

James Anthony Ashton-Miller

The Albert B. Schultz Collegiate Research Professor, and
Distinguished Research Scientist
Departments of Mechanical Engineering, Biomedical Engineering, Internal Medicine &
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Place of Birth and Citizenship

Bristol, England; Dual Citizenship: United States of America and United Kingdom

Marital Status

Widowed, Kathryn Anne Moe (married 1975-2021)
Two children: Ian Donald; Lindsay Marina

Education

Dr. Philos., University of Oslo, Oslo, Norway Dissertation Title: " <i>The Importance of Growth on the Development of Idiopathic Scoliosis: A Biochemical, Radiological and Biomechanical Study</i> ", Thesis Advisor, Professor M. Foss Hauge	1982
MSME, Mechanical Engineering, M.I.T., Cambridge, MA, U.S.A. Thesis Advisor: Robert W. Mann, Ph.D.	1974
BSc (Honors), Mechanical Engineering, University of Newcastle, U.K.	1972

Positions held at The University of Michigan, Ann Arbor

Associate Chair for Research Translation, Department of Biomedical Engineering, University of Michigan	2016-
Associate Vice President for Research – Research Policy and Compliance (responsible for overseeing all Conflicts of Interest, all Human Subjects research (6,000+ protocols), export controls (Empowered Official), Research Integrity Officer, all RCRS training, and drone research	2012-7
Special Assistant to the Vice President for Research (7/2017-8/2017)	2017
Research Integrity Officer, University of Michigan	2012-7
Empowered Official (Export Controls), University of Michigan	2012-7
Research Professor, School of Kinesiology	2010-
Albert Schultz Collegiate Research Professorship	2007-
Research Professor, Department of Mechanical Engineering	2003-

Research Professor, Department of Biomedical Engineering	2003-
Research Professor, Department of Internal Medicine	2003-
Director, Bone and Joint Injury Prevention and Rehabilitation Center, MedSport, U-M	2010-14
Associate Director, Bone and Joint Injury Prevention and Rehabilitation Center	2008-9
Co-Director, Sport Injury Prevention Center	2007-8
Director, Biomechanics Research Laboratory, Mech. Eng.	1999-
Research Scientist, Department of Mechanical Engineering	1994-2003
Research Scientist, Department of Biomedical Engineering	1994-2003
Senior Research Scientist, Institute of Gerontology	1997-2003
Research Scientist, Institute of Gerontology	1994-7
Associate Research Scientist, Department of Mechanical Engineering	1987-94
Associate Research Scientist, Institute of Gerontology	1992-4
Associate Professor, Department of Mechanical Engineering	1991
Co-Director, Biomechanics Research Laboratory, ME	1983-99
Assistant Research Scientist, Department of Mechanical Engineering	1983-7

Positions at Other Institutions or Organizations

Research Associate, Department of Materials Engineering, University of Illinois at Chicago	1980-3
Research Fellow, Sophies Minde Orthopaedic Hospital, University of Oslo, Norway	1975-80
Graduate Student Research Assistant, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA	1972-5
Research Engineer, Horstmann Gear Co, Bath, U.K.	1969-70

Honors & Awards

Chair, Council of Fellows, American Society of Biomechanics	2022-4
Member, NIH Musculoskeletal and Rehabilitation Sciences Study Section	2020-4
Outstanding Faculty Achievement Award, Department of Mechanical Engineering, University of Michigan	2019
Kappa Delta (Elizabeth Winston Lanier) Award, <i>American Academy of Orthopedic Surgeons & Orthopedic Research Society</i>	2016
“On Knee Function and ACL Injury” Wojtys EM and Ashton-Miller JA	
Past Chair, Health Sciences section, Gerontological Society of America	2015
H.R. Lissner Medal, <i>American Society of Mechanical Engineers</i>	2015

("for outstanding research contributions in the biomechanics of injuries, particularly neuromuscular mechanisms of fall-related injuries in the elderly, and strain-induced birth-related injuries and their sequelae in women")

Chair/Program Chair, Health Sciences section, Gerontological Society of America	2015
Chair-Elect, Health Sciences section, Gerontological Society of America Cabaud Memorial Award,	2014
<i>American Orthopedic Society for Sports Medicine</i>	2014
Best Basic Science Presentation Award, <i>International Continence Society</i> , Beijing, China	2012
Cabaud Memorial Award, <i>American Orthopedic Society for Sports Medicine</i>	2011
Best Scientific Paper, <i>American Urogynecological Society</i>	2010
The Competition Medical and Safeguard Committee (CMS) 2010 NCAA Research Award, <i>American Medical Society for Sports Medicine</i>	2010
Fellow, <i>American Society of Mechanical Engineers</i>	2009
Giovanni Borelli Award "for pre-eminent contributions to the science of biomechanics", <i>American Society of Biomechanics</i>	2009
Journal of Biomechanics Award, <i>American Society of Biomechanics</i> , Co-Author	2008
Meeting Chair, <i>North American Congress on Biomechanics</i>	2008
Excellence in Research Writing Award, <i>American Journal of Physical Medicine and Rehabilitation</i>	2007
Albert Schultz Collegiate Research Professorship	2007
Chair, Health Sciences Fellowship Section, <i>Gerontological Society of America</i>	2007
Research Excellence Award, <i>American Orthopedic Society for Sports Medicine</i>	2006
Associate Editor, <i>Archives of Physical Medicine & Rehabilitation</i>	2006-
Associate Editor, <i>Journal of Gerontology: Medical Sciences</i> , (declined)	2005
Fellow, <i>American Institute for Medical and Biological Engineering</i>	2005
Associate Editor, <i>Journal of Gerontology: Biological Sciences</i>	2001
Distinguished Senior Research Scientist, U-M	2001-
Distinguished Research Scientist, U-M	2000
President, American Society of Biomechanics (President-Elect, 2000; Past-President; 2002)	2001
Fellow, <i>Gerontological Society of America</i>	2001
Member, NIH Musculoskeletal Rehabilitation Sciences Study Section	2003-5
Member, NIH Geriatrics & Rehabilitation Medicine Study Section	2001-3
Clinical Biomechanics Award, <i>American Society of Biomechanics</i>	2003
Best Paper Award, <i>American Urogynecological Society</i>	2007
Best Paper Award, <i>American Urogynecological Society</i>	2003
Best Paper Award, <i>International Continence Society</i>	2003
University of Michigan Distinguished Research Scientist Award	2000
Best Paper Award, <i>American Urogynecological Society</i>	1998
Best Paper Award, <i>American Urogynecological Society</i>	1997
Best Paper Award, <i>German Gynecology Society</i>	1997
Dantek Award, <i>International Continence Society</i> Dantek Award	1996
Outstanding Research Scientist Award,	

University of Michigan College of Engineering	1995
Research Scientist Award, University of Michigan	1988
New Investigator Research Award, National Institutes of Health	1985-8
Norwegian Research Council for Science and Humanities Fellow	1976-80
National Institute of General Medical Sciences Fellow (declined)	1974
Sigma Xi, MIT	1974
Design Award, Institute Mechanical Engineers (London)	1972

Research

Research Profile (This section required by U-M College of Engineering)

Dr. Ashton-Miller directs the Biomechanics Research Laboratory in Mechanical Engineering. Dr. Ashton-Miller supervises two post-doctoral fellows, four doctoral students, several masters students and several undergraduates each semester. He collaborates closely with several clinician-scientists whom he mentored to their first and succeeding NIH grants including Drs. John OL DeLancey (Obstetrics & Gynecology), Neil B. Alexander (Geriatrics), James K. Richardson (Physical Medicine & Rehabilitation), Janis M. Miller (Nursing), James T. Eckner (Physical Medicine & Rehabilitation), Edward M. Wojtys (Orthopedics) and Aidin Eslam Pour (now Yale Orthopedics). A central focus of his research, which employs both theoretical and experimental approaches, is to develop mechanistic insights that can be used to better prevent unintentional injuries associated with life-long sequelae. These sequelae cost society billions of dollars per year in direct and indirect costs. The research falls into the following main areas:

Falls and Mobility in the Elderly and Peripheral Neuropathy (~92 publications):

In the early 1990s Dr. Ashton-Miller started working on the biomechanical risk factors for falls and fall-related injuries in the elderly. The first studies to investigate how age affects the foot clearance afforded by humans as they step over obstacles were published in 1991 & 1994. A companion 1994 paper in *Gait & Posture*, using the apparatus designed by Dr. Ashton-Miller, demonstrated that healthy young and elderly humans can even inadvertently trip and fall on a flat surface if they adjust their step pattern too rapidly to avoid stepping on a suddenly appearing stripe of light that they were asked to view as an obstacle if it appeared. The team also employed that set-up in a 1996 paper to perform one of the first studies demonstrating the adverse effect of multitasking on obstacle avoidance, especially in the elderly. There followed a series of articles on analyzing the effects of age on the ability to recover from a forward fall. Beginning in 2001 another series of five papers reveal how impact velocity, elbow angle, and upper arm stiffness and damping properties interact to increase the risk of wrist fracture while arresting forward falls with the arms. These studies help explain why certain falls onto the hands result in wrist fracture while others from the same height don't. Dr. Ashton-Miller's work was quoted in the *New York Times*, March 11, 2008.

His mentorship of Dr. James K. Richardson (PM&R) led to him being awarded a 5-year NIH K23 Career Development Award and more recently his first NIH R01 grant. This work has identified the biomechanical risk factors for falls, and most recently, *fall-related injuries* in for the first time, especially diabetic patients with peripheral neuropathy. The latter results are significant because the major socioeconomic costs are related to fall-related injuries, not falls. Doctoral students Sibylle Thies and Hogene Kim have published a series of papers on how uneven surface gait environments and the shoes with remotely controlled actuators hidden in the soles demonstrate the presence of gait deficits better than smooth surfaces.

In a series of three papers that started with the 2003 ASB Clinical Biomechanics Award, Dr. Ashton-Miller and his doctoral student Alaa Ahmed developed a new theory for how the central nervous system detects a loss of balance: it postulates that the brain uses an internal model of the human's interaction with his/her environment, and compares predicted and actual accelerations to generate the error signal which signals the loss of balance. This work continued with ME doctoral candidate Payam Mirshams Shahshahani, who defended a dissertation on how the brain coordinates balance in a multilink 3-D dynamic model in 2019.

Vaginal Birth-Related Injuries, Incontinence & Genital Prolapse in Women (~105 publications):

Currently about 11 % of U.S. women undergo surgery for pelvic floor impairments. In the early 1990's Dr. Ashton-Miller initiated a collaboration with Dr. John O.L. DeLancey (Obgyn) that continues to this day. This collaboration led to Dr. DeLancey being awarded his first NIH R01 grant and together with Dr. Ashton-Miller they have since received over nine national/international prizes for their work on the pathomechanics of maternal birth-related injuries and their sequelae. In September 2003 they were awarded their first 5-year National Institutes of Health Specialized Center of Research (SCOR) on "Birth-Related Pelvic Floor Dysfunction", a Center that was competitively renewed for another five years in November, 2007, and again in October, 2012. In 2019 they were awarded a five year RC2 grant (\$1.1m/yr) by NIDDK to develop new tools for the field of urology since these currently date from the 1960s. Together they have developed the world's only collection of standardized MR and clinical studies of pelvic floor impairments involving over 1,400 women with and without pelvic floor impairments across the age span. One of their studies (Kearney et al. 2006) demonstrated that the use of forceps increases the risk for pelvic floor injury during vaginal birth 14-fold, helping to relegate forceps to all but the most difficult births where the baby's or mother's life is in danger. The dogma currently is that a vaginal prolapse is caused by a failure of the tissue of the vaginal wall. Their MR studies and computer models contradict this dogma by demonstrating that the most likely cause of anterior wall prolapse ("fallen uterus") is the vaginal birth stretch-related injury of the levator ani muscles. This injury impairs the muscular support of the uterus, thereby allowing intraabdominal pressure to apply a chronic pressure differential across the distal vaginal wall, thereby "pushing" that wall distally out of the body. Their postdoctoral student Jiajia Luo identified a different mechanism as the cause of posterior vaginal wall prolapse. Their goal is to develop insights that will lead to the prevention of these female conditions in the future. This work has led to increasingly active technology transfer to industry via research contracts from the Kimberly-Clark Corporation, American Medical Systems, Boston Scientific Corp. Johnson & Johnson, Proctor & Gamble, and Hologic in the past 5 years. These companies seek our help to improve the efficacy of surgical products and feminine hygiene products using insights from our 30-member Pelvic Floor Research Group (<http://obgyn.med.umich.edu/research/programs-units/pfrg>), the first and largest such research group in the world. A series of invention disclosures have been filed in this space in the past two years in collaboration with Drs. William Chey (Gastroenterology), Jennifer Meddings (Internal Medicine) and Sanjay Saint (Internal Medicine), and Dr. John DeLancey (Obstetrics & Gynecology).

Mechanisms of Sports-Related Ankle and Knee Injuries (~42 publications):

Sports injuries at any age can result in lifelong sequelae that restrict activity later in life. Many 'non-contact' sports injuries are preventable, but we first need insights into the underlying causal mechanisms. Dr. Ashton-Miller mentored Dr. Edward Wojtys (Orthopedics) to his first R01 and together they examined the effect of chronic training on spine sagittal curvature in over 2,000 juvenile and adolescent athletes. More recently, they and their student Thomas Withrow developed a method for studying the factors that result in anterior cruciate ligament (ACL) injury under impulsive loading (AOSSM Research Excellence Award, 2006). ACL ruptures often lead

to the initiation of osteoarthritis in the knee within seven years, no matter whether the knee is treated conservatively or surgically. This research led to Dr. Wojtys' first NIH R01 award under which doctoral students, Youkeun Oh and David Lipps, extended the research to examine the effect of compound impulsive loading with and without axial torques on peak ACL strain. Dr. Oh won the gold medal award for this orthopedic research at the 2010 *World Congress of Biomechanics*. Current dogma is that ACL injuries are caused by landing a jump with excessive valgus moment. However, Dr. Ashton-Miller's team results have led them to reject this hypothesis by identifying internal axial tibial torque as a more potent cause of excessive ACL strain during pivot landings. Their research with doctoral student David Lipps was the first to show that the human ACL is susceptible to a material fatigue failure due to the accumulation of microdamage under cyclic loading which coalesce to cause complete rupture (Lipps et al. 2013). This was a paradigm shift because the finding changed the direction of ACL injury prevention efforts toward preventing the undue accumulation of microtrauma in the ACL. In her doctoral dissertation, Ashton-Miller's mentee Melanie Beaulieu examined the added role of restricted hip internal rotation range of motion in exacerbating ACL strain, winning the 2014 Cabaud Memorial Award from the American Orthopaedic Society for Sports Medicine. In March 2016, Drs. Wojtys and Ashton-Miller were presented with the Kappa Delta award from the Orthopedic Research Society and American Academy of Orthopedic Surgeons for their ACL research. In 2016 they were also awarded a 5 year R01 grant to continue their research on the mechanisms underlying human ACL fatigue injuries which they are actively pursuing at the nano, micro and macroscopic scale.

Concussion and Reaction Time (~6 papers)

We have published several papers on the mechanics of concussion and a method for detecting short term deficits in frontal lobe function following a concussion. This involves measuring simple and recognition reaction times (US Patent 8,657,295, Feb 25, 2014). The method has been validated against a whole body protective reaction time task (Eckner et al.). We published a paper in PLoS ONE in 2011 demonstrating a sex differences in the fastest of human reaction times – those of sprinters on the starting blocks of their heats at the 2008 Beijing Olympics. This paper identified a systematic bias in Omega-Swiss Timing's method of measuring those reaction times at the Olympic Games that had persisted for over 30 years, and the paper supplied a suggestion for how to fix the problem. In 2018 we published a follow-up study in PLoS One of the sprinter reaction times measured under new rules imposed at the 2012 and 2016 Olympics and the paper shows that Omega took our recommendations to heart. Dr. Ashton-Miller mentored Dr. Eckner (PM&R) during his NIH K23 career development award and NIH Loan Repayment Award, and on to a related R01 grant on a concussion intervention.

Spine Research (~30 publications):

Ashton-Miller's doctoral thesis and early research investigated the pathomechanics of idiopathic scoliosis, a spine deformity of unknown etiology that occurs mostly in adolescent girls. His 3-D measurements of the mechanical properties of adolescent spine motion segments remain the only such data today. Those data were used in a 3-D theoretical model of the adolescent thoracolumbar spine. It had 17 vertebral bodies, was stabilized by 144 paravertebral and trunk muscle slips under a non-linear optimal control scheme, and was used to analyze the biomechanical factors affecting whether a curve would progress during the adolescent growth spurt. In the early 1980s he and Dr. David Spencer published two articles in *Spine* on the rediscovery of the Hofman ligaments in the lumbar spine. These structures, forgotten for over a century, are incorrectly described by orthopedic and neurosurgeons as "adhesions", but in fact they are normal anatomy. The team demonstrated that Hofman ligaments have considerable significance in the mechanics of sciatica, the intensely painful condition that can accompany a

herniated lumbar disc. There followed a decade of work on the biomechanics of the lumbar and cervical spine, low back pain, neck pain and sacro-iliac joint function.

Publications

Articles in Refereed Journals, Transactions or Archives (underline denotes mentee)

1/2024 Scopus h-index of 76 on 375 documents for 'Ashton-Miller, J.A' (ORCID #: 0000-0003-1528-2787) with 17,542 citations.

