R. Mindell, MD Professor and Chair****: Leslie J. Bisson, MD*

***Director of Clinical Research****: John Leddy, MD*

***Director, Kenneth A Krackow Orthopedic Research Lab****: Mark Ehrensberger, PhD*

***Editors****: Melissa Kluczynski, MS; Sonja Pavlesen, MD, MS*



# **Introduction**

As 2015 comes to a close, we reflect on the many out-standing accomplishments in research over the past year at UBMD Orthopaedics and Sports Medicine. Over $6 million have been obtained for research through funds from various sources including the Ralph C. Wilson Foundation, the National Institutes of Health and Carestream Health, Inc. This funding is being used to develop many new studies, further re-search in the department and continue ongoing stud-ies. Also, many offices are now using OBERD to col-lect clinical outcomes data which will facilitate future research studies. Lastly, the department has been extremely productive in disseminating research find-

ings through numerous publications and presentations summarized in this newsletter. We would especially like to thank the Chair of our department, Dr. Leslie Bisson, and the Research Directors, Drs. Mark Ehrensberger and John Leddy for their dedicated leadership. **We would also like to thank all of the faculty, research and of-fice staff, residents, and students who helped to make this year successful!**

We wish everyone a Happy Holiday and good luck in the New Year!

**Melissa Kluczynski, MS & Sonja Pavlesen, MD, MS, Editors**



**Funding Announcements**

* The Ralph C. Wilson Foundation has awarded $4.2 million to UBMD Orthopedics & Sports Medicine to establish the Ralph C. Wilson Jr. Center of Excellence in the Jacobs School of Medicine and Biomedical Sciences.
* Dr. John Leddy has been awarded a 5-year RO1 grant for $2 million from the National Institutes of Health for his study entitled ‘Physiological mechanisms of a biomarker of recovery from concussion.’
* Drs. Mark Ehrensberger and A. Campagnari have received $75,000 from the Clinical and Translational Science Award Pilot Studies Program (University at Buffalo and the National Institutes of Health) for their study entitled ‘A novel electrical stimulation technology changing the paradigm for the treatment of orthopedic-related infections.’

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**Recent Publications**

Baker, J.G., Leddy, J.J., Darling, S.R., Shucard, J., Makdissi, M., Willer, B. Gender differences in recovery from high school sport-related concussion in adolescents. *Clinical Pediatrics*, In Press.

Brooks EK, Der S, Ehrensberger MT. Corrosion and Mechanical Performance of AZ91 Exposed to Simulated Inflammatory Condi-tions. *Materials Science and Engineering: C, Materials for Biologi-cal Applications*, In Press.

Brown, M.J., Farrell, J.P., Kluczynski, M., Marzo, J.M. Biom chanical effects of a horizontal medial meniscus tear and subs quent leaflet resection. *American Journal of Sports Medicine*, In Press.

Ciolko, A.A., Tobias, M.E., Ehrensberger, M.T. The Effect of Fret-ting Associated Potential Shifts on The Electrochemistry and In Vitro Biocompatibility of Titanium. *Journal of Biomedical Materials* *Research, Part B*, In Press.

Darling, S., Freitas, M., Leddy, J. (2015) Concussions: Return-to-sport and return-to-learn considerations. *Family Doctor, A Journal* *of the New York State Academy of Family Physicians*, SummerIssue 4: 31-34.

Leddy, J.J., Baker, J.G., Willer, B. Active rehabilitation of concus-sion and post-concussion syndrome. *Physical Medicine and Reha-bilitation Clinics of North America*, In Press.

Leddy, J.J., Hinds, A.L. Sirica, D., Willer, B. The role of controlled exercise in concussion management. *Physical Medicine and Reha-bilitation*, In Press.

Marshall, C.M., Vernon, H., Leddy, J.J., Baldwin, B.A. (2015) The role of the cervical spine in post-concussion syndrome. *The Physi-cian and Sportsmedicine*, 43(3): 274-284.

**Dr. Kenneth A. Krackow Retires**



We sadly announce the retirement of Dr. Kenneth A. Krackow, Professor of Orthopae-dics in the Jacobs School of Medicine & Bio-medical Sciences, State University of New York at Buffalo, and Clinical Director of Ortho-paedics, Kaleida Health System. For over two decades, Dr. Krackow has been a dedi-cated physician, world-renowned scientist, and an outstanding mentor and teacher for many generations of medical students, resi-dents and fellows. We are thankful to Dr. Krackow for leaving such a valuable legacy to UBMD Orthopaedics & Sports Medicine and our broader community.