My NCBI ref: <https://www.ncbi.nlm.nih.gov/myncbi/james.ashton-miller.1/bibliography/public/>

1980-1

Topic area -
Paper # in Sequence

1. Skogland LB, **Miller JAA**, Growth-Related Hormones in Idiopathic Scoliosis: An Endocrine Basis for Accelerated Growth, *Acta Orthopaedica Scandinavica* 51:779-789, 1980. Spine - 1
2. Skogland LB, **Miller JAA**, The Length and Proportions of the Thoracolumbar Spine in Children with Idiopathic Scoliosis, *Acta Orthopaedica Scandinavica* 52:177-85, 1981. Spine - 2
3. Skogland LB, **Miller JAA**, Skottner A, Fryklund L. Serum Somatomedin-A and Non-Dialyzable Urinary Hydroxyproline in Girls With Idiopathic Scoliosis. *Acta Orthopaedica Scandinavica* 52(3): 307-313, 1981. Spine – 3

1983

4. **Miller JAA**, Haderspeck KA, Schultz AB, Posterior Element Loads in Lumbar Motion Segments, *Spine* 8:331-337, 1983. Spine - 4
5. Spencer DL, Irwin GS, **Miller JAA**, Anatomy and Significance of Fixation of the Lumbosacral Nerve Roots in Sciatica, *Spine* 8:672-679, 1983. Spine – 5
6. Spencer DL, **Miller JAA**, The Mechanism of Sciatic Pain Relief by Chemonucleolysis, *Orthopedics* 6(12):1600-1603, 1983. Spine – 6

1984

7. **Miller JAA**, Nachemson AL, Schultz AB, Effectiveness of Braces in Mild Idiopathic Scoliosis, *Spine* 9:632-635, 1984. Spine – 7
8. Spencer DL, **Miller JAA**, Bertolini J, The Effect of Intervertebral Disc Space Narrowing on the Contact Force Between the Lumbar Nerve Root and a Simulated Disc Protrusion, *Spine* 9:422-426, 1984. Spine – 8

1985

9. Skipor AF, **Miller JAA**, Spencer DL, Schultz AB, Stiffness Properties and Geometry of Lumbar Spine Posterior Elements, *Journal of Biomechanics* 18:821-830, 1985. Spine – 9
10. Spencer DL, **Miller JAA**, Schultz AB, The Effects of Chemonucleolysis on the Mechanical Properties of the Canine Lumbar Disc, *Spine* 10:555-561, 1985. Spine – 10

11. Jakobs T, **Miller JAA**, Schultz AB, Trunk Position Sense in the Frontal Plane, *Experimental Neurology* 90:129-138, 1985. Spine – 11
- 1986**
12. **Miller JAA**, Schultz AB, Warwick DN, Spencer DL, Mechanical Properties of Lumbar Spine Motion Segments Under Large Loads, *Journal of Biomechanics* 19:79-84, 1986. Spine – 12
- 1987**
13. **Miller JAA**, Schultz AB, Andersson GBJ, Load-Displacement Behavior of Sacroiliac Joints, *Journal of Orthopaedic Research* 5:92-101, 1987. Spine – 13
14. McGlashen KM, **Miller JAA**, Schultz AB, Andersson GBJ, Load-Displacement Behavior of the Human Lumbo-Sacral Joint, *Journal of Orthopaedic Research* 5(4):488-496, 1987. Spine – 14
15. Van Der Spek AFL, Fang W, **Miller JAA**, Stohler C, Carlson D, The Effects of Succinylcholine on Mouth Opening, *Anesthesiology*, 67(4):459-465, 1987. Muscle – Malignant Hyperthermia 1
- 1988**
16. Moroney SP, Schultz AB, **Miller JAA**, Andersson GBL, Load-Displacement Properties of Lower Cervical Spine Motion Segments, *Journal of Biomechanics* 21(9):769-779, 1988. Spine – 15
17. Janevic JT, **Miller JAA**, Schultz AB, Lumbar Disc Degeneration: Correlation with Age, Sex and Spine Level in 600 Autopsy Specimens, *Spine* 13:173-178. Spine – 16
18. Stohler CS, **Miller JAA**, Carlson DS, The Effects of Pain from the Mandibular Joint and Muscles on the Masticatory Motor Behavior in Man, *Archives of Oral Biology* 33(3):175-182, 1988. Muscle – Pain 1
19. Scholten PJM, Schultz AB and Luchies CW, **Miller JAA**, Motions and Loads Within the Human Pelvis: A Biomechanical Model Study, *Journal of Orthopaedic Research* 6:840-850, 1988. Spine – 17
20. Moroney SP, Schultz AB, **Miller JAA**, Analysis and Measurement of Neck Loads, *Journal of Orthopaedic Research* 6(5):713-720, 1988. Spine – 18
21. Van Der Spek AFL, Fang WB, **Miller JAA**, Stohler CS, Carlson DS, Schork MA, Increased Masticatory Muscle Stiffness During Limb Muscle Flaccidity Associated with Succinylcholine Administration, *Anesthesiology* 69(1):11-16, 1988. Muscle- Malignant Hyperthermia 2
22. **Miller JAA**, Schmatz C, Schultz AB, Lumbar Disc Degeneration: Correlation with Age, Sex and Spine Level in 600 Autopsy Specimens, *Spine* 13(2):173-178, 1988. [Ranked one of “The Top 100 Classic Papers in Lumbar Spine Surgery” *Spine*, 40:740-7, 2015]. Spine - 19
23. Son K, **Miller JAA**, Schultz AB, The Mechanical Role of the Trunk and Lower Extremities in a Seated Weight-moving Task in the Sagittal Plane, *Journal of Biomechanical Engineering* 110(2):97-103, 1988. Muscle- Coordination 1
24. Son K, **Miller JAA**, A Two-Dimensional Biomechanical Model for Predicting Trunk and Lower Extremity Muscle Activity in a Dynamic Seated Task: A Quantitative Comparison of Optimization Schemes, In: *Modeling and Control* Muscle - Coordination 2

Issues in Biomechanical Systems. American Society of Mechanical Engineers Publication DSC-Vol. 12/BED-Vol. 11, pp. 103-120, 1988.

25. Lee S-G, **Miller JAA**, A Comparison of Linear and Non-Linear Optimization Techniques for Predicting Human Cervical Muscle Forces in Sagittally-Symmetric Static Tasks, In: *Modeling and Control Issues in Biomechanical Systems*, American Society of Mechanical Engineers, DSC Division Bound Volume 17, pp. 5-12, 1989. Muscle - Coordination 2

1989

26. Van Der Spek AFL, Reynolds PI, **Ashton-Miller JA**, Stohler CS, Schork MA, Differing Effect of Agonist and Antagonist Muscle Relaxants on Cat Jaw Muscles, *Anesthesia and Analgesia* 69(1):76-80, 1989. Muscle – Malignant Hyperthermia 3

1990

27. Van Der Spek AFL, Reynolds PI, Fang WB, **Ashton-Miller JA**, Stohler CS, Schork MA, Changes in Resistance to Mouth Opening Induced By Depolarizing and Non-Depolarizing Neuromuscular Relaxants, *British Journal of Anaesthesia* 64(1):21-7, 1990. Muscle – Malignant Hyperthermia 4

28. Steen H, Fjeld TO, **Miller JAA**, Ludvigsen P, Biomechanical Factors in the Metaphyseal and Diaphyseal Lengthening Osteotomy: An Experimental and Theoretical Analysis in the Ovine Tibia, *Clinical Orthopaedics and Related Research* 259: 282-94, 1990. Bone

29. **Miller JAA**, McGlashen K, Herzenberg JE and Stohler CS, Cervical Muscle Myoelectric Response to Acute Experimental Sternocleidomastoid Pain, *Spine* 15(10):1006-1012, 1990. Muscle – Pain 2

30. Lee S-G, **Miller JAA**, Graziano GP, On Muscle Control Strategies, Agonism and Antagonism: A 3-D Study in Human Cervical Spine Muscles, American Society of Mechanical Engineers, Dallas, Bound Volume DSC Vol. 25, pp. 31-38, November 1990. Spine – 20

1991

31. Janevic JT, **Ashton-Miller JA**, Schultz AB, Large Compressive Preloads Decrease Lumbar Motion Segment Flexibility, *Journal of Orthopaedic Research* 9(2):228-236, 1991. Spine – 21

32. McGlashen KM, **Ashton-Miller JA**, Green M and Schultz AB, Trunk Positioning Accuracy in the Frontal and Sagittal Planes, *Journal of Orthopaedic Research* 9(4):576-583, 1991. Spine – 22

33. Chen H-C, **Ashton-Miller JA**, Alexander NB, Schultz AB, Stepping Over Obstacles: Gait Patterns of Healthy Young and Old Adults, *Journal of Gerontology: Medical Sciences* 46(6):M196-203, 1991. Falls & Mobility 1

34. **Ashton-Miller JA**, Schultz AB, Spine Instability and Segmental Laxity Biomechanics: A Call for the Definition and Standardization of Terms, *Seminars in Spine Surgery* 3:136-148, 1991. Spine – 23

35. Chaffin DB, **Ashton-Miller JA**, Biomechanical Aspects of Low-Back Pain in the Older Worker, *Journal of Experimental Aging Research* 4: 17(3):177-88, 1991. Spine – 24

1992

36. **Ashton-Miller JA, McGlashen KM, Schultz AB**, Trunk Positioning Accuracy in Children from 7-18 Years Old, *Journal of Orthopaedic Research* 10(2):217-225, 1992. Spine – 25
37. Schultz AB, Alexander NB, **Ashton-Miller JA**, Biomechanical Analyses of Rising from a Chair, *Journal of Biomechanics* 25(12):1383-91, 1992. Falls & Mobility 2
38. **Ashton-Miller JA**, He Y, Kadhiresan VA, McCubbrey D, Faulkner JA, An Apparatus to Measure In Vivo Biomechanical Behavior of Dorsi- and Plantarflexors of the Mouse Ankle, *Journal of Applied Physiology* 72(3):1205-11, 1992. Muscle – Mechanics

1993

39. Son K, **Ashton-Miller JA**, Trunk and Lower Extremity Muscle Activity in Seated Weight-Moving Tasks: Three Dimensional Analyses of Intersubject and Intertask Differences, *Korean Society of Mechanical Engineering Journal* 7:372-388, 1993. Muscle – Coordination 4
40. Ostgaard HC, Andersson GBL, Schultz AB, **Ashton-Miller JA**, The Influence of Some Biomechanical Factors on Low Back Pain During Pregnancy *Spine* 18:61-65, 1993. Pregnancy - Joint flexibility
41. Zhang X, **Ashton-Miller JA**, Stohler CS, A Closed-Loop Control System for Maintaining Constant Experimental Muscle Pain in Man, *IEEE Transactions on Biomedical Engineering* 40(4): 344-52, 1993. Muscle – Pain 3

1994

42. Chen H-C, **Ashton-Miller JA**, Alexander NB, Schultz AB, Age Effects on Strategies Used to Avoid Obstacle, *Gait & Posture* 2:139-146, 1994. Falls & Mobility 3
43. Chen H-C, **Ashton-Miller JA**, Alexander NB, Schultz AB, Effects of Age and Available Response Time on Ability to Step Over an Obstacle, *Journal of Gerontology: Medical Sciences* 49(5): M227-33, 1994. Falls & Mobility 4
44. Luchies CW, Alexander NB, Schultz AB, **Ashton-Miller JA**, Stepping Responses of Young and Old Adults to Postural Disturbances: Kinematics, *Journal of American Geriatrics Society* 42(5):506-12, 1994. Falls & Mobility 5
45. Thelen DG, Schultz AB, **Ashton-Miller JA**, Quantitative Interpretation of Lumbar Muscle Myoelectric Signals During Rapid Cyclic Attempted Trunk Flexions and Extensions, *Journal of Biomechanics* 27(2):157-67, 1994. PMID: 8132683 Spine – 26
46. Thelen DG, Schultz AB, Fassios SD, **Ashton-Miller JA**, Identification of Dynamic Myoelectric Signal to Force Models During Isometric Lumbar Muscle Contractions, *Journal of Biomechanics* 27(7):907-19, 1994. PMID: 8063841 Spine – 27

1995

47. Alexander NB, Mollo JM, Giordani B, **Ashton-Miller JA**, Schultz AB, Grunawalt JA, Foster NL, Maintenance of Balance, Gait Patterns and Obstacle Clearance in Alzheimer's Disease, *Neurology* 45(5):908-14, 1995. Falls & Mobility 6
48. Gilting M, Van den Bosch C, Lee SG, **Ashton-Miller JA**, Alexander NB, Schultz AB, Ericson WA, Association of Age with the Threshold for Detecting Ankle Inversion and Eversion in Upright Stance, *Age and Ageing* 24:58-66, 1995. Falls & Mobility 7

49. Ottaviani R, **Ashton-Miller JA**, Kothari SU, Wojtys EM, Basketball Shoe Height and the Maximal Muscular Resistance to Applied Ankle Inversion and Eversion Movements, *American Journal of Sports Medicine* 23(4):418-23, 1995. Ankle sprains 1
50. Van den Bosch C, Gilting M, Lee SG, Richardson JK, **Ashton-Miller JA**, Peripheral Neuropathy Effect on Ankle Inversion and Eversion Detection Thresholds, *Archives of Physical Medicine and Rehabilitation* 76:850-6, 1995. Falls & Mobility 8
51. Thelen DG, Schultz AB, **Ashton-Miller JA**, Co-contraction of Lumbar Muscles During the Development of Time-Varying Triaxial Moments, *Journal of Orthopaedic Research* 13(3):390-8, 1995. PMID: 7602401 Spine – 28
52. Zhang X, **Ashton-Miller JA**, Stohler CS, Three-dimensional Unilateral Method for the Bilateral Measurement of Condylar Movements, *Journal of Biomechanics* 28(8):1007-11, 1995. PMID: 7673256 Jaw kinematics
53. Persad C, Giordani B, Chen HC, **Ashton-Miller JA**, Alexander NB, Wilson CS, Berent B, Guire K, Schultz AB, Neuropsychological Predictors of Complex Obstacle Avoidance in Healthy Older Adults, *Journal of Gerontology: Psychological Sciences* 50(5):P272-7, 1995. Falls & Mobility 9
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CORPORATE START-UP & ADDITIONAL PATENTS

Ashton-Miller JA, Terrell J, “Gutter Cleaning Device”, U.S. Patent #9,347,223 [corresponding Canadian and UK patent applications have been filed] and assigned to the *Viper Tool Company, LLC*, Ann Arbor, Michigan; **Ashton-Miller JA**, Terrell J “Gutter Cleaning Device”, [US20170191272A1](#), and a third continuation patent has been filed in the U.S. A U.S. design patent [USD816931S1](#) has been granted, a second has been filed, and a U.S. trademark has been received.

To prevent injurious falls, particularly in the elderly, the “Gutter Viper™” is a device for cleaning first, second and even third story rain gutters from the ground without a ladder. Ashton-Miller is a co-founder and Chief Scientific Officer of the *Viper Tool Company* ([vipertoolcompany.com](#)).

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110. Persad C, Giordani B, Giles J, Schultz AM, Kauszler M, **Ashton-Miller J**, Alexander N, Guire K, Schultz A. Importance of affect in self-report and performance-based measures of adaptive ability. National Academy of Neuropsychology Annual Meeting, Orlando, FL, 2000.
111. Wojtys EM, **Ashton-Miller JA**, Huston L and Boylan JP, Gender Differences in the Muscular Protection of the Knee in BMI-Matched Athletes, Abstract #33, 68th Annual Meeting of American Academy of Orthopaedic Surgeons, San Francisco, CA, February 28 -March 4, 2001.
112. Miller JM, Umek WH, DeLancey JOL, **Ashton-Miller JA**, Can Women Without Visible Pubococcygeal Muscle in MR Images Still Increase Urethral Closure Pressures? *American Journal of Obstetrics and Gynecology*, 191:171-175, 2004.
113. Antonakos C, Giordani B, **Ashton-Miller JA**, Navigation Strategies in Visuo-Spatial Impairment: A Case Study, Association of American Geographers 97th Annual Meeting, New York, March 1, 2001.
114. **Ashton-Miller JA**, Effects of Age on Physical and Cognitive Capabilities in Challenging Tasks, Association for the Advancement of Automotive Medicine Annual Meeting, Southfield, MI, February 20, 2001.
115. **Ashton-Miller JA**, Mobility and Falls in Older Adults, The 6th Annual Edna Gates Conference on Dementia Care, Novi, Michigan, April 5, 2001.
116. Smeesters C, **Ashton-Miller JA**, Cole N, Alexander NB, Effect of Age and Gender on Maximum Hip Flexor Power, International Association of Gerontology, Vancouver, B.C., July, 2001
117. Smeesters C, Cole N, **Ashton-Miller JA**, Maximum Hip Flexion Power in Young Adults: Effects of Initial Joint Angle and Allowable Range of Motion. Annual Meeting, American Society of Biomechanics, San Diego, CA, August, 2001.
118. McCabe GN, DeGoede KM, **Ashton-Miller JA**, Healthy Adults Can Learn to Reduce Hand Impact Force in a Forward Fall: A 3-month Intervention Study in Young Males. Annual Meeting, American Society of Biomechanics, San Diego, CA, August, 2001.
119. Endo M, **Ashton-Miller JA**, Alexander NB, Effects of Age and Gender on Toe Flexor Muscle Strength, Annual Meeting, Gerontological Society of America, Nov., Chicago, IL, 2001.

120. Thies S, Richardson JK, DeMott T, **Ashton-Miller JA**, Influence of an Irregular Surface on Step Width and Step Width Variability. Annual Meeting, Gerontological Society of America, November., Chicago, IL, 2001
121. **Antonakos C**, Giordani B, **Ashton-Miller JA**, Wayfinding and Environment: Case Studies of Visuo-Spatial Impairment Due to Stroke, The Gerontological Society of America Annual Meeting, Chicago, IL, November 15, 2001.
122. Liang J, **Ashton-Miller JA**, Bennett J, Schultz AB, Giordani BJ, Alexander NB, Guire K, Physical Capacities, Cognitive Functioning, and Functional Status Among Older Adults, Annual Meeting, Gerontological Society of America, Chicago, IL, 2001.
123. Persad C, Giordani B, Giles J, Schultz AM, Kauszler M, **Ashton-Miller JA**, Alexander NB, Guire K, Schultz AB, Importance of Affect in Self-Report and Performance-Based Measures of Adaptive Ability, National Academy of Neuropsychology Annual Meeting, Orlando, FL 2001.
124. Antonakos C, Giordani B, **Ashton-Miller JA**, Navigation Strategies in Visuo-Spatial Impairment: A Case Study, Association of American Geographers 97th Annual Meeting, New York, NY, 2001.
125. **Ashton-Miller JA**, The Functional Anatomy of the Female Urethral Support and Sphinter, Women 42nd Royal College of Obstetricians and Gynaecologists Study Group, London, October 1-3, 2001.
126. **Ashton-Miller JA**, Giordani BJ, Promoting Mobility and Preventing Falls, National Association of Retired Federal Employees, Ann Arbor, MI, January 14, 2002.
127. DeLancey JOL, Miller JM, Howard D, Guire K, **Ashton-Miller JA**, Continence Mechanism Abnormalities Associated With New Stress Incontinence Following First Vaginal Birth Are Multifactorial, American Urogynecologic Society, San Francisco, October 17, 2002.
128. Endo M, **Ashton-Miller JA**, Alexander NB, Maximum Toe Flexor Muscle Strength in Healthy Young and Older Adults, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
129. Ahmed AA, **Ashton-Miller JA**, A Loss of Balance is a Loss of Control: The 3 Σ Hypothesis, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
130. Yang B-S, **Ashton-Miller JA**, On Not Tipping a Stepladder Sideways, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
131. Thelen DG, Smeesters C, **Ashton-Miller JA**, Bailey S, Rapasinghe R, Alexander NB, Abilities of Young and Old Adults to Adjust Medio-Lateral Step Location During a Forward Fall, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
132. DeGoede KM, **Ashton-Miller JA**, Alexander NB, The Propagation of an Impact Force Along the Upper Extremity, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
133. Thies S, Richardson JK, **Ashton-Miller JA**, Comparison of Step Variability During Gait on Flat and Irregular Surfaces in Patients with Polyneuropathy, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.

134. Lo J, McCabe GN, Okuizumi H, Ashton-Miller JA, Hand Impact Force Reduction in Forward Falls in Young Males: A Prospective Controlled 3-Month Intervention Trial, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
135. Lien K-C, Mooney B, DeLancey JOL, Ashton-Miller JA, Pelvic Floor Muscle Strains During Vaginal Birth, American Society of Biomechanics, Chicago, August 2000.
- 136.
137. Smeesters C, Cole NM, Ashton-Miller JA, Effects of Age and Gender on Maximum Hip Flexor Power at Low and High Velocities, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
138. **Ashton-Miller JA**, On Low-Cost Strategies for Reducing Fall-Related Injuries in the Elderly, 6th World Congress of Biomechanics, Calgary, Canada, August 3-9, 2002.
139. Schulz BW, Alexander NB, Ashton-Miller JA, Compensatory Stepping of Unimpaired and Balance-Impaired Older Women in Response to Standardized Waist-Pull Perturbations, 55th Annual Scientific Meeting of The Gerontological Society of America, Boston, MA, November 22-26, 2002.
140. Thies SB, Richardson JK, DeMott TK, Ashton-Miller JA, Reducing Step Width Variability in Patients With Polyneuropathy Walking on an Uneven Surface, 55th Annual Scientific Meeting of The Gerontological Society of America, Boston, MA, November 22-26, 2002.
141. Nyquist LV, **Ashton-Miller JA**, Liang J, Understanding Decisions to Perform Physically Challenging Tasks, 55th Annual Scientific Meeting of The Gerontological Society of America, Boston, MA, November 22-26, 2002.
142. **Ashton-Miller JA**, Using Biomechanics to Reduce Unintentional Injuries in the Population, Engineering Society of Detroit, Southfield, MI, October 24, 2002.
143. **Ashton-Miller JA**, Measuring Strength and Power in the Hip and Its Importance, Hip Osteoarthritis Osteoporosis, Icelandic Heart Association, Reykjavik, Iceland, March 11-13, 2003.
144. **Ashton-Miller JA**, On the Association between Vaginal Birth, Urinary Incontinence and Genital Prolapse in Women. Weekly Research Seminar, Geriatrics Division, Department of Internal Medicine, CCGCB, University of Michigan, March 27, 2003.
145. **Ashton-Miller JA**, Fall-Related Injuries in the Older Generation: A \$20billion/year Problem, Department of Kinesiology Weekly Seminar, University of Toledo, April 4, 2003.
146. **Ashton-Miller JA**, What Your Mom Did Not Tell You About Vaginal Birth, Keynote Lecture, Midwest Graduate Student Biomechanics Symposium, University of Toledo, April 5, 2003.
147. Lien, K-C, Mooney B, Ashton-Miller JA and DeLancey JOL, Pelvic Floor Soft Tissue Stretch in Vaginal Birth, American Urogynecologic Society 24th Annual Scientific Meeting, Hollywood Florida, September 11-13, 2003. (Full length paper won AUGS Prize Paper Award)

148. Ahmed A, **Ashton-Miller JA**, Effect of Age on Detecting a Loss of Balance in a Seated Whole-Body Balancing Task, American Society of Biomechanics Annual Meeting, Toledo, September 25-27, 2003. (ASB 2003 Clinical Biomechanics Award Paper)
149. Meinhart P, Persad C, **Ashton-Miller J**, A Kinematic Analysis of the Effects of Age on Turning Strategies in Healthy Females, American Society of Biomechanics Annual Meeting, Toledo, September 25-27, 2003.
150. Yang B-S, **Ashton-Miller JA**, Stepping Up and Onto a Laterally-Compliant Structure: Frontal Plane Responses in Young Adults, American Society of Biomechanics Annual Meeting, Toledo, September 25-27, 2003.
151. Schulz B, **Ashton-Miller JA**, Alexander NB, An Empirical Index of Step Initiation in Young, Older, and Balance-Impaired Older Females, American Society of Biomechanics Annual Meeting, Toledo, September 25-27, 2003.
152. Son J, **Ashton-Miller JA**, Phase Space Interpretation of the Lateral Dynamics of the Transition from Bipedal to Unipedal Balance, American Society of Biomechanics Annual Meeting, Toledo, September 25-27, 2003.
153. Lien K-C, Mooney B, **Ashton-Miller JA**, DeLancey JOL, Pelvic Floor Soft Tissue Stretch Induced by Vaginal Birth, International Continence Society 33rd Annual Meeting, Florence, October 5-9, 2003. Abstract published, *Journal of Pelvic Medicine & Surgery*, 9(5):202, 2003.
154. Miller JM, Umek WH, DeLancey JO, **Ashton-Miller JA**, Pubococcygeal Muscle Integrity and Urethral Closure Pressures During Volitional Pelvic Floor Muscle contraction in Women Without Stress Incontinence or Pelvic Organ Prolapse, International Continence Society 33rd Annual Meeting, Florence, October 5-9, 2003. (Best Clinical Abstract Award at ICS Meeting) Abstract published, *Journal of Pelvic Medicine & Surgery*, 9(5):208, 2003.
155. Umek WH, Kearney R, Morgan DM, **Ashton-Miller JA**, DeLancey JOL, The Appearance and Axial Location of Structural Regions in the Urethra: A MRI Study in Nulliparous Women, International Continence Society 33rd Annual Meeting, Florence, October 5-9, 2003. Abstract published, *Journal of Pelvic Medicine & Surgery*, 9(5):213, 2003.
156. DeLancey JOL, Kearney R, Umek WH, **Ashton-Miller JA**, Levator Ani Muscle Structure and Function in Women with Prolapse Compared to Women with Normal Support, International Continence Society 33rd Annual Meeting, Florence, October 5-9, 2003. Abstract published, *Journal of Pelvic Medicine & Surgery*, 9(5):201, 2003.
157. **Ashton-Miller JA**, Reducing Unintentional Injuries in the Population: An Ounce of Prevention is Worth a Pound of Cure, Department of Mechanical & Industrial Engineering, University of Illinois, Urbana, November 11-12, 2003.
158. Yang B-S, **James Ashton-Miller**, Stepping Up and Onto a Laterally-Compliant Structure: Frontal Plane Responses in Young Adults, XIII International Conference on Mechanics in Medicine and Biology, November 12-15, 2003, National Cheng Kung University, Tainan, Taiwan.
159. Thies S, **Ashton-Miller JA**, Richardson JK, Effect of Age, Surface Irregularity, and Incident Lighting on Step Width Variability During Level Gait, 56th Annual Scientific Meeting of The Gerontological Society of America, San Diego, November 21-25, 2003.

160. Beg MAH, Alexander N, **Ashton-Miller JA**, Blaum C, Giordani B, Nyquist L, Does Subclinical Peripheral Neuropathy Explain Strength and Mobility Impairments in Older Adults with Diabetes? 56th Annual Scientific Meeting of The Gerontological Society of America, San Diego, November 21-25, 2003.
161. Meinhart P, Alexander NB, **Ashton-Miller JA**, Persad CC, Evidence of Age Effects on Turning Strategies in Healthy Females, 56th Annual Scientific Meeting of The Gerontological Society of America, San Diego, November 21-25, 2003.
162. Schulz B, Alexander NB, **Ashton-Miller JA**, Compensatory Stepping in Response to Anterior Waist Pulls in Balance-Impaired and Unimpaired Older Women, 56th Annual Scientific Meeting of The Gerontological Society of America, San Diego, November 21-25, 2003.
163. **Ashton-Miller JA**, The Female Pelvic Floor and Vaginal Birth, Department of Physical Therapy and Human Movement Sciences, Northwestern University Medical School, Chicago, January 22, 2004.
164. **Ashton-Miller JA**, What Determines the Impact Force in a Fall and Is it Modifiable?, Sensory Motor Performance Program of the Rehabilitation Institute of Chicago, January 23, 2004.
165. **Ashton-Miller JA**, On Pelvic Floor Function and Dysfunction in Women: An Update, American Physical Therapy Association, Combined Sections Meeting, Nashville, February 4-8, 2004.
166. Schultz BW, **Ashton-Miller JA**, Alexander NB, An Algorithm to Predict Stepping in Young, Older, and Balance-Impaired Older Females, 3rd Annual IoG Symposium, Wayne State University, April 7, 2004.
167. Ahmed AA, **Ashton-Miller JA**, Detecting a Loss of Balance in Young Adults Performing a Maximal Forward Reach, poster presentation, 3rd Annual IoG Symposium, Wayne State University, April 7, 2004.
168. **Ashton-Miller, JA**, Aging, Balance and Fall Arrests: A Review of On-Going Doctoral Research, Amsterdam, The Netherlands, June 26-30, 2004.
169. Lien KC, Morgan DM, DeLancey JOL, **Ashton-Miller JA**, Pudendal Nerve Stretch During Vaginal Birth: A 3-D Computer Simulation, American Urogynecologic Society 25th Annual Scientific Meeting, San Diego, July 23-August 1, 2004.
170. Lien KC, DeLancey JOL, **Ashton-Miller JA**, How Do Perineal Body Stretch and Episiotomy Depth Affect Maximal Pubococcygeal Muscle Stretch During Vaginal Birth, oral poster, American Urogynecologic Society 25th Annual Scientific Meeting, San Diego, July 23-August 1, 2004.
171. Chen L, Hsu Y, DeLancey JOL, **Ashton-Miller JA**, A Bilateral Comparison of the Levator Ani Cross-Sectional Area in Women With Unilateral Levator Defects, oral poster, American Urogynecologic Society 25th Annual Scientific Meeting, San Diego, July 23-August 1, 2004

172. **Ashton-Miller JA**, Structure and Function of the Pelvic Floor, American Urological Association, 2004 Summer Research Conference, McLean, Virginia, August 13-15, 2004.
173. Yang B-S, **Ashton-Miller JA**, Effects of Support Surface ML Compliance on Stepping Behavior of Healthy Adults: Age and Gender Differences, poster presentation, 28th Annual Conference of the American Society of Biomechanics, Portland, Oregon, September 8-11, 2004.
174. Thies S, **Ashton-Miller JA**, Richardson JK, What Causes A Cross-Over Step When Walking On Uneven Ground? A Study in Healthy Young Women, 28th Annual Conference of the American Society of Biomechanics, Portland, Oregon, September 8-11, 2004.
175. Ahmed AA, **Ashton-Miller JA**, Detecting a Loss of Balance in Young Adults Performing a Maximal Forward Reach, poster presentation, 28th Annual Conference of the American Society of Biomechanics, Portland, Oregon, September 8-11, 2004.
176. Lo J, **Ashton-Miller JA**, Simulation of Forward Falls: Effect of Lower Extremity Control Strategy on Injury Risk, podium presentation, 28th Annual Conference of the American Society of Biomechanics, Portland, Oregon, September 8-11, 2004.
177. DeLancey JOL, **Ashton-Miller JA**, Pudendal nerve anatomy and 3-D computer simulation of pudendal nerves stretch during vaginal birth, NIH SCOR Women's Health Interdisciplinary Research Symposium, Washington DC, October 5, 2004.
178. **Ashton-Miller JA**, Biomechanics of the Female Pelvic Floor and Childbirth, invited speaker, University of Kansas, Lawrence, Kansas, December 2, 2004.
179. **Ashton-Miller JA**, Effect of Age on Fall Arrest Biomechanics, invited speaker, University of Kansas, Lawrence, Kansas, December 3, 2004.
180. **Ashton-Miller JA**, Effect of Age and Gender on the Biomechanics of Arresting a Fall, Virginia Polytechnic Institute, Blacksburg, VA, March 16-17, 2005.
181. **Ashton-Miller JA**, Prevention of Injury, Michigan Association of Blood Banks, Schoolcraft College, Livonia, Michigan, September 21-22, 2005.
182. Jing D, **Ashton-Miller JA**, DeLancey JOL, Effects of Pregnancy on the Mechanical Properties of Rat Vagina, poster presentation, 2005 Summer Bioengineering Conference, Vail, Colorado, June 22-26, 2005.
183. Thies SB, **Ashton-Miller JA**, Luntz JE, Stepping on an Obstacle with the Medial Forefoot: Use of a 3D Dynamic Control Model to Simulate Age and Neuropathy, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
184. Son J, **Ashton-Miller JA**, A New Frontal Plane Foot Model Shows the Effect of Narrowed Base of Support on Unipedal Balance, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
185. Yang B-S, **Ashton-Miller JA**, Effects of Support Surface ML Compliance on Stepping Behavior of Healthy Adults: Age and Gender Differences, poster presentation, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.

186. Withrow TJ, Huston LJ, Wojtys EM, **Ashton-Miller JA**, Valgus Loading Causes Increased ACL Strain *In Vitro* in Simulated Jump Landing, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.(Nominated for an ISB Clinical Biomechanics Award)
187. Chaudhari AM, Shin CS, Andriacchi TP, Withrow TJ, **Ashton-Miller JA**, Wojtys EM, Huston LJ, ACL Strains Are Influenced by Deceleration Forces During Activities Associated With ACL Injury, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
188. Ahmed AA, **Ashton-Miller JA**, Detecting a Loss of Balance in Young Adults Performing a Maximal Forward Reach, poster presentation, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
189. Lo J-H, **Ashton-Miller JA**, Simulation of Forward Falls: Effects of Fall Strategy and Available Muscle Strength on Injury Task, podium presentation, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
190. Case L, Lo J-H, **Ashton-Miller JA**, Arrest of Forward Falls Onto Outstretched Hands in Healthy Young Women, ISB/ASB Conference, Cleveland, Ohio, July 31-August 5, 2005.
191. **Ashton-Miller JA**, On Balance, Falls and Fall-Related Injuries in Older Adults: A Positive Perspective, Learning in Retirement, Best Western Conference Center, Ann Arbor, Michigan, September 8, 2005.
192. Chen L, **Ashton-Miller JA**, DeLancey JOL, Do Pubococcygeus Muscle and the Cardinal Uterosacral Ligament complex Impairments Interact to Affect Anterior Vaginal Wall Descent?, AUGS Conference, Atlanta, Georgia, September 15-17, 2005.
193. Hsu Y, Chen L, Summers A, DeLancey JOL, **Ashton-Miller JA**, Cardinal and Uterosacral Ligament Load-Sharing Depends on Their Relative Orientations, AUGS Conference, Atlanta, Georgia, September 15-17, 2005.
194. Lien KC, **Ashton-Miller JA**, DeLancey JOL, Effect of Voluntary Push Timing on the Duration of the 2nd Stage of Labor: Results from a Computer Simulation, poster presentation, AUGS Conference, Atlanta, Georgia, September 15-17, 2005.
195. **Ashton-Miller JA**, Prevention of Injury, Michigan Association of Blood Banks, Schoolcraft College, Livonia, Michigan, September 22, 2005.
196. **Ashton-Miller JA**, The Older Worker: Age and Disease Effects on Mobility, Ergonomic Interventions & Research: Preventing Musculoskeletal Disorders in Healthcare, Construction and Other Industries, San Francisco Bay Area (Doubletree Berkeley Marina in Berkeley), California, December 8-9, 2005.
197. **Ashton-Miller JA**, An Ounce of Prevention is Worth a Pounds of Cure. Maternal Birth-Related Injuries, ACL Injuries and Falls in the Elderly, University of Illinois at Chicago, Department of Kinesiology, March 30-31, 2006.
198. Hsu Y, Chen L, Huebner, **Ashton-Miller JA**, DeLancey JOL, Quantification of Levator Ani Cross-sectional Area Differences between Women with and without Prolapse, poster presentation and participant on Basic Science Research Panel, 32nd Scientific Meeting Society of Gynecologic Surgeons, Tucson, April 3-5, 2006.