We wish him a long, healthy and fulfilling re-tirement!



**Honors and Awards– Congratulations!**



* Dr. Mark Ehrensberger was awarded the 2015 Jeanette Wilkins Award for best basic science paper at the Musculoskeletal Infection Society Annual Meeting. Dr. Ehrensberger was also appointed to the Steering Committee of the Department of Defense Osseointegration Program.
* Dr. John Leddy served as a scientific grant reviewer for the Research Com-mittee of the National Athletic Trainers Association (NATA) and for Cana-da’s Thrasher Foundation.

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**Are you ready for CLICK IRB software?**

The University at Buffalo’s new IRB software, Click, is up and running as of November 1, 2015. Click can be accessed with your **UB IT username and password** here: http://www.buffalo.edu/research/research-services/click-implementation.html. All IRB submissions must be submitted through Click. All IRB templates and forms can be found here: http://www.research.buffalo.edu/rsp/irb/irb-toolkit.cfm

**Recent Presentations**

**October 2015**

Brooks, E.K., Der, S., Ehrensberger, M.T. Corrosion and Mechanical Performance of AZ91 Exposed to Sim-ulated Inflammatory Conditions. Materials Science and Technology 2015 Meeting. Columbus, Ohio.

Brooks, R., Brooks, E.K., Ehrensberger, M.T. The Effect of Simulated Inflammation on the Corrosion of 316L Stainless Steel. Materials Science and Technology 2015 Meeting. Columbus, Ohio.

Ehrensberger, M.T., Ahn, R., Tobias, M.E., Luke, N.R., Hufnagel, L.A., Campagnari, A.A. An In-vitro and In-vivo Evaluation of AZ91 Antimicrobial Activity. Materials Science and Technology 2015 Meeting. Columbus, Ohio. Invited Presentation.

Leddy, J.J. Monitored Exercise Training to Improve Recovery Post-Concussion: the Buffalo Concussion Treadmill Program. Annual Meeting of the American Association of Physical Medicine and Rehabilitation. Boston, Massachusetts.

Leddy, J.J. Aerobic Exercise for the Treatment of Concussion. AMSSM Exchange Lecturer for the American Academy of Pediatrics. Washington, D.C.

Leddy, J.J. Concussions and the impact on learning in the classroom. Orchard Park High School Superinten-dent’s Conference Day. Orchard Park, New York.

Leddy, J.J. Physiological alterations in autonomic function and cerebral blood flow following concussion. An-nual American Academy of Physical Medicine and Rehabilitation Conference. Boston, Massachusetts.

Leddy, J.J. Pathophysiology of concussion. American Congress of Rehabilitation Medicine Pre-Conference Workshop. Dallas, Texas.

Leddy, J.J. Research on cervicogenic dysfunction. American Congress of Rehabilitation Medicine Pre-Conference Workshop. Dallas, Texas.

Leddy, J.J. Essential elements of a concussion clinic. American Congress of Rehabilitation Medicine Pre-Conference Workshop. Dallas, Texas.

Leddy, J.J. The Physiology of Concussion: Evidence for Activity Based Therapy. American Congress of Re-habilitation Medicine Meeting. Dallas, Texas.

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**Recent Presentations (continued)**

**November 2015**

Leddy, J.J. Exercise rehabilitation in athletes with sports concussion. Burke Rehabilitation Center, White Plains, New York.

Leddy, J.J. Exercise in the rehabilitation of concussion. University at Buffalo Department of Rehabilitation Sciences. Buffalo, New York.

Leddy, J.J. Exercise rehabilitation of sport concussion. Burke Rehabilitation and Research Hospital. White Plains, New York.

**December 2015**

Ehrensberger, M.T. Electrical Stimulation for Infection Control of Osseointegrated Prosthetic Limbs, De-partment of Defense Osseointegration Program Steering Committee Meeting, Walter Reed National Mili-tary Medical Center. Bethesda, Maryland. Invited Presentation.