199. **Ashton-Miller JA**, Cadaveric Simulations of High Risk Sporting Movements: Important Insights into Non-Contact ACL Injury Risk, oral presentation, 53rd Annual Meeting American College of Sports Medicine, Denver, May 31-June 3, 2006.
200. Withrow TJ, Huston LJ, **Ashton-Miller JA**, Wojtys EM: The Contribution of Eccentric Hamstring Activity in Reducing ACL Relative Strain, Annual Meeting American Orthopaedic Society of Sports Medicine, Hershey PA, June 29-July 2, 2006, (Received Excellence in Research Award).
201. **Ashton-Miller JA**, Identifying the ACL Injury Mechanism: An Integrative Approach to a Complex Problem, Annual Meeting American Orthopaedic Society of Sports Medicine, Hershey PA, June 29-July 2, 2006.
202. Lo J and **Ashton-Miller JA**, Effect of Movement Strategy on Injury Risk in Forward Falls from Standing Height: An Experimental Investigation in Young Males. (abstract #7293) 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
203. Ahmed A and **Ashton-Miller JA**, A Theory for Identifying Loss of Balance: Analyses of Control Error and Compensatory Responses in Healthy Adults, (abstract #7256) 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
204. Ahmed A and **Ashton-Miller JA**, A Modal Analysis of Movement Control Strategies in a Maximal Standing Reach, (abstract #7475th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
205. Ahmed A, Thelen DG, Whittington B and **Ashton-Miller JA**, A Multi-Scale Analysis of Leg Muscle Contraction Mechanics during a Leg Press Exercise, (abstract #7251) 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
206. Lo J and **Ashton-Miller JA**, Does Muscle Strength Explain the Gender Difference in Upper Extremity Kinematics While Arresting a Forward Fall? (abstract #7291) 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
207. Mathias A, Lo J and **Ashton-Miller JA**, Rotational Stiffness and Damping Properties of the Elbow Extensor Muscles Under Impact in Young Men and Women, (abstract #7289) 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2005th 6.
208. **Ashton-Miller JA**, On the Functional Anatomy and Biomechanics of the Female Pelvic Floor, keynote lecture, 5th World Congress of Biomechanics, Munich, Germany, July 22-August 5, 2006.
209. **Ashton-Miller JA**, The Mechanical Properties of Rat Vagina, poster presentation, Third Annual Interdisciplinary Women's Health Research Symposium, Bethesda, Maryland, October 18-19, 2006.
210. **Ashton-Miller JA**, Craig A., Eckner J and Richardson JK, The Road Less Traveled: The Clinical Importance, Biomechanics, and Diagnostic Potential of Gait on an Irregular Surface, American Academy of Physical Medicine and Rehabilitation, Hawaii, November 9-11, 2006.
211. **Ashton-Miller JA**, An Ounce of Prevention... Biomechanical Approaches to Preventing Birth-Related Injuries in Women and Fall-Related Injuries in the Elderly, Department of Bioengineering, The Musculoskeletal Research Center and the Department of

- Orthopaedic Surgery and the McGowan Institute for Regenerative Medicine Seminar Series, Benedum Auditorium, University of Pittsburgh, February 21-22, 2007.
212. **Ashton-Miller JA**, What Determines the Impact Force and Risk of Injury in a Fall? Geriatric Research, Education and Clinical Center Conference (GRECC), Geriatric Medicine Update: Falls and Gait Disorders in the Elderly, Doubletree Hotel Ballroom, Little Rock, Arkansas, March 16-17, 2007.
 213. **Ashton-Miller JA**, Experience With Anatomically Based Lumped Parameter and Finite Analysis Model of Birth and Prolapse, International Research Workshop in Pelvic Floor Disorders, Lille, France, September 6-7, 2007.
 214. Son J, **Ashton-Miller JA**, Richardson JK, Unipedal Balance, Neuropathy, and Frontal Plane Ankle Proprioceptive Thresholds, 54th Annual Meeting American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM), JW Marriott Desert Ridge, Phoenix AR, October 17-20, 2007. Winner of the Best Abstract Award.
 215. **Ashton-Miller JA**, On the Functional Anatomy of the Female Pelvic Floor and the Biomechanics of Vaginal Birth, Department of Biomedical Engineering Seminar Series 2007-2008, University of Texas, Nov. 1, 2007.
 216. **Ashton-Miller JA**, Pelvic Floor Muscle Stretch During the Second Stage of Vaginal Birth, 4th Interdisciplinary Women's Health Research Symposium, National Institutes of Health, Bethesda, MD, Nov. 15, 2007.
 217. Palmieri-Smith RM, McLean SG, **Ashton-Miller JA**, Wojtys EM, Gender Differences in Quadriceps and Hamstring Co-contraction Patterns are Associated with Knee Joint Loading, Research Retreat IV- ACL Injuries: The Gender Bias, University of Virginia, April 3-5, 2008.
 218. **Ashton-Miller JA**, Vaginal Birth: What Have We Learned About the Biomechanics of Injury? 'Reproductive Bioengineering 2008', Innsbruck, Austria, April 1-5, 2008.
 219. Lee Y-J and **Ashton-Miller JA**. On the Predicted Buckling Behavior of the Human Upper Extremity Under impulsive End-Loading: Age and Gender Effects, North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008.
 220. Young J, Kim H, Woolley C, Armstrong TJ, **Ashton-Miller JA**. Lateral Reaching From Fixed Ladders. North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008.
 221. Young J, Sackllah M, Woolley C, Armstrong TJ, **Ashton-Miller JA**. Overhead Grasp Capability for Typical Ladder Handholds. North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008.
 222. Chen L-C, Hsu Y, DeLancey JOL, **Ashton-Miller JA**. A 3-D Finite Element Model of Anterior Vaginal Wall Support for Evaluating the Mechanisms of Cystocele Formation, North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008.
 223. Makzoum E, Kemp J, **Ashton-Miller JA**, LaMarca F. Does Decompressive Surgery for Older Patients with Cervical Myelopathy Improve Gait on Flat and Irregular Surfaces? North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008

224. Jing D, Lien KC, DeLancey JOL, **Ashton-Miller JA**. Visco-Hyperelastic Properties of the Pelvic Floor Muscles in Healthy Women. North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008
225. Jing D, DeLancey JOL, **Ashton-Miller JA**. How Different Maternal Pushing Profiles Affect the Duration of the Second Stage of Labor: A 3-D Visco-Hyperelastic Finite Element Model. North American Congress on Biomechanics, Ann Arbor, MI, August 5-9, 2008
226. **Ashton-Miller JA**. Anatomy, Physiology and Biomechanics of the Continence Mechanisms and Pelvic Floor Loading. Workshop W27, "A Look Beyond the Pelvic Floor: Neuromechanical Factors that Affect Continence and other Pelvic Functions", International Continence Society, Cairo, Egypt, October 20, 2008.
227. Chu B, Oh YK, Thiele R, **Ashton-Miller JA**, Wojtys EM. Tibial Rotation in the ACL Intact and Deficient Knee under Simulated Muscle Loads. Orthopedic Research Society, Las Vegas, Nevada, February 2009.
228. Young, J, Armstrong TJ, **Ashton-Miller JA**. Biomechanical Aspects of Fixed Ladder Climbing: Style, Ladder Tilt, and Carrying. 53rd Annual Meeting of the Human Factors Society, San Antonio, TX, Oct. 19-23, 2009
229. Miller J, Park L, Tolbert M, **Ashton-Miller JA**, DeLancey JOL. Short term response to Knack therapy (no dedicated muscle strengthening) for treatment of incontinence, Abstract 2980, International Continence Society, San Francisco, 2009
230. Hsu Y, Tumbarello J., **Ashton-Miller JA**, DeLancey JOL, In Vivo Assessment of Anterior Compartment Compliance and Its Relation to Prolapse. Annual Meeting of the Society of Gynecological Surgeons, New Orleans, LA, April, 2009.
231. Zielinski R, **Ashton-Miller JA**, DeLancey JOL, Miller JM. Measurement of female maximum isometric levator ani muscle strength unconfounded by intra-abdominal pressure. American Urogynecological Society, Hollywood, Florida, 2009.
232. Oh Y, Kreinbrink J, Antle KA, Wojtys EM, **Ashton-Miller JA**. The Effect of Internally-Directed and Externally-Directed Axial Torques on In Vitro ACL Strain during a Simulated Jump Landing. American Orthopedic Society for Sports Medicine, Keystone, CO, July, 2009.
233. Kim J, **Ashton-Miller JA**, DeLancey JOL. An investigation of pubovisceral muscle enthesial loading at the end of the second stage of labor. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
234. Hernandez M, **Ashton-Miller JA**, Alexander NB.. Control of Sub-maximal Movements of the Center of Pressure in Healthy Women: Effects of Age and Movement Type. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
235. Lipps D, Eckner JT, Richardson JK, **Ashton-Miller JA**. The Effect of Gender and Perceived Threat on the Reaction and Movement Times of Young Adults Performing a Simulated Sport-Specific Response. American Society of Biomechanics, College Station, PA, August 26-29, 2009.

236. Oh Y, Kreinbrink J, Athle KA, Wojtys EM, **Ashton-Miller JA**. Difference of Tibiofemoral Kinematics Between ACL-Intact and ACL-Deficient Knees in a Simulated Jump Landing Task. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
237. Lipps D, Eckner JT, Richardson JK, **Ashton-Miller JA**. On Gender Differences in the Reaction Times of Sprinters in the 2009 Beijing Olympics. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
238. Kim H, Richardson JK, Nnodim JN, Takemura Y and **Ashton-Miller JA**. A Shoe-Based Method for Randomly Perturbing the Stance Phase of Gait and Its Effect on Step Width. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
239. Lee Y, **Ashton-Miller JA**. Theoretical Predictions of Human Upper Extremity Buckling Behavior Under Impulsive End-Loading: Effects of Gender and Extensor Muscle Stretch Behavior. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
240. Kim H, Eckner JT, Richardson JK, **Ashton-Miller JA**. A Novel Portable Visuomotor Manual Reaction Time Test. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
241. Gordon M, **Ashton-Miller JA**. A Theoretical Study of the Effect of Elbow Muscle Cocontraction Level on Forearm Steadiness. American Society of Biomechanics, College Station, PA, August 26-29, 2009.
242. Yousuf A, Pacheco P, Larson K, **Ashton-Miller JA**, DeLancey JO. The correlation between unsupported anterior vaginal wall length and the most dependent bladder point at maximal Valsalva in MRI. American Urogynecological Society, San Francisco, Oct, 2009.
243. McLean SC, Oh YK, Palmer ML, Lucey S, Lucarelli D, **Ashton-Miller JA**, Wojtys EM. Impact-induced Tibial Acceleration as a Mechanism for ACL Injury, Orthopedic Research Society, February, 2010.
244. Richardson JK, Eckner JT, Lipps DB, Kim H, **Ashton-Miller JA**. Can a clinical measure of reaction time predict a sport-specific protective response? Podium Presentation, American Medical Society for Sports Medicine, Annual Meeting, Cancun, Mexico, April 17 – 21, 2010.
245. Eckner JT, Richardson JK, Kim H, Lipps DL, **Ashton-Miller JA**. A Novel Clinical Method for Evaluating Clinical Reaction Time, American Association of Physiatrists, 2011 (Abstract #: RS-588-10-05-2010).
246. Oh Y, Lipps D, **Ashton-Miller JA** and Wojtys EM. Effect of Transverse Plane Tibial Torques Combined with Impulsive Frontal Plane Moments on In Vitro Relative Strain During a Simulated Jump Landing. Annual Meeting of the American Society of Biomechanics, Providence, RI, August 2010
247. Larson K, Luo J, Chen L, **Ashton-Miller JA**, DeLancey JOL. Is it a Midline or Paravaginal Defect? 3D Analysis of Cystoceles using MR Imaging. American Urogynecologic Society Annual Meeting, September 24-26, 2010. *Best Scientific Paper*

248. Kim H, deMott T, Strauss R, **Ashton-Miller** and Richardson JK. The Effects of an Unexpected Stance Foot Perturbation and Neural Loop Delay on Next Step Width in Healthy Adults. Annual Meeting of the American Society of Biomechanics, Providence, RI, August 2010.
249. McLean S, Oh Y, Palmer MP, **Ashton-Miller JA** and Wojtys EM. Tibial Accelerations and Slope Contributions to ACL Strain During a Simulated Landing Impact. Annual Meeting of the American Society of Biomechanics, Providence, RI, August 2010.
250. Hernandez M, **Ashton-Miller JA**, Alexander NB. An Experimental Study of Postural Control During Downward Reach and Pickup Movements: Effects of Age and Limiting the Base of Support. Annual Meeting of the American Society of Biomechanics, Providence, RI, August 2010.
251. Lipps D, Oh Y, **Ashton-Miller JA** and Wojtys EM. The Effect of ACL Cross-Sectional Area on ACL Strain Under Compound Impulsive Loading. Orthopedic Research Society, Long Beach, CA, January, 2011.
252. Chen L, Yousuf A, Pacheco P, **Ashton-Miller JA**, DeLancey JOL. The Relationship Between Exposed Vaginal Length, Genital Hiatus Size and Levator Ani Muscle Status. American Urogynecological Society, *Journal of Womens Health* 20(10):1390-91, 2011
253. Oh Y, Lipps D, **Ashton-Miller JA** and Wojtys EM. Comparison of the Effects of Valgus Loading and Internal Axial Tibial Torque on ACL Strain During a Simulated Jump Landing. International Olympic Committee World Conference on Prevention of Injury & Illness in Sport, Monaco, April 7-9, 2011.
254. **Ashton-Miller JA**. Biomechanics of Vaginal Birth. Invited Keynote Talk. Biomechanics Roundtable. 36th International Urogynecological Association Meeting, Lisbon, Portugal, June, 2011
255. Oh Y, Lipps DL, **Ashton-Miller JA**, Wojtys EM. The Effect of Axial Tibial Rotation and Varus or Valgus Loading on ACL Strain During a Jump Landing. Annual Meeting of the American Orthopedic Society for Sports Medicine, San Diego, July 6-9, 2011.
256. Richardson JK, Gimpert R, Kim H, Allet L, DeMott T, Eckner JT, **Ashton-Miller JA**. Is a clinical measure of upper limb reaction time predictive of lower limb neuromuscular function? Abstract, AAPM&R Annual Meeting, Orlando, FL. November 17, 2011.
257. Oh Y, **Ashton-Miller JA**, Wojtys EM. Effect of Lateral Tibial Slope, Frontal Plane Alignment and Medial Tibial Concavity on Peak ACL Strain During a Pivot Landing. Orthopedic Research Society, San Francisco, CA, February, 2012 (Oral Presentation)
258. Lipps, DB, Wilson A, **Ashton-Miller JA**, Wojtys EM. Posterior Tibial Slopes Measurements Are Not All Alike. Orthopedic Research Society, San Francisco, CA, February, 2012.
259. Bush CJ, Oh Y, **Ashton-Miller JA**, Wojtys EM. Intercondylar Notch Width and ACL Cross-Sectional Area Predict Peak ACL Strain, Orthopedic Research Society, San Francisco, CA, February, 2012.

260. Allet LE, DeMott T, Kim H, **Ashton-Miller JA**, Richardson JK. The Relationship between Sensorimotor Capacities, Gait Speed and Efficiency during Gait on an Uneven Surface. International Symposium on Posture and Gait, Trondheim, Norway, July, 2012
261. Kim H, Nnodim JO, Richardson JK, and **Ashton-Miller JA**. Effect of Age and Vocal Reaction Time on the Kinematics of the First Recovery Step Following an Unexpected Underfoot Perturbations during Gait. International Symposium on Posture and Gait, Trondheim, Norway, July, 2012
262. Hernandez M, **Ashton-Miller JA**, Alexander NB. The Effect of Age and Movement Direction on Rapid and Targeted Center of Pressure Submovements while Crouching. American Society of Biomechanics, Gainesville, FL, August, 2012.
263. Lipps DB, Wojtys EW and **Ashton-Miller JA**. On the Fatigue Life of the Anterior Cruciate Ligament during Simulated Pivot Landings. American Society of Biomechanics, Gainesville, FL, August, 2012.
264. Nnodim JO, Kim H, Richardson JK, **Ashton-Miller JA**. Effect of Age on Recovery Step Kinematics following a Single Unexpected Underfoot Perturbation during Gait, *American Geriatric Society*, 2012.
265. Kim JY, Betchart C, DeLancey JOL and **Ashton-Miller JA**. Why is the Levator Ani Vulnerable to Injury at its Pubic Origin during Vaginal Birth? A Biomechanical Analysis. *International Urogynecology Association*, Brisbane, Australia, Sept 4-8, 2012.
266. Oh YK, Bedi A, Kelly BT, Wojtys EW, **Ashton-Miller JA**. Restricted Internal Rotation Associated with FAI Increases ACL Strain During a Simulated Pivot Landing. *Orthopedic Research Society*, Jan 2013.
267. Richardson, JK, DeMott T, Allet L, Kim H, **Ashton-Miller JA**. Hip Adductor Rate of Torque Generation and Ankle Proprioceptive Thresholds Predict Falls and Fall-Related Injuries: A Prospective Study of Older Persons with Declining Peripheral Neuropathy. American Academy of Physiatrists Annual Meeting, New Orleans, LA, March 6 – 10, 2013
268. Eckner JT, Kim H, Richardson JK, **Ashton-Miller JA**, The Influence of Neck Strength and Muscle Activation on the Head's Response to Perturbation in the Three Principal Anatomical Planes, American Academy of Physiatrists Annual Meeting, New Orleans, LA, March 6 – 10, 2013
269. Nnodim JO, Kim H and **Ashton-Miller JA**. Effect of Age on Vocal Choice Reaction Time after a Sudden Single Underfoot Perturbation during Gait. Gerontological Society of America, Podium Session #925, Washington, DC, Nov 7, 2014.
270. Eckner JT, Broglio SP, Kutcher JS, **Ashton-Miller JA**. Is neck girth associated with head impact magnitude in high school athletes? Presented at the 2015 Association of Academic Physiatrists Annual Meeting. San Antonio TX. February 2015.
271. Beaulieu ML, Carey GE, Schlecht SH, Wojtys EM, **Ashton-Miller JA**, The Microscopic Anatomy of the Human ACL Enteses: A Quantitative Analysis, Orthopedic Research Society, New Orleans, LA, April 2015.
272. Chey W, Attari A, Baker J, **Ashton-Miller JA**. A glove-based, disposable, point-of-service device which allows physiological assessment of the anorectum: Concordance

- with Anorectal Manometry in Chronic Constipation Patients. Digestive Diseases Week (DDW), Podium presentation, Washington, DC, May 19, 2015.
273. Eckner JT, Goshtabi A, Curtis K, Myyra E, Kapshai A, Richards J, Franco L, Favre M, Jacobson, J, **Ashton-Miller JA**. A pilot study of resistance exercise targeting the neck in youth athletes. 2016 Sports Concussion Meeting, Chicago, IL, June, 2016
274. Eckner JT, Goshtabi A, Curtis K, Myyra E, Kapshai A, Richards J, Franco L, Favre M, Jacobson, J, **Ashton-Miller JA**. Effect of Resistance Exercise on Neck Muscle Activation Patterns in Youth Athletes: A Pilot Study. American College of Sports Medicine, Boston, June 2016.
275. **Ashton-Miller JA**. Quo Vadis Pelvic Floor Biomechanics? Invited talk. World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018.
276. Masteling M, **Ashton-Miller JA**, Chen LY and DeLancey JOL. On the Female Pubovisceral (Pelvic Floor) Muscle Loads during Activities of Daily Living. World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018.
277. Tracy PV, Wadhvani S, Triebwasser J, Wineman A, Orejuela F, Ramin S, DeLancey JOL, **Ashton-Miller**. Maternal Distal Birth Canal *In Vivo* Viscoelastic Properties and Their Effect on the Predicted Length of Active Second Stage and Levator Ani Tears. World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018.

Book Reviews

Journal of Biomechanics, 1996.

British Journal of Sports Medicine, 2004

British Journal of Sports Medicine, 2005

Government, University or Industrial Reports (non-refereed)

Ashton-Miller JA, Response of Muscle and Tendon to Injury and Overuse. Invited Paper, In: Work-Related Musculoskeletal Disorders. Report, Workshop Summary and Workshop Papers, National Research Council, National Academy Press, Washington, DC, pp. 73-97, 1999.

Ashton-Miller JA, Carroll M, Johnson K, Nathan A, Ball Exit Speed Ratio (BESR), *The Baseball Research Journal*, 32:12-14, 2004.

Ashton-Miller JA, Kassel R, NBA Safety Testing: Waist-band Wearable Safety Testing, Delivered to the National Basketball Association, May 2020.

Citations, New York Times

"An Enduring Measure of Fitness: The Simple Push-Up", Tara Parker Pope, March 11, 2008, <http://www.nytimes.com/2008/03/11/health/nutrition/11well.html>

Grants and Contracts

'Annual dollar costs' are those assigned to Dr. Ashton-Miller either on UM Form 7471 or by awarding agency.

New, Continuing, Pending and Previous Grants and Contracts (title, sponsor, dates, amount, names of principal investigators and/or co-principal investigators, and number of GSRAs supported by grant or contract)

Active Grants

1 RC2 DK122379-01 (DeLancey, Ashton-Miller) 9/01/2019 – 8/31/2024 NIH/NICHD Source Country: USA Annual Directs: \$164,833 "Development of 21st Century Concepts and Tools for Quantifying Urethral Failure Mechanisms that Cause Urinary Incontinence". <u>Goal</u> : To develop four of our inventions into reliable tools for urologists and urogynecologists to better assess urethral function as a precursor to improving the treatment of stress and urge urinary incontinence. Role: MPI	3.00 calendar mos.
P50 NS 123067 [U54] (Albin) NIH/NINCDS Source Country: USA Annual Direct: \$910,000 Total Request: \$11,700,000 "Cholinergic mechanisms of attentional-motor integration and gait dysfunction in Parkinson Disease" Major goal: To understand underlying mechanisms of PD. Role: Co-I	6/1/2021 – 5/31/2026 0.4 calendar mos
20-PAF03320 (Ashton-Miller) Proctor & Gamble, Inc. Source Country: USA Annual Directs: \$34,825 "Further Testing of the Personalized Uroflowmeter" The major goal is to develop insights that will lead to better anti-incontinence products.	6/15/2020 – 6/14/2022 0.36 calendar mos Total Award: \$50,000
No Number (Ashton-Miller) Hologic, Inc. Source Country: USA Annual Directs: \$161,250 "Pelvic Floor Studies H1-2017" Major goals for this research are to identify new therapeutic targets and design novel medical instrumentation for treating pelvic floor dysfunction. Note (1/13/21): NCX currently being negotiated between U-M and Hologic.	1/1/2018 – 12/31/2022 1.36 calendar mos Total Award: \$673,424
No Number (Ashton-Miller) Proctor & Gamble Source Country: USA Annual Directs: \$128,700 "Vaginal Anatomy and Product Interaction Modes"	7/1/2020 – 6/30/2022 0.54 calendar mos Total Award: \$200,722

Major goal of this research is to address knowledge gaps in menstrual tampon function.

No Number (Ashton-Miller) 7/1/2020 – 6/30/2022 0.54 calendar mos
Proctor & Gamble

Source Country: USA

Annual Directs: \$156,000

Total Award: \$244,000

“Development and Testing of the Male iPUF”

Major goal of this research is to develop a wearable real time urine flow measurement system for males.

5 R01 HD093733-02 (Eckner) 7/1/2018 – 6/30/2023 0.60 calendar mos

NIH/NICHD R01

Source Country: USA

Annual Directs: \$496,810

Total Award: \$3,073,013

“How do the neck muscles influence head acceleration during sport-associated impact events in high school athletes?”

Major goals are to study the effect of neck strengthening exercises on the ability of children to control head kinematics during anticipated and unanticipated head impacts

Role: Co-I

4 R44 HD096987 (Ashton-Miller) 9/1/2018 – 3/31/2022 (NCTX) 0.48 calendar mos

NIH/NICHD (SBIR Fast Track [Phase I & II])

Source Country: USA

Annual Directs: \$97,214

Total Award: \$304,371

“A Phase II Clinical Study and Biomechanical Analysis of Maternal Device Efficacy in Shortening Delivery Time and Reducing Pelvic Damage During Childbirth”

Major goal is to use biomechanical modeling to optimize the efficacy of an intervention to dilate (prestretch) the birth canal to 8 cm during the first stage of labor.

Note: A second NCTX will be applied for due to Covid-related delays

5 K08 AR073933 02 (Pour) 5/1/2019 – 6/30/2024 0.12 calendar mos

NIH/NIAMS K08 Grant

Source Country: USA

Annual Directs: \$153,240

Total Award: \$827,495

“Personal Surgical Planning to Avoid Hip Dislocation after Total Hip Arthroplasty: Concept of Functional Safe Zone”

Major goal of this K08 career development award proposal for Dr. Aidin Pour (orthopaedic surgeon) is to determine whether taking into account the range of motion of the hip and spine joints improves the outcome of hip arthroplasty surgery.

Role: Dr. Ashton-Miller is the primary mentor.

P30 AG024824 (Yung) 9/01/2020 – 8/30/2025 1.8 calendar mos

NIH/NIA

Source Country: USA

Annual Directs: \$1,310,709

Total Award: \$7,350,293

Claude D. Pepper Older Americans Independence Center

Major goals of this Center are to foster geriatric and gerontological research in junior faculty. The Biomechanics Core provides consulting, instrumentation and facilities for stimulating this interest.

Role: Leader, Biomechanics Core

2003434 (Esquivel) 3/02/2020 – 3/01/2023 0.48 calendar mos.

NSF

Source Country: USA
Annual Directs: \$60,073

Total Award: \$382,953

“Classification of Injurious Loading Cycles”

Major Goal: To identify the kinematic hallmarks of injurious knee loading cycles in adolescents using inertial measurement units.

Role: Co-I

21-PAF06703 (Zernicke)

5/1/2021 – 8/31/2021

0.04 calendar mos

“NBA-NBPA Wearables Validation Program (Phase 4)

Source Country: USA

Annual Directs: \$53,429

Total Award: \$74,800

Major Goals: Develop the safety standards and rigorous test methods for any wearable device worn by NBA players on or off the court.

Role: Leader, Safety Testing Program

21-PAF05989

10/1/2021 – 9/30/2022

0.13 calendar mos

NSF

Source Country: USA

Annual Direct Costs: \$79,413

FW-HTF “Connectivity and the “Future of Remote Work”

Major Goal: Planning grant for a full proposal to predict the future of remote work.

Role: Co-I

Two Internal Grants from Life Science Initiative I-deas Lab

0.3 calendar mos

Source Country: USA

Annual Direct Costs: \$250,000

University of Michigan

Major Goals: (a) improve “Human Connectivity”, (b) to investigate the role of respiration on music performance using wearable sensors.

Role: Co-I

Previous Grants

Grant Title	New Perspectives on ACL Injuries
Years Inclusive	7/1/2016 – 6/30/2021
Sponsor	NIH
Co-P.I.s	Edward Wojtys, M.D.(Orthopedic Surgery) & James A. Ashton-Miller (Mechanical Engineering)
Effort	1.8 calender months (15% effort)
Research Staff Supported	1 GSRA
Description	To identify the mechanisms underlying the higher rate of ACL injuries in females, so they may be better prevented in the future.
Grant Number:	R43 EB022559-01
Grant Title:	Development of an Active Spinal Orthosis for the
Treatment of	Vertebral and Burst Fractures
Years Inclusive:	01/01/2017 - 06/30/2017

Sponsor: NIH
Co-PIs: Daniel Johnson, Ph.D., **James Ashton-Miller**, PhD.
Effort: 0.3 Calendar Months
Description: See Title

Grant Number ORSP #17-PAF00657
Grant Title Elderly User Experience for Autonomous Vehicles
Years Inclusive 2/15-2017 – 2/14-2019
Sponsor Ford Alliance Project (~\$200,000 TC)
P.I. **Ashton-Miller, J.A.**
Research Staff Supported 2 Staff (partial effort) and 1 GSRA
Description Effects of Age and Disease on the Biomechanics of Vehicle Ingress/Egress

Grant Number P30HS024385-01
Grant Title: “Enhancing Patient Safety through Cognition and Communication: “The M-Safety Lab””
Years Inclusive: 9/30/2015-9/29/2019
PI Saint, Sanjay
Role: Co-I
Effort 2% from 9/1-17
Description: See Title

Grant Number: SCOR P50 HD044406 (Competitive Renewal)
Grant Title: Office of Research on Women’s Health: Specialized Center of Research on Sex and Gender Factors Affecting Women’s Health: Birth, Muscle-Injury and Pelvic Floor Function
Project 1: Pelvic Floor Biomechanics and Birth-Related Injury
Years Inclusive: 9/1/2012 - 8/31/2017 (1-Year NIH Bridging funds applied for)
Sponsor: NIH (~\$5,000,000 total project budget including below)
Role: Co-Investigator (**Project 1 Leader: James A. Ashton-Miller**) - 15% effort
P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
Research staff supported: 2 Staff (partial effort) and 1 GSRA
Description: Project 1 is to understand the mechanisms by which pelvic floor injury occurs during vaginal births.

Grant Number: SCOR P50 HD044406 (Competitive Renewal)
Grant Title: Office of Research on Womens’ Health: Specialized Center of Research on Sex and Gender Factors Affecting Women’s Health: Birth, Muscle-Injury and Pelvic Floor Function
Core B: Measurement and Imaging Core
Years Inclusive: 9/1/2012 - 8/31/2017 (1-Year NIH Bridging funds applied for)

Sponsor: NIH (~\$5,000,000 total project budget including above)
 Role: Co-Investigator (**Core B Leader: James A. Ashton-Miller**) - 8% effort
 P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
 Research staff supported: 1 Staff (partial effort) and 1 GSRA
 Description: To support measurements made in Projects 1-3 of this Specialized Center of Research (SCOR).

Grant Number: 1-K23-HD078502-01A1
 Grant Title: Evaluating the Head's Response to Impulsive Forces in Young Athletes
 Years Inclusive: 9/1-2014 – 8/31-2016 (12 month NCTX)
 Sponsor: NIH
 P.I. Eckner, James T.
 Role: Mentor
 Description: To quantify the kinematics of the head and neck to impulsive loading
 Score: 14 percentile

Grant Number: 1534003
 Grant Title: PFI:BIC Cyber-Physical Service System for 3D-Printing of Adaptive Custom Orthoses
 Sponsor: NSF
 Years Inclusive: 9/1/15 to 8/31/18
 PI Albert Shih (ME)
 Effort: 0.2 Calendar months
 Research Staff supported: 3 GSRA
 Description: See title

Grant Number: 1 R21 HD079908-01A1
 Grant Title: [Interaction of Pre-operative Structural Failure Sites and Operative Repair Strategies in Prolapse: A Biomechanical Modeling Approach](#)
 Years Inclusive: 9/1-2014 -8/30/2016 (1 Yr NCTX)
 Sponsor: NIH
 P.I. : Chen, Luyun
 Role: Co-I & Mentor
 Description: To develop surgical simulation tools for treating genital prolapse.

Grant Title: Digital Manometry: A Disposable, Point of Service Diagnostic Device for Patients with Fecal Incontinence
 Sponsor: U-M Medical School Fast Forward Initiative/MTrac
 Years Inclusive 2/1-16 to 1/31/17 (NCTX)
 PI William Chey (Gastroenterology) & James Ashton-Miller
 Effort 5%
 Research Staff supported: 0.5 GSRA

Description: To de-risk a disposable medical device we invented so that it is ready for licensing to a company in the Gastroenterology space (see title)

Grant Number 1-K99-AR-070903-01
Grant Title Natural Variation in the Growth and Development of the ACL complex
Years Inclusive 6/1/2017 – 5/3-2019
Sponsor NIH
Co-P.I.s James A. Ashton-Miller (Mechanical Engineering)
Effort 1.8 calender months (15% effort)
Research Staff Supported 1 GSRA
Description To identify the mechanisms underlying the higher rate of ACL injuries in females, so they may be better prevented in the future.

Grant Number ORSP #14-PAF00394
Grant Title Accomodating Aging Drivers
Years Inclusive 4/1-2014 – 3/31-2016
Sponsor Ford Alliance Project (~\$200,000 TC)
P.I. **Ashton-Miller, J.A.**
Research Staff Supported 2 Staff (partial effort) and 1 GSRA
Description Effects of Age and Disease on the Biomechanics of Vehicle Ingress/Egress

Grant Number R01 HD 038665-08
Grant Title Mechanisms of Anterior Vaginal Wall Support Failure
Years Inclusive 04/01/2010-03/31/2015
Sponsor NIH (\$1,836,409 total costs)
Role Co-Investigator – 15% effort
P.I. John O.L. DeLancey, M.D. (Obgyn)
Research Staff Supported 1 GSRA
Description To study the mechanisms underlying posterior vaginal wall and pelvic organ prolapse and women with normal support.

Grant Number: P30 AG 024824-03
Grant Title: Older American Independence Center
Years Inclusive: 9/1/2009 - 8/31/2014
Sponsor: NIH/NIA (\$80,661 direct annual)
Role: Co-Investigator – 15% effort
(Biomechanics Core Leader: James A. Ashton-Miller)
P.I.: Jeffrey Halter, Institute of Gerontology, UMHS
Research staff supported: 1 GSRA
Description: To foster and support faculty research in gerontology and geriatrics.

Grant Number 09-PAF03902
Grant Title 3-D Model
Years Inclusive 7/1/2009 - 6/30/2012

Sponsor	American Medical Systems, Inc. (\$527,545 total costs)
P.I.	James A. Ashton-Miller – 5% effort
Research Staff Supported	50% Post-doc and 1 GSRA
Description	Restricted according to sponsor's wishes.
Grant Number:	R01 AG 026569-01
Grant Title:	Neuropathic Gait, Irregular Surfaces and Fall Risk
Years Inclusive:	4/1/2008 – 3/31/2013 (No cost extension)
Sponsor:	NIH (\$1,757,670 total project budget)
Role:	Co-Investigator - 5% effort
P.I.:	James K. Richardson, Department of Physical Medicine and Rehabilitation, UMHS
Research staff supported:	1 GSRA and 1 staff partial effort
Description:	To analyze neuropathic gait of diabetic peripheral neuropathy subjects and use these insights to provide targets for intervention in this high risk population
Grant Number	R01 AR 054821-04
Grant Title	Effect of Compound Impulsive Loading on Relative ACL Strain: Gender Effects
Years Inclusive	7/1/2010 – 6/30/2013 (No cost extension)
Sponsor	NIH
Role	Co-Investigator – 15% effort
P.I.	Edward Wojtys, M.D.(Orthopedic Surgery)
Research Staff Supported	1 GSRA
Description	To identify the mechanisms underlying the higher rate of ACL injuries in females, so they may be better prevented in the future.
Grant Number:	2 T32 HD007422-09
Grant Title:	The University of Michigan Medical Rehabilitation Research Training Program
Years Inclusive:	5/1/2001 - 4/30/2011 (refunded 5/1/2006)
Sponsor:	NIH
Role:	Co-Investigator, Core I Co-Leader - no effort
P.I.:	Denise G. Tate, PM&R, UMHS
Research staff supported:	Graduate Student Trainees
Description:	To foster research training in physicians and scientists in physical medicine and rehabilitation.
Grant Number	ETR 0000
Grant Title	Disposable Finger-Mountable Anorectal Manometry Device: The Beta Prototype
Years Inclusive	3/1/2012 - 2/28/2013
Sponsor	U-M COE Engineering Translational Research Fund (\$6,000)
PI:	James A. Ashton-Miller
Description	See title.

Grant Number: 11-PAF01348
Grant Title: Design and Build, Phase II
Years-Inclusive: 9/1/2010-7/30-2012 (Now under NC Extension)
Sponsor: Kimberley-Clark Corporation (\$186,720 DC)
P.I.: Ashton-Miller, J.A.
Description: Design and build experimental testing apparatus

Grant Number: 13-PAF03411
Grant Title: Pelvic Studies
Years Inclusive: 1/2013 - 12/2013
Sponsor: Boston Scientific Corporation
P.I.: Ashton-Miller (PI)
Decription: Suppressed according to sponsor wishes

Grant Number: K08 AR053152-01A2
Grant Title: Quadriceps Inhibition after ACL Injury: Neuromuscular and Functional Consequences
Years Inclusive: 4/18/2008 – 9/30/2013
Sponsor: NIH NIAMS
Role: Co-Investigator – 0% effort
PI: Riann Palmieri-Smith, Ph.D.,
Goal: This is a career development award that aims to lead to a study of how arthrogenic inhibition contributes to the development of the knee following loss of the anterior cruciate ligament.

Grant Number: SCOR P50 HD044406-04 (Competitive Renewal)
Grant Title: Office of Research on Women's Health: Specialized Center of Research on Sex and Gender Factors Affecting Women's Health: Birth, Muscle-Injury and Pelvic Floor Function
Project 1: Pelvic Floor Biomechanics and Birth-Related Injury
Years Inclusive: 9/1/2007 - 8/31/2012
Sponsor: NIH (\$5,901,803 total project budget including below)
Role: Co-Investigator (**Project 1 Leader: James A. Ashton-Miller**) - 20% effort
P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
Research staff supported: 2 Staff (partial effort) and 1 GSRA
Description: Project 1 is to understand the mechanisms by which pelvic floor injury occurs during vaginal births.

Grant Number: SCOR P50 HD044406-04 (Competitive Renewal)
Grant Title: Office of Research on Womens' Health: Specialized Center of Research on Sex and Gender Factors Affecting Women's Health: Birth, Muscle-Injury and Pelvic Floor Function
Core B: Measurement and Imaging Core
Years Inclusive: 9/1/2007 - 8/31/2012
Sponsor: NIH (\$5,901,803 total project budget including above)

Role: Co-Investigator (**Core B Leader: James A. Ashton-Miller**) - 20% effort
 P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
 Research staff supported: 3 Staff (partial effort) and 3 GSRA's
 Description: To support measurements made in Projects 1-3 of this Specialized Center of Research (SCOR).

Grant Number: 5 T32 HD007422-16
 Grant Title: The University of Michigan Medical Rehabilitation Research Training Program
 Years Inclusive: 09/30/1991-04/30/2011
 Sponsor: NIH-NICHD
 Role: Mentor
 P.I.: Denise G. Tate, M.D.
 Research Staff Supported: None
 Description: The University of Michigan Medical Rehabilitation Research Training Program (UM-MRRTP) proposes to provide two years of research training in medical rehabilitation to post-doctoral fellows in the disciplines of physiatry, psychology, rehabilitation engineering, exercise physiology, neurophysiology and biomechanics and other related fields

Grant Number: 5 R01 AG017104-06
 Grant Title: Functional Status and Menopause Transition
 Years Inclusive: 6/1/2006 – 5/31/2011
 Sponsor: NIH
 Role: Consultant – 0% effort
 PI: Mary-Fran Sowers, Ph.D.
 Goal: To characterize measures of physical functioning in a well-characterized cohort of women transitioning to menopause.