**A complete listing of 2015 departmental poster & podium presentations can be found in the Ap-pendix.**

**Upcoming Grant Deadlines**

***MSTS Clinical Research Grant in Orthopaedic Oncology (OREF)***

**Funds**: $98,000

**Deadline**: January 15, 2016

http://www.oref.org/grants-and-awards/grant-programs/research-specific-grants

***Arthritis and Aging Research Grant***

**Funds**: up to $100,000

**Deadline**: January 15, 2016

http://www.curearthritis.org/arthritis-aging-research-grant/

***North American Spine Society***

**Funds**: $50,000

**Deadline**: February 8, 2016 (letter of proposal due)https://www.spine.org/Portals/0/Documents/ResearchClinicalCare/ResearchFundingApp16.pdf

***AMSSM-ACSM Clinical Research Grant***

**Funds**: $20,000/yr

**Deadline**: February 12, 2016

http://www.amssm.org/Research.html

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**Upcoming Grant Deadlines (continued)**

***Prevention of Musculoskeletal Youth Sports Injuries Grant (OREF)***

**Funds**: $100,000-150,000 for 2-3 yrs

**Deadline**: February 16, 2016

http://www.oref.org/grants-and-awards/grant-programs/research-specific-grants

***Scoliosis Research Society Grants***

**Funds**: $10,000, 25,000, 50,000

**Deadline**: April 1, 2016

http://www.srs.org/professionals/research-and-journal/research-grants



**Epidemiology Corner: What is Statistical Power?**

***Statistical power*** refers to the likelihood of detecting an actual significant difference (or association) whenone truly exists. Having a large enough sample size increases confidence that an association will be seen if it truly exits. It is important to calculate sample size during the study design phase, before data collection, to ensure adequate power. Alternatively, power can be estimated if the sample size is predetermined.

Various statistical software programs can be used to calculate sample size or power, along with assistance from a biostatistician or epidemiologist. The following information is necessary for performing a ***sample size or power*** ***calculation***:

* Significance level (usually P<0.05)
* Desired power (usually 80%)
* Desired effect size (e.g., expected mean difference in outcome between groups)
* Estimated variance

Desired effect size and variance can be estimated from pilot data or previously published studies.

**Research Team Contact Information**

**Directors**

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Clinical Research Associate Research Assistant, Administrative Assistant

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**List of 2015 Publications and Presentations**

**PUBLICATIONS**

**Peer-reviewed Articles:**

Ablove, T., Binkley, N., Leadley, S., Shelton, J., Ablove, R. (2015) Body Mass Index Continues to Accurately Predict Percent Body Fat as Women Age Despite Changes in Muscle Mass and Height. *Menopause*, 22(7): 727-30.

Ablove, R.H., Abrams, S. (2015). The Use of BMP-2 and Screw Exchange in the Treatment of Scaphoid Fracture Non-union. *Journal of Hand Surgery (Asian Volume)*, 20(1): 167-171.

Anders, M., Mutty, C., Cornwall, A. Geographic Variation in Fasciotomy during Operative Management of Tibia Fractures.

*Journal of Orthopaedics*. In Press.

Baker, J.G., Leddy, J.J., Darling, S.R., Rieger, B.P., Mashtare, T.L., Sharma, T. and Willer, B. (2015) Factors Associated with Problems for Adolescents Returning to the Classroom after Sport-Related Concussion. *Clinical Pediatrics*, 54(10): 961-968.

Baker, J.G., Leddy, J.J., Darling, S.R., Shucard, J., Makdissi, M., Willer, B. Gender differences in recovery from high school sport-related concussion in adolescents. *Clinical Pediatrics*, In Press.

Bisson, L.J., Kluczynski, M.A., Wind, W.M., Fineberg, M.S., Rauh, M.A., Bernas, G.A., Marzo, J.M., Smolinski, R.J. Design of a randomized controlled trial to compare debridement to observation of chondral lesions encountered during partial meniscectomy: The ChAMP (Chondral Lesions And Meniscus Procedures) Trial. *Contemporary Clinical Trials*, In press.

Bisson, L.J., Zivaljevic, N., Sanders, S., Pula, D. (2015) A cost analysis of single-row versus double-row and suture bridge rotator cuff repair methods. *Knee Surgery, Sports Traumatology, Arthroscopy*, 23(2): 487-493.

Brooks EK, Der S, Ehrensberger MT. Corrosion and Mechanical Performance of AZ91 Exposed to Simulated Inflammatory Conditions. *Materials Science and Engineering: C, Materials for Biological Applications*, In Press.

Brooks, E.K., Tobias M.E., Yang, S., Bone, L.B., Ehrensberger, M.T. Influence of MC3T3-E1 preosteoblast culture on the corrosion of a T6-treated AZ91 alloy. *Journal of Biomedical Research Part B: Applied Biomaterials*, In Press.