Grant Number: IPA
 Grant Title: IPA Gordon, Mark - Biomechanical Analysis of Leg Press Performance
 Years Inclusive: 1/4/2010 - 8/31/2010
 Sponsor: Veterans Administration (\$28,556 total costs)
 P.I.: James A. Ashton-Miller
 Research Staff Supported: 1 GSRA
 Description: Analysis of experimental data

Grant Number: R01
 Grant Title: Neuromuscular Consequences of Arthrogenic Muscle Inhibition
 Years Inclusive: 12/1/2007 – 6/30/2011
 Sponsor: NIH (\$1,287,773 total project budget)
 Role: Co-Investigator – 3.75% effort
 P.I.: Riann Palmieri-Smith, Division of Kinesiology
 Research staff supported: none
 Description:

Grant Number: R01 AR 054821-01
Grant Title: Effect of Compound Impulsive Loading on ACL Strain
Years Inclusive: 5/11/2007 – 2/28/2010
Sponsor: NIH (\$889,426)
Role: Co-Investigator – 15% effort
PI: Edward M. Wojtys, Orthopaedic Surgery, UMHS
Description: To identify the most likely anterior cruciate ligament failure scenarios in order to provide a better foundation for preventing such injuries in the future.

Grant Number: R01 AG 017104
Grant Title: Functional Status and Menopause Transition
Years Inclusive: 6/13/06 – 6/30/2010
Sponsor: NIH
Role: Mentor – 0% effort
P.I.: Maryfran Sowers, Department of Epidemiology, School of Public Health
Description: The major goals of this project are to characterize measures of physical functioning in a well-characterized cohort of women transitioning to menopause.

Grant Number: 2 R01 HD038665-07
Grant Title: Mechanisms of Anterior Vaginal Wall Support Failure
Years Inclusive: 4/1/2005 – 3/31/2010
Sponsor: NIH (\$132,722 to date; Yrs 3-5 budgets are pending)
Role: Co-Investigator - 10% effort
P.I.: John O. L. DeLancey, Department of Obstetrics and Gynecology, UMHS
Research staff supported: 1 GSRA
Description: To test levator ani muscle structure and function in women with pelvic organ prolapse and women with normal support.

Grant Number: 2008 Pilot #4
Grant Title: Validating a Novel, Clinical Measure of Reaction Time
Years Inclusive: 5/1/2007 – 4/30/2008
Sponsor: U-M Bone and Joint Injury Prevention and Rehabilitation Center.
Role: Co-Investigator – 0% effort
P.I.: James K. Richardson, Department of Physical Medicine & Rehabilitation
Research staff supported: 1 staff (partial effort)

Grant Number: P30 AG 024824-03
Grant Title: Older American Independence Center
Years Inclusive: 9/1/2004 - 8/31/2009
Sponsor: NIH/NIA (\$254,233 to date; Yrs 3-5 budgets are pending)
Role: Co-Investigator – 15% effort
(Biomechanics Core Leader: James A. Ashton-Miller)
P.I.: Jeffrey Halter, Institute of Gerontology, UMHS
Research staff supported: 3 Staff (partial effort) and 1 GSRA
Description: To foster and support faculty research in gerontology and geriatrics.

Grant Number: R01 NR 004007-06
 Grant Title: Urinary Incontinence Prevention: Reducing Birthing Risk
 Years Inclusive: 1/1/2000 - 12/31/2006
 Sponsor: NIH (\$144,004 total award; Yr 1 \$25,775; Yr 2 \$26,463; Yr 3 \$27,165; Yr 4 \$22,554; Yr 5 \$28,817; Yr 6 \$13,230)
 Role: Co-Investigator - 5% effort through 12/31/2005; 0% in 2006
 PI: Carolyn Sampsel, School of Nursing, UMHS
 Research staff supported: 1 Staff (partial effort)
 Description: To examine the effect of different birthing techniques on pelvic floor damage and function.

Grant Number: SCOR P50 HD044406-04
 Grant Title: Office of Research on Women's Health: Specialized Center of Research on Sex and Gender Factors Affecting Women's Health: Birth, Muscle-Injury and Pelvic Floor Function
 Project 1: Pelvic Floor Biomechanics and Birth-Related Injury
 Years Inclusive: 9/25/2002 - 7/31/2007
 Sponsor: NIH (\$1,349,534 award to date including budget below; Yr 1 \$240,099; Yr 2 \$219,419; Yr 3 \$220,866; Yr 4 \$335,102; Yr 5 budget is pending)
 Role: Co-Investigator (Project 1 Leader: James A. Ashton-Miller) - 20% effort
 P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
 Research staff supported: 2 Staff (partial effort) and 1 GSRA
 Description: Project 1 is to understand the mechanisms by which pelvic floor injury occurs during vaginal births. And to support measurements made in Projects 1-3 of this Specialized Center of Research (SCOR).

Grant Number: SCOR P50 HD044406-04
 Grant Title: Office of Research on Womens' Health: Specialized Center of Research on Sex and Gender Factors Affecting Women's Health: Birth, Muscle-Injury and Pelvic Floor Function
 Core B: Measurement and Imaging Core
 Years Inclusive: 9/25/2002 - 7/31/2007
 Sponsor: NIH (\$1,349,534 award to date including budget above; Yr 1 \$232,188; Yr 2 \$228,756; Yr 3 \$237,048; Yr 4 \$335,102; Yr 5 budget is pending)
 Role: Co-Investigator (Core B Leader: James A. Ashton-Miller) - 20% effort
 P.I.: John O.L. DeLancey, Department of Obstetrics and Gynecology, UMHS
 Research staff supported: 3 Staff (partial effort) and 3 GSRA's
 Description: To support measurements made in Projects 1-3 of this Specialized Center of Research (SCOR).

Grant Number: Phase-4
Grant Title: Censored in accordance with sponsor wishes
Years Inclusive: 3/1/2007 – 2/29/2008
Sponsor: Johnson & Johnson Personal Products Worldwide (\$74,826 total budget)
Role: Co-Investigator – 2.5% effort for 3 months
P.I.: John O. L. DeLancey, Department of Obstetrics and Gynecology, UMHS
Research staff supported: 1 Staff (partial effort)
Description: Confidential.

Grant Number: 5 K12 RR001676-07
Grant Title: Michigan Mentored Clinical Scholars Program
Project: Mechanism of Failure in Recurrent Pelvic Organ Prolapse (Hsu)
Years Inclusive: 7/1/2006 – 6/30/2008
Sponsor: NIH
Role: Mentor
PI: David E. Schteingart, Department of Internal Medicine
Research staff supported: none
Description: This grant seeks to evaluate a basic disease model and testing strategies that could lay the foundation for understanding the mechanism of recurrent pelvic organ prolapse.

Grant Number: N/A
Grant Title: Development of Design Interventions for Preventing Falls
Years Inclusive: 2/8/2007 – 9/30/2007
Sponsor: Center to Protect Workers' Rights (\$30,000 total project budget)
Role: Co-Investigator - 0% effort
P.I.: Thomas J. Armstrong, Center for Ergonomics, Biomedical Engineering
Research staff supported: 1 staff (partial effort)
Description: Focused work in ladder design and fall arrest protection..

Grant Number: 1 R21 HD049818-02
Grant Title: Maternal Birth-Related NeuroMuscular Injury and Recovery
Years Inclusive: 5/1/2005 – 4/30/2007
Sponsor: NIH (\$14,723 to date; Yr 3 budget is pending)
Role: Co-Investigator - 2.5% effort
P.I.: Janis M. Miller, School of Nursing & Department of Obstetrics and Gynecology, UMHS
Research staff supported: None
Description: To generate pilot data for an R01 application aimed at testing the relationship between injury type and pelvic floor function.

Grant Number: 1F31 HD 052493-01
Grant Title: Biomechanics of the Cardinal and Uterosacral Ligaments
Years Inclusive: 2/19/2007 – 2/18/2010

Sponsor: NIH (\$149,728)
Role: Sponsor
PI: Violeta Tayeh (GSRA)
Description: The goal of this F31 Ruth L. Kirschstein Minority Predoctoral Student Fellowship Award is to measure the mechanical properties of the uterosacral and cardinal ligaments in situ and in vitro in women with and without pelvic organ prolapsed. Our working hypothesis is that these ligaments provide apical support to the vagina, thereby helping to prevent uterine prolapsed. The constitutive relationships for the tissues will be identified and the results used in a 3-D finite element model designed to evaluate structure-function relationships.

Grant Number: R01 HD 038655
Grant Title: Do Women with Prolapse Have Levator Ani Impairment?
Years Inclusive: 4/1/2000 – 5/31/2005
Sponsor: NIH (\$194,737 total budget)
Role: Co-Investigator – 5% effort
P.I.: John O. L. DeLancey, Department of Obstetrics and Gynecology
Research staff supported: 1 GSRA
Description: To test levator ani muscle (LA) structure and function in women with pelvic organ prolapse and women with normal support.

Grant Number: Phases 1 - 3
Grant Title: Title censored in accordance with sponsor wishes.
Years Inclusive: 9/3/2004 – 9/3/2006
Sponsor: Johnson & Johnson Personal Products Worldwide (\$77,658 total budget)
Role: Co-Investigator – 2 – 7.5%, depending upon stage
P.I.: John O. L. DeLancey, Department of Obstetrics and Gynecology, UMHS
Research staff supported: none
Description: Confidential.

Grant Number: 1 R43 AG 026167-02
Grant Title: A System for Training the Muscles of the Rotator Cuff
Years Inclusive: 9/1/2005 – 2/28/2006
Sponsor: NIH (\$3,850 to U-Michigan)
Role: Biomechanics Expert – 2% effort for 6 months
PI: Neil M. Cole, Bio Logic Engineering, Inc., Dexter, Michigan
Description: Develop a training system for the rotator cuff muscle using a lengthening contraction protocol.

Grant Number: R03 AG 023239-02
Grant Title: Cognitive Impairment Influences Gait in Aging
Years Inclusive: 9/1/2004 - 12/31/2005
Sponsor: NIH (\$18,790)
Role: Investigator - 5% effort
P.I. Bruno J. Giordani, Department of Psychiatry, UMHS
Research staff supported: None

Description: Examine how different cognitive processes affect mobility to better understand the demands that everyday walking places on patients with cognitive impairment, as well as help develop early identification and intervention strategies for those individuals most at risk for falls.

Grant Number: 2R42 DK059039-03 (STTR Phase II)
Grant Title: A System for Measuring Pelvic Muscle Strength in Women\
Years Inclusive: 8/1/2002 - 7/31/2005
Sponsor: NIH-NIDDK (\$189,277 award to date; Yr 1 \$91,243; Yr 2 \$98,034; Yr 3 is no-cost extension year)
Role: Co-Investigator - 5-8% varying effort as project requires
P.I.: Neil M. Cole, Bio Logic Engineering, Inc.
Research staff supported: 3 Staff (partial effort) and 1 GSRA
Description: In this Phase II project, to develop the instrumented speculum patented by Dr. Ashton-Miller into a marketable device for the use by obstetricians, gynecologists, nurses and physical therapists.

Grant Number: GR-354 Michigan Life Sciences Corridor
Grant Title: Improving Muscle Power and Mobility of Elderly Men and Women, Core 3: Biomechanics Research Laboratory
Years Inclusive: 8/01/2002 - 7/31/2005
Sponsor: State of Michigan (\$298,140 total award; Yr 1 \$90,169; Yr 2 \$92,874; Yr 03 \$115,097)
Role: Co-Investigator - 2.5-20% varying effort as project required (Core 3 Leader: James A. Ashton-Miller)
P.I.: Bruce M. Carlson, Institute of Gerontology, UMHS
Research staff supported: 3 Staff (partial effort) and 2 GSRA
Description: To transfer technology from the College of Engineering to Bio Logic Engineering in keeping with the overall goals of the Michigan Life Sciences Corridor Fund Project.

Grant Number: GR-354 Michigan Life Sciences Corridor
Grant Title: Improving Muscle Power and Mobility of Elderly Men and Women, Project 1: Strength and Mobility Testing
Years Inclusive: 8/01/2002 - 7/31/2005
Sponsor: State of Michigan (\$609,693 total award; Yr 1 \$164,035; Yr 2 \$208,579; Yr 03 \$237,079)
Role: Co-Investigator - 2.5-20% varying effort as project required (Project 1 Leader: James A. Ashton-Miller)
P.I.: Bruce Carlson
Research staff supported: 5 Staff (partial effort) and 3 GSRA
Description: To test an intervention designed to improve muscle power output in young and elderly individuals, and to test and design methods for measuring power output.

Grant Number: R01 HD 038655
Grant Title: Do Women with Prolapse Have Levator Ani Impairment?
Years Inclusive: 4/1/2000 – 5/31/2005
Sponsor: NIH (\$194,737 total budget)
Role: Co-Investigator – 5% effort
P.I.: John O. L. DeLancey, Department of Obstetrics and Gynecology
Research staff supported: 1 GSRA
Description: To test levator ani muscle (LA) structure and function in women with pelvic organ prolapse and women with normal support.

Grant Number: R43 AG024668
Grant Title: Wearable Wireless Fall Event Detector (Phase I)
Years Inclusive: 8/15/2004 – 1/31/2005
Sponsor: NIH
Role: Biomechanics Expert – 10% effort for 5 months (9/04-1/05)
P.I.: Pavan K. Namineni (Cybernet Systems Corporation, Ann Arbor)

Research staff supported: none
Description: Subcontracted Biomechanics Expert for this Phase I R43.

Grant Number: 2 P60 AG 008808-16
Grant Title: Claude D. Pepper Older Americans Independence Center: Biomechanics Core
Years Inclusive: 9/1/1999 - 12/31/2004
Sponsor: NIH (\$619,168 total budget)
Role: Biomechanics Core Leader, Executive Committee member
0% effort during no-cost extension year
(15% on renewed P30 AG024824-01)
PI: Jeffrey Halter, Geriatrics Center, UMHS
Research staff supported: 3 Staff (partial effort) and 2 GSRA
Description: To foster interdisciplinary geriatrics research in the faculty.

Grant Number: DRDA 04-0490
Grant Title: ACL Injury Mechanisms
Years Inclusive: 1/1/2004 - 12/31/2004
Sponsor: National Football League Charities
Role: Co-Investigator – 0% effort
P.I.: Ed Wojtys
Research staff supported: 1 GSRA
Description: To identify the direction of knee external impact loading that causes the greatest increase in anterior cruciate ligament strain.

Grant Number: 2P60 AG008808
Grant Title: Claude D. Pepper Older Americans Independence Center: Intervention Development Study (Leader: James K. Richardson)

Years Inclusive: 9/1/1999 - 8/31/2004
Sponsor: NIH (\$143,751 total award; Yr 1 \$46,853; Yr 2 \$48,370; Yr 3 \$48,528)
Role: Co-Investigator - 2.5-10% varying effort as project required
PI: Jeffrey Halter, Geriatric Center, UMMC
Research staff supported: 1 Staff (partial effort) and 1 GSRA
Description: To test an experimental intervention designed to reduce fall risk in patients with peripheral neuropathy.

Grant Number: P01 AG010542
Grant Title: Fundamental Aspect of Mobility in Old Adults
Years Inclusive: 4/1/1998 - 03/31/2004
Sponsor: NIH – Total Award: \$4,451,957
PI: James A. Ashton-Miller – 5-55% varying effort
Description: Basic geriatrics research conducted with co-investigators from Geriatrics, Institute of Gerontology, School of Public Health, Institute for Social Research, University of Michigan Health System.

Grant Number: DRDA 01-3761
Grant Title: ACL Injury Mechanisms
Years Inclusive: 1/1/02-12/31/02
Sponsor: NFL Charities
Role: Mentor - 0% effort
P.I. Edward Wojtys
Description: The major goal of this project is to identify the direction of knee external impact loading that causes the greatest increase in anterior cruciate ligament strain.

Grant Number: 1 R41 DK 59039-01 (STTR Phase I)
Grant Title: A System for Measuring Pelvic Muscle Strength in Women
Years Inclusive: 9/30/2000-8/31/2001
Sponsor: NIH-NIDDK– Total award: \$100,000.
Role: Co-investigator – 5% effort
PI: Neil Cole

Grant Title: The University of Michigan Medical Rehabilitation Research Training Program
Years Inclusive: 6/7/1996 - 4/30/2001
Sponsor: NIH
Annual cost: \$829,696
PI/Co-Investigators: Theodore M. Cole (PM&R), James Ashton-Miller

Grant Number: R42 AG13587-02A1 (STTR Phase II)
Grant Title: A Device for Testing Leg Muscle Power in the Elderly
Years Inclusive: 4/1/1999 - 3/31/2001
Sponsor: NIH-NIA - Total Award: \$403,596.
Role: Co-Investigator – 2.5% effort

PI: Neil M. Cole

 Grant Title: Pain – Modulated Jaw Motor Function
 Years Inclusive: 12/1/1988 - 11/30/1990, 12/15/1990 - 11/30/1992, 8/1/1992 - 3/31/2001
 Sponsor: NIH
 Annual costs: \$134,302, \$87,607, \$91,105, \$646,527, \$516,491
 PI/Co-Investigators: Christian Stohler (Bio & Mat Sci), James Ashton-Miller

 Grant Number: R01 DK 51405
 Grant Title: What Damage Does Vaginal Birth Cause that Results in SUI (Stress Urinary Incontinence)
 Years Inclusive: 2/1/1997 - 1/31/2001
 Sponsor: NIH – Total Award: \$780,944.
 Role: Co-investigator - 5% effort
 Principal Investigator: John DeLancey, Ob/Gyn, UMMC

 Grant Title: Urinary Incontinence Prevention: Reducing Birthing Risk
 Years Inclusive: 6/1/1995 - 3/31/2000
 Sponsor: NIH
 Annual cost: \$98,400
 PI/Co-Investigators: Carolyn Sampsele (SoNursing), James Ashton-Miller

 Grant Title: Biomechanics of Female Stress Urinary Incontinence
 Years Inclusive: 9/30/1993 - 8/31/1999
 Sponsor: NIH
 Annual cost: \$694,662
 Principal Investigator: James Ashton-Miller
 Grant Title: Why Do Women Develop Stress Incontinence with Age
 Years Inclusive: 9/15/1993 - 8/31/1998
 Sponsor: NIH
 Annual cost: \$578,247
 PI/Co-Investigators: John DeLancey (OB-GYN), James Ashton-Miller

 Grant Title: Fundamental Aspects of Mobility in Old Adults (Program Project)
 Years Inclusive: 4/1/1993 - 3/31/1998
 Sponsor: NIH
 Annual cost: \$2,507,229
 PI/Co-Investigators: Albert B. Schultz, James Ashton-Miller

 Grant Title: Fundamental Aspects of Mobility in Old Adults
 Years Inclusive: 6/1/1997 - 3/31/1998
 Sponsor: NIH
 Annual cost: \$317,590
 PI/Co-Investigators: Jeffrey B. Halter (IoG), James Ashton-Miller

 Grant Title: A Device for Testing Leg Muscle Power in the Elderly
 Years Inclusive: 9/30/1996 - 11/30/1997

Sponsor: BioLogic Engineering Inc.
 Annual cost: \$30,127
 PI/Co-Investigators: Neil Cole, James Ashton-Miller

Grant Title: Data Acquisition for Development of an Uteroplacental Interface for the Second – Generation Pregnant Abdomen
 Years Inclusive: 10/21/1996 - 11/21/1997
 Sponsor: General Motors Corp.
 Annual cost: \$45,000
 PI/Co-Investigators: Mark Perlman (OB-GYN, Gen Surg), James Ashton-Miller

Grant Title: The Effect of Intense Athletic Training on the Immature Spine
 Years Inclusive: 7/1/1994 - 6/30/1997
 Sponsor: Orthopaedic Research and Education Foundation
 Annual cost: \$98,263
 PI/Co-Investigators: Edward Wojtys (Ortho), James Ashton-Miller

Grant Title: Regeneration and Transplantation of Skeletal Muscle
 Years Inclusive: 12/1/1991 - 11/30/1994
 Sponsor: NIH
 Annual costs: \$398,548, \$404,469, \$413,180
 PI/Co-Investigators: John Faulkner (IoG), James Ashton-Miller

Grant Title: Michigan Geriatrics Training Center Grant
 Years Inclusive: 9/1/1989 - 8/31/1994
 Sponsor: NIH
 Annual cost: \$66,376
 PI/Co-Investigators: Jeffrey Halter (IoG), James Ashton-Miller

Grant Title: Control of Trunk Equilibrium in Seated Individuals
 Years Inclusive: 4/1/1989 - 3/31/1993
 Sponsor: NIH
 Annual costs: \$140,719, \$140,723, \$151,783
 Principal Investigator: James Ashton-Miller

Grant Title: Biomechanical Studies of Idiopathic Scoliosis
 Years Inclusive: 3/1/1989 - 2/28/1990
 Sponsor: NIH
 Annual cost: \$206,664
 PI/Co-Investigators: Albert Schultz, James Ashton-Miller

Grant Title: The University of Michigan Multipurpose Arthritis Center
 Years Inclusive: 1/1/1989 - 12/31/1989
 Sponsor: NIH
 Annual cost: \$1,202,804
 Co-Investigator: James Ashton-Miller

Grant Title: Biomechanics of the Human Spine

Years Inclusive: 12/1/1988 - 11/30/1989
 Sponsor: NIH
 Annual cost: \$198,901
 PI/Co-Investigators: Albert Schultz, James Ashton-Miller

Grant Title: Muscle Activity in Congenital and Experimental Scoliosis
 Years Inclusive: 8/1/1985 - 7/31/1988
 Sponsor: NIH
 Annual cost: \$107,500
 PI/Co-Investigators: James Ashton-Miller

SERVICE

Chair, Major Committee Assignments at U of M

Present:

Chair, U-M Conflict of Interest Committee	2005-2013
Co-Chair, U-M Biological Safety Task Force	2013-2017
Co-Chair, U-M RCRS Committee	2012-2017
Chair, U-M Data Security Oversight Committee	2014-2017
Chair, U-M M-Healthy Faculty Advisory Committee	2015-2017

Member, Major Committee Assignments at U of M

Present:

Executive Committee, U-M Pepper Older Americans Independence Center	1998-
Executive Committee, Institute of Gerontology	2000-
U-M Institutional Conflict of Interest Committee	2012-
U-M Research Policies Committee	2012-
U-M M-Healthy Faculty Advisory Committee	2013-
U-M M-Healthy Executive Committee	2013-
UMOR Research Faculty Awards Committee	2011-14
UMOR Institutional Biosafety Committee	2012-
UMOR Provost Laboratory Safety Committee	2014
UMOR Laboratory and Research Safety Committee	2015-
UMOR Conflict of Interest Review Committee,	2002-
Conflict of Interest Committee, U-M Medical School	2006-
Graduate Student Admissions Committee,	
Department of Biomedical Engineering	2008-10
Honors & Awards Committee, Mechanical Engineering	2007-
Human Research Coordinating Council, U-M Office of Vice President	
of Research	2007-8
Faculty Search Committee, Rehabilitation Engineering Faculty Position,	
Department of Physical Medicine & Rehabilitation, U-M	2008-9
Internal Advisory Committee, Nathan Shock Center, U-M	2008
Steering Committee, OVPR/ISR Aging Consortium,	
"Planning for a New Age Society 2030"	2010-14
Strategic Planning Committee, Dept of Mechanical Engineering	2010
U-M IRB Council	2012-17
U-M Human Pluripotent Stem Cell Committee	2012-17
U-M Institutional Biosafety Committee	2012-17

U-M Biorepository Governance Committee	2013-17
U-M Office of Human Subject Research Compliance Review Advisory Committee	2013-17
U-M Injury Center Executive Board	2013
UMOR Management Team	2012-17
UMMS Biorepository Executive Committee	2013-17
U-M Laboratory Research Safety Committee	2015-17
U-M Institutional Autonomous Systems Committee	2016-17
U-M Center for Ergonomics Advisory Committee	2016-

Past

Steven Forrest (Vice President for Research) Conflict of Interest Oversight Committee, Office of Vice President of Research	2006-13
U-M OHRCR Review Committee	2012
U-M Institutional Conflict of Interest Committee	2011-12
Honors and Awards Committee, ME	1995-2001
Admissions Committee, Bioengineering Program	1990-93
Curriculum Committee, Bioengineering Program	1990-92
Executive Committee, Bioengineering Program	1992-96
Program Advisor, Biomechanics Graduate Students, Bioengineering Program and Department of Biomedical Engineering	1991-2001
Graduate Committee, Bioengineering Program	1993-96
Honors and Awards Committee, College of Engineering	1995-97
U-M Hospitals Risk Management Committee, Member	1997
Research Scientist Promotion Committee, Space Science	1995
Dissemination Core, U-M Older American Independence Center	1995-1998
Biomechanics Curriculum Working Group, BME	1998
Borenstein Research Scientist Promotion Committee, ME	1998
Executive Committee, Michigan Initiative for Women's Health	1998-99
Executive Committee, Department of Biomedical Engineering (BME)	1996-00
Graduate Education Committee, BME	1996-01
Biomedical Research Council (BMRC), U-M Medical School	1997-01
Mentor, Hartford/AFAR Medical Student Summer Program	1998
PRS/SPRS Definition Committee, College of Engineering	2001
Scientific Misconduct Committee, Office of Vice President of Research	2001
Huggins Research Scientist Promotion Committee, BME	2002-2003
Ma Research Scientist Promotion Committee, ME	2001
Ma Research Scientist Promotion Committee, ME	2004
OVPR (Office of Vice President Research) Unit Assessment Internal Review Committee for U-M Division of Research Development and Administration	2001
OVPR Research Scientist Award Selection Committee	2002
Advisory Committee, U-M Researchers, Developing Centers for Interventions and Services Research	2002
Advisory Committee, U-M ME	2002-03
OVPR Unit Assessment Internal Review Committee for CSCAR (Center for Statistical Consultation and Research)	2006
PRS Representative, Advisory Committee, ME	2001-2003, 2006-2008
Faculty Search Committee, Athletic Training Position, Division of Kinesiology	2006-7
Faculty Search Committee, Biomechanics Position, Division of Kinesiology	2007-8
Advisory Committee, Mechanical Engineering	2007-8
Faculty Search Committee, Director, Sports Injury Prevention Center,	

U-M Medical School	2007
Faculty Search Committee, Rehabilitation Engineer, Department of Physical Medicine and Rehabilitation, U-M Medical School	2008-9

Administrative Duties at U of M

Co-Director, Biomechanics Laboratory, MEAM	1983-98
Director, Biomechanics Research Laboratory, Department of Mechanical Engineering	1999-Present
Chair, OVPR Conflict of Interest Committee, Office of Vice President of Research	2005-2014
Interim Co-Director, Sport Injury Prevention Center, U-M Medical School	2007
Associate Director, Bone & Joint Injury Prevention Center	2008

Service to Government or Professional Organizations

Committees

Member, National Basketball Association Ankle Initiative Steering Committee	2022-
Member, NIH Musculoskeletal Rehabilitation Study Section	2020-24
Member, International Society of Biomechanics 2019 International Advisory Board	2017-9
Member, Coulter Program Oversight Committee, U-M	2017-
Member, NIH/NIAMS ARM K Award Study Section, February & November	2017
Member, GSA Council, Gerontological Society of America	2016-7
Member, HS Executive Committee, Gerontological Society of America	2015-7
Chair, Health Science Section, Gerontological Society of America	2014-5
Chair, NIH ZHD1 DRG H(90) Study Section	2013
Member, Research Committee Chair, Health Sciences Section, Gerontological Society of America	2012
Member, NIH UGPP Study Section (February meeting)	2012
Member, American Society of Safety Engineers Foundation, Res. Committee	2011-
Member, ASTM E06.51.25 (WK 17797) Task Force for Skylight Human Impact Resistance	2009-
Member, Executive Committee, American Society of Biomechanics	2007-8
Member, Awards Committee, American Society of Biomechanics	2004-6
Member, Geriatrics and Rehabilitation Medicine Study Section, Center for Scientific Review, National Institutes of Health	2001-3
Member, Musculoskeletal Rehabilitation Science Study Section, Center for Scientific Review, National Institutes of Health	2003-5
Chair, NIH Study Section ZRG1 MOSS-F (02) telephone conference call	2005
Member, Board of Scientific Counselors, Rehabilitation Medicine Department, National Institutes of Health Clinical Center	2006
Member, Executive Committee, American Society of Biomechanics	2000-2
Member, National Collegiate Athletic Association (NCAA) Baseball Research Panel	1999-
Member, Executive Committee, American Society of Mechanical Engineers	1994-5

Board of Editors:

American Journal of Physical Medicine and Rehabilitation	2006-
Journal of Gerontology: Biological Sciences	2001
Journal of Orthopaedic Research	1992-7
European J. Musculoskeletal Research	1991

Clinical Biomechanics	1994-
Spine	1996-2000
Reviewer	
Age and Ageing	1995-
American Journal of Sports Medicine	2000-
Annals of Biomedical Engineering	2009
Biological Cybernetics	1993-
British Journal of Sports Medicine	2004-
Human Factors	2008
Journal of the American Geriatric Society	2000-
Journal of Biomechanics	1984-
Journal of Biomechanical Eng., American Society of Mechanical Engineers	1985-
Journal of Bone and Joint Surgery	1987-
Journal of Gerontology: Biological Sciences	1998-
Journal of Gerontology: Medical Sciences	1992-
Journal of Gerontology: Psychological Sciences	1995-
Journal of Orthopaedic Research	1987-
Journal of Pediatric Orthopaedics	1984-
Journal of Neurophysiology	1998-
Journal of Neuroscience	2014
Mathematical Biosciences	1990-
Medicine and Science in Sports and Exercise	1996-
New England Journal of Medicine	2011-
Obstetrics & Gynecology	2004-
Spine	1984
University of Manitoba, Faculty of Physical Education and Recreation Studies, Canada	2004
University of Kansas, Kansas City, Development of new Bioengineering Department	2006
Reviewer of Grant Proposals:	
NIH Study Sections – ad-hoc reviewer	2008-12
American Urogynecology Society Fellowships and Pilot Grants	2007 & 8
Austrian Science Fund	2009
Diabetes UK	2010
Netherlands Organization for Scientific Research (NWO), Earth & Life Sciences	2008
National Institutes of Health, Bethesda	2008
Centers for Disease Control, 10 Injury Prevention Research Centers, Atlanta	2008
Medical Research Council (MRC), United Kingdom	2008
Canadian Institute of Health Research (CIHR)	2008
Canada Research Chair Program (NSERC), Canada	2007
NIH Study Sections (see “Committees” above for details)	2004 & 5
Natural Science and Engineering Research Council of Canada (NSERC)	2003 & 4
Irish Health Board	2002
New Zealand Medical Council	2003
Ad-hoc Member, Geriatrics and Rehabilitation Medicine Study Section, NIH	1998-2000
Consultant, National Research Council	1998
Chair, P01 NIH Special Musculoskeletal Study Section	1993
National Institutes of Health, NIDDK	1987-
Swedish Strategic Research Foundation	1998-9

National Institute of Occupational Health
Veterans Administration

1984-
1984-

Other Activities

- Review Committee Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences
2017-2018. (300,000 AED)
- Chair, Nominating
America
Committee 2018 -2021 Chair, Health Sciences Section, Gerontological Society of
America
- Editor-in-Chief
Selection
Committee *Journal of Gerontology: Medical Sciences* (on behalf of the Gerontological
Society of America), June 2016
- Program Chair Gerontological Society of America Annual General Meeting,
Health Sciences Section, 2015
- Symposium Chair *World Congress of Biomechanics*, Singapore, August 2010
Track 2.3 (Impact Biomechanics) Symposium on Falls - Mechanisms,
Injuries and Interventions – organized four 6-paper oral paper sessions
Track 2.10 (Reproductive Biomechanics) Symposium on Birth and the
Female Pelvic Floor - organized one 6-paper session.
- Meeting Chair Organized the *2008 North American Congress on Biomechanics* (NACOB
2008), Ann Arbor, MI, August 5-9, 2008 (<http://www.nacob2008.org/>),
831 registrants from 19 countries, 550 papers, 24 vendors, responsible
for \$280,000 budget.
- Co-Chair, Organizer: Symposium on Issues in Modeling and Control of Musculoskeletal
Systems (Editor), American Society of Mechanical Engineers Dynamic
Systems & Control Division, 1989 Winter Annual Meeting, San Francisco
and 1990 Winter Annual Meeting, Dallas.
- Program Chair: 10th International Conference on Mechanics and Medicine and Biology,
Honolulu, Hawaii, March, 1998
- Co-Leader Enhancing Physical Activity in Healthy and Disabled Older Adults Retreat,
University of Michigan (IOG), May 5-6, 2003.
- Committee Member American Society of Mechanical Engineers Bioengineering Division
Executive Committee, 1992-5

ASTM F04.07.05 Committee on Spinal Implants, 8/89-

Scoliosis Research Society, Terminology Sub-Committee on 3-D
Description of Scoliosis, 1983-5.

National Institute of Diabetes & Digestive & Kidney Diseases Publication (Co-author), Overcoming Bladder Disease, NIH, August 2002.

Section Representative, Gerontological Society of America, Clinical Medicine Fellowship Committee, 2006-2009

ASTM E06.51.25 Plastic Skylight Workgroup (formed to develop new specification and test method standards to protect workers and firefighters from fall-related injuries and deaths from falls through skylights), 2007-

Co-Chair

Ryan Stafford's doctoral dissertation on novel methods for measuring urethral function (Prof. Paul Hodges, Co-Chair), School of Health and Rehabilitation Sciences, University of Queensland, Australia, 2010-12

Advisory Board, BioQ, Inc, Boston, MA.

Invited Speaker (Since 1998 only)

1998 Roundtable on Physical Activity and Aging, American College of Sports Medicine, Cincinnati, 8/19-98.

Position Paper on Biological Responses of Tissues to Stresses: Muscle and Tendon, Workshop on Work-Related Musculoskeletal Injuries: Examining the Research Base, Sponsored by the National Research Council at the National Academy of Sciences, Washington, D.C., August 20-21, 1998.

1999 OBSLUT, Biennial Norwegian Urogynecological Society Workshop on the Pelvic Floor, Oslo, Norway, 11/1999.

Wayne State University Institute of Gerontology Colloquium, Effective Age on Human Obstacle Avoidance, 12/14/99.

Rehabilitation Engineering Society of North America, Biomechanics of Mobility and Fall Arrests In Older Adults, June, 2000.

University of Toledo, OH, Department of Kinesiology, Feb., 2003.

Dept. of Mechanical Engineering, University of Illinois, Urbana-Champaign, February, 2004

Department of Kinesiology, Vrije Universitet, Amsterdam, Holland, June 2004

American Physical Therapist Association, Annual Meeting, Nashville, TN, 2004

Department of Biomedical Engineering, Northwestern University and Rehabilitation Institute of Chicago, IL, 2006

American College of Sports Medicine, Annual Meeting, Cincinnati, 2006

Department of Kinesiology, University of Illinois at Chicago, 2006

Department of Biomedical Engineering, University of Texas, Austin, 2007

Department of Bioengineering, University of Pittsburgh, February, 2007.

Veterans Administration GRECC, Little Rock, Arkansas, March 2007

American College of Sports Medicine, Annual Meeting, Indianapolis, 2008

Department of Biomedical Engineering, Mayo Clinic Foundation, Rochester, MN, October, 2008

International Continence Society, "A Look Beyond the Pelvic Floor - Neuromechanical Factors that Affect Continence and other Pelvic Functions", International Continence Society, Cairo, Egypt, October 20, 2008.

Department of Kinesiology, Simon Fraser University, Burnaby, Vancouver, B.C., Canada, November 2008

Ergonomic Interventions and Research: Preventing Musculoskeletal Workplace Disorders. CME Course jointly sponsored by the University of California San Francisco Center for Occupational & Environmental Health, and the University of Michigan Center for Ergonomics, Oakland, CA, Dec 8-10, 2008.

Keynote speaker, 5th Annual Northwest Biomechanics Symposium, (sponsored in part by the American Society of Biomechanics) Washington State University, Pullman, WA, June 5-6, 2009

Borelli Award Lecture, American Society of Biomechanics, Pennsylvania State University, College Station, PA, August 26-29, 2009.

Distinguished Speaker Series, Departments of Movement Science and Sport Management, University of Windsor, Ontario, Canada, October 23, 2009.

Keynote speaker, Inauguration of the Center for Motor Control, Pennsylvania State University, PA, College Station, October 30, 2009

Departmental Seminar, Department of Physiology, University of Oregon, Eugene, OR, January 15, 2010.

School of Medicine and College of Engineering, Saga University, Japan, March 29-30, 2010

Keynote Speaker, World Congress on Low Back and Pelvic Girdle Pain, Los Angeles, CA, November 9-12, 2010.

Keynote Speaker, An International Perspective on the Built Environment, IDGO Symposium, University of Edinburgh, Scotland, February, 2011

Keynote Speaker, International Urogynecological Society, Lisbon, Portugal, June 2011.

Keynote Speaker, Autumn Meeting, Norwegian Society of Sports Medicine, Oslo, Norway, November, 2011.

Invited Speaker, American Orthopedic Society for Sports Medicine (AOSSM) Annual Meeting, Symposium on the Maturing Athlete, Baltimore, July 15, 2012.