Brown, M.J., Farrell, J.P., Kluczynski, M., Marzo, J.M. Biomechanical effects of a horizontal medial meniscus tear and subsequent leaflet resection. *American Journal of Sports Medicine*, In Press.

Brown, M.J., Pula, D.A., Kluczynski, M.A., Mashtare, T., Bisson, L.J. (2015) Does suture technique affect re-rupture after arthroscopic rotator cuff repair?: A meta-analysis. *Arthroscopy*, 31(8): 1576-1582.

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Ciolko, A.A., Tobias, M.E., Ehrensberger, M.T. The Effect of Fretting Associated Potential Shifts on The Electrochemistry and In Vitro Biocompatibility of Titanium. *Journal of Biomedical Materials Research, Part B*, In Press.

Clausen, M., Pendergast, D.R., Willer, B., Leddy, J.J. Cerebral Blood Flow during Treadmill Exercise is a Marker of Physiological Post-Concussion Syndrome in Female Athletes. *Journal of Head Trauma Rehabilitation, In Press.*

Darling, S., Freitas, M., Leddy, J. (2015) Concussions: Return-to-sport and return-to-learn considerations. *Family Doctor,*

*A Journal of the New York State Academy of Family Physicians*, Summer Issue 4: 31-34.

Ehrensberger, M.T., Tobias, M.E., Nodzo, S.R., Hansen, L.A., Luke-Marshall, N.R., Cole, R.F., Wild, L.M., Campagnari, A.A. (2015) Cathodic Voltage-Controlled Electrical Stimulation of Titanium Implants as Treatment for Methicillin-Resistant *Staphylococcus aureus* Periprosthetic Infections. *Biomaterials*. 41: 97-105.

Ellis, M., Leddy, J.J., Willer, B. (2015) Evaluation and Treatment of Physiologic, Vestibulo-Ocular, and Cervicogenic Post-Concussion Disorders. *Brain Injury*, 29(2): 238-248.

Hagstrom, L.S., Ferrick, M., Galpin, R. (2015) Outcomes of operative versus nonoperative treatment of displaced pediatric clavicle fractures. *Orthopedics*, 38(2):135-8.

Hohman, D.W., Nodzo, S.R., Phillips, M., Fitz, W. The Implications of Mechanical Alignment on Soft Tissue Balancing in Total Knee Arthroplasty. *Knee Surgery, Sports, Traumatology, Arthroscopy*, In Press.

Krackow, K.A., Raju, S., Puttaswamy, M.K. (2015) Medial over resection of the tibia in total knee arthroplasty for varus deformity using computer navigation. *The Journal of Arthroplasty,* 30(5): 766-769.

Kluczynski, M.A., Isenburg, M., Marzo, J.M., Bisson, L.J. Does Early versus Delayed Active Range of Motion Affect Rotator Cuff Healing Following Surgical Repair?: A Systematic Review and Meta-analysis. *American Journal of Sports Medicine*, In Press.

Kluczynski, M.A., Nayyar, S., Marzo, J.M., Bisson, L.J. (2015) Early versus Delayed Passive Range of Motion Following Rotator Cuff Repair: A Meta-analysis. *American Journal of Sports Medicine*, 43(8): 2057-2063.

Kluczynski, M.A., Marzo, J.M., Rauh, M.A., Bernas, G.A., Bisson, L.J. (2015) Sex-specific Predictors of Intra-articular Injuries Observed during Anterior Cruciate Ligament Reconstruction. *Orthopaedic Journal of Sports Medicine*, 3(2), 2325967115571300, DOI: 10.1177/2325967115571300.

Leddy, J.J., Baker, J.G., Merchant, A., Picano, J., Gaile, D., Matuszak, J., Willer, B. (2015) Brain or Strain? Symptoms alone do not distinguish physiologic concussion from cervical/vestibular injury. *Clinical Journal of Sports Medicine,* 25(3): 237-242.

Leddy, J.J., Baker, J.G., Willer, B. Active rehabilitation of concussion and post-concussion syndrome. *Physical Medicine* *and Rehabilitation Clinics of North America*, In Press.

Leddy, J.J., Hinds, A.L. Sirica, D., Willer, B. The role of controlled exercise in concussion management. *Physical Medicine* *and Rehabilitation*, In Press.

Marshall, C.M., Vernon, H., Leddy, J.J., Baldwin, B.A. (2015) The role of the cervical spine in post-concussion syndrome.

*The Physician and Sportsmedicine*, 43(3): 274-284.

Matava, M.J., Arciero, R.A., Baumgarten, K.M., Carey, J.L., DeBerardino, T.M., Hame, S.L., Hannafin, J.A., Miller, B.S., Nissen, C.W., Taft, T.N., Wolf, B.R., Wright, R.W., MARS Group. (2015) Multirater agreement of the causes of anterior

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cruciate ligament reconstruction failure: a radiographic and video analysis of the MARS cohort. *American Journal of* *Sports Medicine*, 43(2):310-9.

Nodzo, S.R., Bauer, T., Pottinger, P.S., Garriques, G.E., Bedair, H., Deirmengian, C.A., Segreti, J., Blount, K.J., Omar, I.M., Parvizi, J. (2015). Conventional Diagnostic Challenges in Periprosthetic Joint Infection. *Journal of the American Academy* *of Orthopaedic Surgery*, 23: S18-25.

Nodzo, S.R., Hohman, D.W., Chakravarthy, K. (2015) Nanotechnology: Why Should We Care?. *The American Journal of*

*Orthopedics*, 44(3): E87-8.

Nodzo, S.R., Hohman, D.W., Hoy, A.S., Bayers-Thering, M., Pavlesen, S., Phillips, M.J. (2015) Short Term Outcomes of a Hydroxyapatite Coated Metal Backed Patella. *Journal of Arthroplasty*, 30(8): 1339-1343.

Nodzo, S., Tobias, M., Hansen, L., Luke-Marshall, N.R., Cole, R., Wild, L., Campagnari, A.A., Ehrensberger, M.T. (2015) Cathodic electrical stimulation combined with vancomycin enhances treatment of methicillin-resistant *Staphylococcus* *aureus* implant-associated infections. *Clinical Orthopedics and Related Research*, 473(9): 2856-2864.

Polak, P., Leddy, J.J., Dwyer, M.G., Willer, B., Zivadinov, R. (2015) Diffusion Tensor Imaging Alterations in Post-Concussion Syndrome Patients Undergoing Exercise Treatment: A Pilot Longitudinal Study. *The Journal of Head Trauma* *Rehabilitation,* 30(2): E32-42.

Prasad, S., Ehrensberger, M.T., Kim, H., Monaco, E.A. (2015) Review: Biomaterial Properties of Titanium in Dentistry.

*Journal of Oral Biosciences.* 57 (4), 192-199*.*

Smith, A.M., Stuart, M.J., Dodick, D.W., Roberts, W.O., Alford, P.W., Ashare, A.B., Aubrey, M., Benson, B.W., Burke, C.J., Dick, R., Eickhoff, C., Emery, C.A., Flash-man, L.A., Gaz, D., Giza, C.C., Greenwald, R.M., Herring, S., Hoshizaki, T.B., Hudziak, J.J., Huston III, J., Krause, D., LaVoi, N., Leaf, M., Leddy, J.J., MacPherson, A., McKee, A.C., Mihalik, J.P., Moessner, A.M., Montelpare, W.J., Putukian, M., Schneider, K.J., Szalkowski, R., Tabrum, M., Whitehead, J., Wiese-Bjornstal, D.M. (2015) Ice Hockey Summit II: Zero Tolerance for Head Hits and Fighting. *Clinical Journal of Sports* *Medicine, 25(2): 78-87 and Physical Medicine & Rehabilitation*, 7(3): 283-295.

**Book Chapters**:

Ablove, R.H., Ligamentous Reconstruction of the Elbow. *American Society for Surgery of the Hand, Resident e-Book*. In Press.

Ablove, R.H. Hand Extensors. James M, Chapman MW (Eds.), *Chapman’s Comprehensive Orthopaedic* *Surgery, Fourth* *Edition*, In Press.

Bryan, T., Duquin, T.R. Distal Humerus Nonunions / Malunions. *Elbow Trauma: A Master Skills Publication*. In Press.

Doak, J., Schiller, J., Eberson, C. Circulation of the Pediatric and Adolescent Hip. Roy K. Aaron (Ed.) *Skeletal Circulation in* *Clinical Practice,* WORLD SCIENTIFIC SINGAPURE, In Press.

Duquin, T.R. Complex elbow dislocation. *Clinical Decision Support: Shoulder and Elbow*. In press.

Duquin, T.R., Nodzo, S.R. (2015). Evaluation and Treatment of the Infected Total Shoulder Arthroplasty. Sperling JW, Gamradt S, Galatz L (Eds). *Let’s Discuss: Revision Shoulder Arthroplasty* (ppx-x), American Academy of Orthopedic Surgeons. In Press.

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Duquin, T.R., Sperling, J.W. Revision Shoulder Arthroplasty for Wear or Loosening. *Advanced Reconstruction: Shoulder 2*.

In press.

Duquin, T.R., Sperling, J.W. Complication management malunion and nonunion of proximal humerus fractures. *Art of* *Proximal Humerus Fractures*, Springer-Verlag. In press.

Duquin, T.R., Sperling, J.W. RSA for revision of failed RSA and technique for removal of previous components. *Reverse* *Shoulder Arthroplasty: Clinical Techniques and Devices*. In press.

Duquin, T.R., Sperling, J.W. Inflammatory arthropathies of the shoulder. *Clinical Decision Support: Shoulder and Elbow*. In press.

Duquin, T.R., Steinmann, S. Chapter 11: Osteotomy for distal humeral malunion. (2015) *Masters Techniques in*

*Orthopaedic Surgery: The Elbow 3rd edition*. Wolters Kluwer. 2015.

Kluczynski, M.A., Bisson, L.J. ACLR Related Bone Contusions: Association with intra-articular injury, pain and outcomes.

Prodromos C, Finkle S (Eds.) *The Anterior Cruciate Ligament: Reconstruction and Basic Science, 2e*. Elsevier. In Press

Urband, C., Duquin, T.R. Sternoclavicular Joint Injury. *Shoulder and Elbow Trauma and its Complications I: The Shoulder*.

In Press.

**POSTER PRESENTATIONS**

Binkley, M.T., Nodzo, S.R., Stegemann, P.M., Duquin, T.R. *Factors Associated with Rotator Cuff Tears in Total Shoulder* *Arthroplasty*. American Academy of Orthopedic Surgeons Annual Meeting, Las Vegas, Nevada. March 2015. PosterPresentation.

Binkley, M.T., Nodzo, S.R., Stegemann, P.M., Duquin, T.R. *Factors Associated with Rotator Cuff Tears in Total Shoulder* *Arthroplasty (TSA) Explored*. Orthopedic Research Society Annual Meeting, Las Vegas, Nevada. March 2015. PosterPresentation.

Canty, M., Campagnari, A.A., Ehrensberger, M.T. *Cathodic Voltage-Controlled Electrical Stimulation Of Titanium For* *Prevention Of Biofilm Infections*. Stevens Conference on Bacteria-Material Interaction. Hoboken, New Jersey. June 2015.Poster Presentation.

Bryan, T., Bisson, L., Mutty, C., Zakrzewski, A., Cornwall, A. *Development of a System to Utilize Residents to Track Follow-Up Care of Orthopaedic Patients Seen in an Urban Hospital Emergency Room*. American Orthopaedic Association AnnualMeeting. Providence, Rhode Island. June 2015. Poster Presentation.

Makki, A.Y., Shucard, J., Paluch, R., Hinds, A., Baker, J.G.B., Leddy, J.J., and Willer, B. *The Effect of School Attendance on* *Symptoms in Adolescents after Sport-Related Concussion*. American Medical Society for Sports Medicine AnnualMeeting. Hollywood, Florida. April 2015. Poster Presentation.

Miladore, M.P., Nodzo, S.R., Rohrbacher, B., Ritter, C.A. *Early Postoperative Outcomes of Different Bone Graft Harvesting* *Techniques for Tibiotalar Arthrodesis*. American Academy of Orthopedic Surgeons Annual Meeting. Las Vegas, Nevada.March 2015. Poster Presentation.

Nodzo, S.R., Tobias, M., Cole, R., Hansen, L., Luke-Marshall, N., Campagnari, A., Ehrensberger, M.E. Electrical Stimulation as an Adjunct to Antibiotic Treatment During Periprosthetic Joint Infection. Orthopedic Research Society Annual Meeting. Las Vegas, Nevada. March 2015. Poster Presentation.

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**NATIONAL AND INTERNATIONAL SPEAKING ENGAGEMENTS (COMPLETED AND PENDING)**

Bisson, L. How to perform an open sub-pectoral biceps tenodesis. Instructional video presentation, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. ACL Research in 2015: What Does the Evidence Tell Us? Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. AAOS’ New Guideline on Management of Anterior Ligament Injuries. Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. Concussion Management in 2015: Evaluation and Decision-Making. Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. Working with Agents or Medical Legal and Ethical Aspects of Managing Athletes. Moderator, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. Pectoralis Ruptures: Management of Acute and Chronic Tears**.** Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. Suprascapular Nerve Decompression: Where Are We in 2015? Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L. Distal Biceps Tendon Rupture: Acute and Chronic. Invited Talk, AAOS/AOSSM Sports Medicine Course, Park City, Utah, February 2015.

Bisson, L., Komm, J., Bernas, G., Marzo, J., Browning, W., Rauh, M. How Accurate are Patients at Diagnosing the Cause of their Knee Pain with the Help of a Web-based Symptom Checker? American Orthopaedic Society for Sports Medicine Annual Meeting. Orlando, Florida. July 2015.

Bisson, L. Lower Extremity Session. Moderator, AOSSM Injuries in Ice Hockey Course. Toronto, ON. August 2015.

Bisson, L. Hockey Injuries: Lower Body Injuries and Rehabilitation. Invited Talk, Clinical Orthopedic Society Meeting. New York, NY. September 2015.

Brooks, E.K., Der, S., Ehrensberger, M.T. Corrosion and Mechanical Performance of AZ91 Exposed to Simulated Inflammatory Conditions. Materials Science and Technology 2015 Meeting. Columbus, Ohio. October 2015.

Brooks, R., Brooks, E.K., Ehrensberger, M.T. The Effect of Simulated Inflammation on the Corrosion of 316L Stainless Steel. Materials Science and Technology 2015 Meeting. Columbus, Ohio. October 2015.

Duquin, T.R. Shoulder problems that can present with neck pain. AAOS 2015 Instructional Course Lecture: Differentiating

cervical spine and shoulder pathology: Common disorders and key points of evaluation and treatment. American Academy of Orthopaedic Surgeons Annual Meeting. Las Vegas, Nevada. March 2015.

Duquin, T.R. Managing Infection in total shoulder arthroplasty. AAOS 2015 Instructional Course Lecture: Challenges in Shoulder Arthroplasty. American Academy of Orthopaedic Surgeons Annual Meeting. Las Vegas, Nevada. March 2015.

Ehrensberger MT, Tobias ME, Ciolko A, McDermott E. Biological Interaction of Cathodically Polarized Titanium. Advanced Materials in Dental and Orthopedic Applications Symposium during The Minerals, Metals and Materials Society Annual Meeting. March 2015. Orlando, Florida. Invited Presentation.

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Ehrensberger, M.T., Nodzo, S., Tobias, M.E., Luke, N.R., Hufnagel, L.A., Campagnari, A.A. Adjunctive Cathodic Electrical Stimulation Eradicates MRSA Periprosthetic Joint Infections. Annual Scientific Meeting of the Musculoskeletal Infection Society. August 2015. Cleveland, OH.

Ehrensberger, M.T., Ahn, R., Tobias, M.E., Luke, N.R., Hufnagel, L.A., Campagnari, A.A. An In-vitro and In-vivo Evaluation of AZ91 Antimicrobial Activity. Materials Science and Technology 2015 Meeting. Columbus, Ohio. October 2015. Invited Presentation.

Ehrensberger, M.T., Nodzo, S., Tobias, M.E., Luke, N.R., Hufnagel, L.A., Campagnari, A.A. Cathodic Voltage-Controlled Electrical Stimulation Of Titanium Implants For Eradication Of MRSA Biofilm Infections. Stevens Conference on Bacteria-Material Interaction 2015. Hoboken, New Jersey. June 2015. Podium Presentation.

Ehrensberger, M.T. Electrical Stimulation for Infection Control of Osseointegrated Prosthetic Limbs, Department of Defense Osseointegration Program Steering Committee Meeting, Walter Reed National Military Medical Center. Bethesda, Maryland. December 2015. Invited Presentation.

Leddy, J.J. The Physiology of Concussion: Implications for Diagnosis, Prognosis and Treatment. Brain Injury Summit: a Meeting of the Minds. Craig Hospital. Vail, Colorado. January 2015.

Leddy, J.J. Exercise and Return to Sport. Concussion in Sport- The Latest in Diagnosis and Management. NYU Langone Medical Center. New York, NY. February 27, 2015.

Leddy, J.J. A Randomized Controlled Trial of Assessment of Exercise Tolerance in Adolescents with Acute Sport-Related Concussion. American Medical Society for Sports Medicine Annual Meeting. Hollywood, Florida. April 2015.

Leddy, J.J. Case Study—Mild/TBI Concussion. North American Brain Injury Society Annual Meeting. San Antonio, Texas.

April 2015. Expert panel.

Leddy, J.J., Willer, B. Physical Examination and Evaluation of Concussion. North American Brain Injury Society Annual Meeting. San Antonio, Texas. April 2015.

Leddy, J.J. Physical Examination and Evaluation of Concussion. North American Brain Injury Society Annual Meeting. San Antonio, Texas. May 2015.

Leddy, J.J. The Use of Exercise Testing in Adolescents with Sport-related Concussion. Annual Concussion Conference at Children’s Hospital of Philadelphia. Philadelphia, Pennsylvania. May 2015.

Leddy, J.J. Sideline management of the injured athlete. “Concussion, Heat Illness and Sickle Trait.” Erie County Medical Center. Buffalo, New York. July 2015

Leddy, J.J. Concussion Update. Cayuga Lake Triathlon Sports Medicine Conference, Ithaca, New York. August 2015.

Leddy, J.J. The Pathophysiology of Concussion in Children and Adolescents: Evidence for Proactive Treatment. First International Conference on Paediatric Acquired Brain Injury. Liverpool, England. September 2015.

Leddy, J.J. Exercise intolerance as a biomarker of concussion and recovery. First International Conference on Paediatric Acquired Brain Injury. Liverpool, England. September 2015.

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Leddy, J.J. Monitored Exercise Training to Improve Recovery Post-Concussion: the Buffalo Concussion Treadmill Program. Annual Meeting of the American Association of Physical Medicine and Rehabilitation. Boston, Massachusetts. October 2015.

Leddy, J.J. Aerobic Exercise for the Treatment of Concussion. AMSSM Exchange Lecturer for the American Academy of Pediatrics. Washington, D.C. October 2015.

Leddy, J.J. Concussions and the impact on learning in the classroom. Orchard Park High School Superintendent’s Conference Day. Orchard Park, New York. October 2015.

Leddy, J.J. Physiological alterations in autonomic function and cerebral blood flow following concussion. Annual American Academy of Physical Medicine and Rehabilitation Conference. Boston, Massachusetts. October 2015.

Leddy, J.J. Pathophysiology of concussion. American Congress of Rehabilitation Medicine Pre-Conference Workshop.

Dallas, Texas. October 2015.

Leddy, J.J. Research on cervicogenic dysfunction. American Congress of Rehabilitation Medicine Pre-Conference Workshop. Dallas, Texas. October 2015.

Leddy, J.J. Essential elements of a concussion clinic. American Congress of Rehabilitation Medicine Pre-Conference Workshop. Dallas, Texas. October 2015.

Leddy, J.J. The Physiology of Concussion: Evidence for Activity Based Therapy. American Congress of Rehabilitation Medicine Meeting. Dallas, Texas. October 2015.

Leddy, J.J. Exercise rehabilitation in athletes with sports concussion. Burke Rehabilitation Center, White Plains, New York. November 2015.

Leddy, J.J. Exercise in the rehabilitation of concussion. University at Buffalo Department of Rehabilitation Sciences.

Buffalo, New York. November 2015.

Leddy, J.J. Exercise rehabilitation of sport concussion. Burke Rehabilitation and Research Hospital. White Plains, New York. November 2015.

Makki, A.Y., Leddy, J.J., Takano, K., Jain R. An Unusual Cause of Headache and Fatigue in a Division 1 Collegiate Hockey Player.” American Medical Society for Sports Medicine Annual Meeting. Hollywood, Florida. April 2015.

Tiso, M., Leddy, J.J. A Rare Confluence of Diagnoses in a Division I Collegiate Football Player. American Medical Society for Sports Medicine Annual Meeting. Hollywood, Florida. April 2015.

Tiso, M., Hinds, A., Baker, J.G., Mashtare, T., Leddy, J.J., Willer, B. Is Cognitive Function in Retired NFL and NHL Players Diminished By a History of Concussions? American Medical Society for Sports Medicine Annual Meeting. Hollywood, Florida. April 2015.

**Please note that every effort was made to compile all departmental publications and presentations from 2015.**

**Please contact a Clinical Research Associate if you have any additional items for this list.**

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