Keynote Speaker, International Conference on Computational and Experimental Biomedical Sciences (ICCEBS 2013) in Ponta Delgada, S Miguel Island, Azores, October 20-22, 2013

Invited Speaker, Biomechanics Workshop, International Urogynecology Association Annual Meeting, Washington, DC, June 2014.

Invited Speaker, World Congress of Biomechanics, Reproductive Science Symposia, Boston, August, 2014.

Keynote Speaker, Nordic Urogynecological Association, Stockholm, January, 2015

Keynote Speaker, Regional American Society of Biomechanics, Akron OH, February, 2015

Plenary (Lissner Award) Lecture, Summer Biomechanics, Bioengineering and BioTransport Conference (SB3C), Snowbird, Utah, June 17-20, 2015.

Keynote Speaker, 16th International Conference on Control, Automation and Systems (ICCAS 2016), "On Human Balance, Locomotion, and Fall-Related Injuries", Gyeongju, South Korea, October, 2016

Invited Speaker, "OBSTRACT: Interpreting the abstraction of tissue regeneration and re-engineering of female pelvic floor disorders in clinical practice", The Royal Society, London, October 16-17, 2017

Keynote Speaker, "Some of the Most Pressing Problems in Pelvic Floor Biomechanics", Society for Pelvic Research, Reno, NV, Dec 2-3, 2017.

Panelist, "A Diversified Approach to Seeking Funding for Your Aging Research", [NIH] Pepper Older Americans Independence Centers Annual Meeting, Arlington, VA, Apr 30 – May 1, 2018.

Invited Speaker, "Quo Vadis Pelvic Floor Biomechanics?", Tissue Regeneration Track, World Congress on Biomechanics, July 1-5, 2018, Dublin, Ireland.

Invited Speaker, "Striated Muscle"(Session 2, Oct. 7) and Panelist "Panel Discussion on Collaboration" (Session 5, Oct. 28), Advancing Basic and Translational Research for Genitourinary Conditions: Female Urethral Function and Failure, National Institute on Diabetes and Digestive Disease and Kidney Workshop, Sept 30 to November 18, 2020

External Examiner on Doctoral Committees Abroad

Oren Tirosh, doctoral dissertation (Mentor: Prof. William Sparrow), Deakin University, Australia, 2002
Mirjam Pijnappels, doctoral dissertation (Mentor: Prof. Jaap van Dieen), Department of Movement Science, Vrije Universiteit, Amsterdam, June, 2004
Fabio Feldman, doctoral dissertation (Mentor: Prof. Steve Robinovitch), Department of Kinesiology, Simon Fraser University, BC, Canada, November, 2008
Hongfa Wu, doctoral dissertation (Mentor, Prof. Janet Ronsky), Department of Mechanical and Materials Engineering, University of Calgary, Canada, April 2010
Xinshan Li, doctoral dissertation, Department of Bioengineering, The University of Auckland, New Zealand, Sept, 2010
Einar Klami Kristianslund, doctoral dissertation, Norwegian School of Sports Sciences, University of Oslo, Norway, November, 2013
Maria Joana Duarte Caetano, doctoral dissertation (Mentor Stephen Lord), University of New South Wales, Australia, 2017.
Xiani Yan, doctoral dissertation in bioengineering, University of Auckland, New Zealand, 2017

Mentor (20%), Doctoral Dissertations Abroad (2010-)

Maria Vila Pouca, doctoral dissertation and Fulbright awardee to study in my laboratory for a year, Mechanical Engineering, University of Porto, Portugal, March 2022.
Ryan Stafford, doctoral dissertation (Co-Mentor: Paul Hodges, 80%), University of Queensland, Australia, 2014.

External Reviewer for Tenure-Track Faculty Promotion to Associate or Full Professorships:

Department of Obstetrics & Gynecology, Dartmouth University, Dartmouth, May, 1999
Department of Bioengineering, University of Pittsburgh, Pittsburgh, September, 2000
Department of Mechanical Engineering, University of Kansas, Lawrence, KS, October 2001.
Department of Kinesiology, Pennsylvania State University, College Station, PA, January 2001
Department of Kinesiology, University of Maryland, September 2004
Department of Kinesiology, University of Manitoba, Canada, Fall 2004.

Department of Mechanical Engineering, Stanford University, CA, November 2004.

Department of Mechanical Engineering, University of Delaware,, February, 2005.

Department of Mechanical Engineering, University of Wisconsin-Madison, March, 2005.

Departments of Kinesiology, and Integrative & Evolutionary Biology, University of Southern California, May, 2005.

Department of Human Physiology, University of Oregon, May, 2005.

Department of Mechanical Engineering, University of Kansas, Lawrence, KS, September, 2005.

Department of Kinesiology, University of Maryland, October, 2005.

Department of Mechanical Engineering, University of Wisconsin-Milwaukee, October 2005

Department of Mechanical and Materials Engineering, Florida International University, October, 2005.

Department of Orthopaedics & Rehabilitation, College of Medicine, University of Vermont, November, 2005.

Department of Physics & Engineering, Elizabethtown College, November, 2005.

Department of Orthopaedics, Brown University Medical School, November, 2005.

Department of Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, November, 2005.

Department of Mechanical Engineering, Virginia Technological Institute, Blacksburg, VA, October 2006

Department of Obstetrics & Gynecology, University of Pittsburgh, PA, 2007

Department of Biomedical Engineering, University of Pittsburgh, Sept, 2007.

Department of Nutrition & Exercise Science, Oregon State University, Corvallis, OR, November 2007

Department of Bioengineering, Cleveland Clinic Foundation, Cleveland, OH, 2007.

Department of Veterinary Comparative Anatomy, Pharmacology and Physiology, Washington State University, 2007.

Department of Mechanical Engineering, University of Illinois, IL, 2008

Department of Biomedical Engineering, Northwestern University, IL, 2008

Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL, January, 2008

School of Engineering Science, Simon Fraser University, 2009

Department of Mechanical Engineering, University of Texas at Austin, 2010.

Department of Orthopedic Surgery, University of Oslo, Norway, 2011

External Reviewer for CHIR-funded Canada Chairs

Walter Herzog, PhD, University of Calgary, Canada, 2008, 2015 (Tier I)

Stephen Robinovitch, Ph.D., Simon Fraser University, 2010 (Tier II).

Stephen Robinovitch, Ph.D., Simon Fraser University, 2012 (Tier I)

External Examiner, Horace H. Rackham Graduate School, U-M

Anna Boonin, Honors Thesis, Department of Psychology, 2003

Nominations for Gerontological Society of America Fellowship Status

Anita P. Myers, PhD, University of Waterloo, Ontario, Department of Health Studies and Gerontology, December, 2004.

Carolyn Sampsel, PhD, U/M Professor Obstetrics and Gynecology, Associate Dean, School of Nursing, February, 2005.

Nominations for American Society of Biomechanics Fellowship Status

Thomas J. Armstrong, PhD, University of Michigan, 2012

Consulting

National Basketball Association	2022
Hologic	2022
Amphora Medical, Inc.	2017
Major League Baseball	2015
Johnson & Johnson, Inc.	2013
Proctor & Gamble, Inc.	2011-
American Medical Systems, Inc.	2009-
Bio-Q, Inc, Boston, MA	2007-
University of Kansas, College of Engineering & School of Medicine	2006
University of Pittsburgh, Department of Medicine, Division of Geriatric Medicine	2006
National Institutes of Health, National Rehabilitation Hospital, Bethesda	2006
Cybernet, Inc., Ann Arbor, MI	2004-
Johnson & Johnson, Inc.	2003-
Irish Medical Research Council	2003
Physical Optics Corp., Los Angeles	2001-2
CREARE Inc., New Hampshire (Inertial measurement units)	2001-
Royal College of Obstetricians and Gynaecologists, London	2001
National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD	2001
National Collegiate Athletic Association, Baseball Research Panel	1999-
Biologic Engineering, Inc., Dexter, MI	1997-
Biomechanics Laboratory, Sophies Minde Ortopedisk Hospital	1982-
University of Oslo, Norway	1990
National Academy of Sciences	1999
SURx, Inc. CA	1998
Swedish Foundation for Strategic Research, Stockholm	1998
National Research Council, Washington, DC	1998
Herman Miller Corp. (Geriatric seating, design)	1985, 2007 & 8
Community Playthings, PA (Elementary school seating, design)	1984

Memberships in Professional Societies

American Institute for Medical and Biological Engineering
American Geriatrics Society
American Society of Biomechanics

American Society of Mechanical Engineers
American Urogynecological Society
Gerontological Society of America
Orthopedic Research Society
Council on Governmental Relations

Past and Current Doctoral/Post-Doctoral Students Mentored/Advised

Past & Current Trainees	Training Level	Training Period	Prior Academic Degree Institution, Year	Title of Research Project	Trainee's Current Position Or Source of Support
Kwon Son	Pre-doc	1984- 1988	MS, Korea Advanced Institute of Science and Technology	Biomechanical Analyses of Weight-Moving Tasks in the Seated Positions	Professor and Chair, Department of Mechanical Engineering, Pusan University, South Korea
Sanggyoo Lee	Pre-doc	1987- 1991	MS, Seoul National University	Biomechanical Analyses of Healthy and Spinal Cord-Injured Subjects Performing Seated Three-Dimensional Tasks with a Manipulandum	Engineer, Dai-Woo Motors, South Korea
Soon Guel Lee	Pre-doc	1989- 1993	MS, KAIST-Korea	Theoretical and Experimental Biomechanical Analyses of the Effects of Age and Peripheral Neuropathy on Unipedal Stance	Professor, Department of Mechanical Engineering, Kyung-Hee University, South Korea
Hsieh-Ching Chen	Pre-doc	1989- 1993	MSE, University of Michigan	Tripping Over Obstacles: Biomechanical Analyses of the Effects of Age and Gender on Obstacle Avoidance	Professor and Chair, Associate Dean, Department of Industrial Engineering, Chaoyang University of Technology, Taiwan
James K. Sprague	Pre-doc	1990- 1994	MSE, University of Akron	The Use of Stepping to Maintain Upright Balance: Biomechanical Analyses in Young and Old Adults	Associate Vice-President, Packer Engineering, Inc., Ann Arbor, MI
Kyu-Jung Kim	Pre-doc	1990- 1994	MSME, KAIST-Korea	Stress Urinary Incontinence: Pelvic Floor Biomechanics	Assistant Professor, University of Wisconsin, Milwaukee

¹University of Michigan Outstanding Dissertation Award, 2000

Faculty Member Past & Current Trainees	Training Level	Training Period	Prior Academic Degree Institution, Year	Title of PhD Dissertation/Post-doctoral Research Project	Trainee's Current Position Or Source of Support
Janis M. Miller	Pre-doc / Nursing	1992- 1996	MS, Loyola University	On Pelvic Floor Muscle Function and Stress Urinary Incontinence: Effects of Posture, Parity and Volitional Control	Associate Professor, School of Nursing and Department of Obstetrics & Gynecology, U-M
Ksenia Kozak	Pre-doc / BME	1995- 1999	MS, University of Michigan	On the Control of Balance During the Performance of a Forward Reach: Effects of Age, Biomechanical and Psychological Factors	Technical Specialist, Ford Motor Co., Biosafety Division, Dearborn, MI
Kurt M. DeGoede	Pre-doc / ME	1996- 2000	MS, Case Western	Arresting Forward Falls With the Upper Extremities: Biomechanical Factors Affecting Impact Forces in Young and Old Humans	Professor and Chair, Department of Engineering and Physics, Elizabethtown College, PA
Paul Moga	Pre-doc / Kinesiology	1996- 2000	DO, Michigan State University	Thoracic Hyperkyphosis: Its Relation to Annual Training Hours, Hamstring Shortness, and Spine Length	Private Practice, Ann Arbor, MI
Darryl G. Thelen		1995- 1999	PhD, University of Michigan	Use of Lower Extremities in Arresting Forward Falls	Assoc. Dean of Engineering, Professor, Department of Mechanical Engineering, University of Wisconsin, Madison
Nina Duan	Post-doc / ME	1995- 1999	PhD, University of Delaware	A Finite Element Analysis of the Female Urethra	Engineer, Ford Motor Co., Dearborn, MI

Faculty Member Past & Current Trainees	Training Level/ Departme nt	Training Period	Prior Academic Degree Institution, Year	Title of Dissertation or Research Project	Trainee's Current Position Or Source of Support
Cecile Smeesters	Post-doc / ME	1999- 2001	PhD, Harvard University, 1999	Measuring Human Hip Power and Its Effect on Arrests of Forward Falls	Professor, Department of Mechanical Engineering, University of Sherbrooke, Canada
Cheng Cao	Pre-doc / ME	1994-1996	MSE, Michigan State University, 1992	Biomechanics of Forward Momentum Arrest When Walking: Age and Gender Differences	Systems Engineer, Chrysler Motor Company, Detroit, MI
Laura A. Wojcik	Pre-doc / ME	1995-1997	MSE, Michigan State University, 1992	Effect of Age and Gender on the Ability to Recover With a Single Step From a Forward Fall	Vice-President, Packer Engineering, Inc. Ann Arbor, MI
Bing-Shiang Yang	Pre-doc / ME	1999-2004	MS, National Taiwan University, 1996	Bipedal Balance on Unstable Surfaces	Professor, National Chiao Tung University, Taiwan
Brian W. Schulz	Pre-doc / ME	1999-2004	B.S., Georgia Tech, 1999	Biomechanical Studies of Protective Stepping in Older Women With and Without Balance impairment	Scientific Program Manager of Rehabilitation Engineering and Prosthetics, Veterans Administration Office of Research and Development
Sibylle B. Thies	Pre-doc / BME	1999-2004	B.S., University of Toledo, OH, 1999	Human Gait on an Irregular Surface: Effects of Age and Neuropathy on Step Variability	Research Fellow, Institute for Health and Social Care Research, University of Salford, Manchester, U.K.
Jia-Hsuan Lo	Pre-doc /ME	1999-2005	B.S., National Taiwan University, Taiwan, 1999	On Minimizing Injury Risk in Forward and Lateral Falls: Effects of Muscle Strength, Movement Strategies, and Age	Systems Engineer, Robotics, Mako Surgical, Inc., Florida
Jaebum Son	Pre-doc / ME	1997-2006	M.S. Pohang University of Science	Unipedal Balance: Biomechanical Analyses of the Effects of Age and Disease	Assistant Professor, Department of Biomedical Engineering, Los Andes University, Colombia

Faculty Member Past & Current Trainees	Training Level/ Depart- ment	Training Period	Prior Academic Degree Institution, Year	Title of Research Project	Trainee's Current Position Or Source of Support
			and Technology, Korea, 1996		
Kuo-Cheng Lien	Pre-doc /ME	2001-2006	B.S., National Taiwan University, 1999	Biomechanical Analyses of the Maternal Pelvic Floor During the Second Stage of Labor	Research Engineer, TSMC, Inc., Taiwan,
Thomas J. Withrow	Pre-doc / BME	2001-2005	B.S., Harvard University, 2001	Anterior Cruciate Ligament Strain: An Investigation of Muscular and Positional Constraints in a Cadaver Impact Model	Assistant Professor of the Practice, Department of Mechanical Engineering, Vanderbilt University, Nashville, TN
Alaa A. Ahmed	Pre-doc / ME	2000-2005	B.S. American University of Cairo, Egypt, 1999	A Theory for Identifying Loss of Balance: Analyses of Control Error and Compensatory Responses in Healthy Adults	Assistant Professor, Department of Integrative Physiology, University of Colorado, Boulder
Alaa A. Ahmed	Post-doc / BME	2005-2006	Ph.D. University of Michigan, 2005	Lengthening contraction training in the elderly	Associate Professor, Department of Integrative Physiology, University of Colorado, Boulder
Jaewon Choi	Pre-doc / IOE	2004-2008	M.S.	3-D model of the human hand	Project Engineer, Delphi, inc., Michigan
Luyun Chen	Pre-doc / BME	2003-2008	B.S., Tsing-hua University, Beijing, China, 2003	Biomechanical Analyses of the Pathomechanics of Cystocele in Women	Associate Research Scientist, U-M, Ann Arbor, MI
Dejun Jing	Pre-doc / ME	2004-2010	B.S., University of Science and Technology, Beijing, China	Experimental and Theoretical Biomechanical Analyses of the Second Stage of Labor	

David B. Lipps	Pre-doc / ME	2007-2012	B.S., Rice University, TX, 2006	The Effect of Gender-Related Differences in Knee Morphology on Peak ACL Strain During Repeated Simulated Pivot Landings: An In Vitro Investigation	Assistant Professor, School of Kinesiology, U-M Ann Arbor.
Mark T. Gordon	Pre-doc / ME	2006-2012	B.S., Calvin College, MI, 2003	On the muscular control of steadiness in the elderly	Associate Prof., California Baptist University
Youkeun Oh	Pre-doc / ME	2006-2012	B.S., Seoul National University, Korea, 2001	Mechanisms of ACL Injuries During 3-D Impact Loading	Associate Professor, Hongik University, South Korea
Hogene Kim	Pre-doc/ BME	2004-2012	B.S., Korea, M.S. Stanford University	Effect of Age and Peripheral Neuropathy on Responses to an Unexpected Underfoot Perturbation during Gait	Research Officer, National Rehabilitation Center, South Korea.
Yunju Lee	Pre-doc / ME	2007-2013	B.S., Pusan National University, Korea, 2002	On the Load-Displacement Behavior of the Tensed Adult Upper Extremity under Impulsive End-Loads: Theoretical and Experimental Studies of Age and Gender Effects	Assistant Professor, Physical Therapy, Western Michigan University.
Jinyong Kim	Pre-doc / ME	2007-2012	B.S., Seoul National University, Korea, 2006	Stereophotogrammetric measurements of fetal head descent in vaginal birth	Research Scientist, Childrens Hospital of Philadelphia.
Hernandez, Manuel E	Pre-doc/ BME	2005-2012	B.S., Cornell University, M.S., University of Michigan	The Effect of Age on the Neuromuscular Control of Stooping, Bending and Crouching in Women	Assistant Professor, Department of Kinesiology and Community Health, University of Illinois, Urban-Champaign, IL.
Luo, Jiajia	Pre-doc/ME	2007-2012	B.S. China	Mechanism of rectocele formation	Assistant Professor, Beijing University, China
Daniel D. Johnson	Pred-doc/ME	2007-2012	B.S. Washington University, St. Louis	Design and Efficacy of a Novel Robotic Thoracopelvic Orthosis in Reducing Lumbar Spine Loading and Muscle Fatigue	Research Investigator, University of Michigan

			M.S., University of Michigan		
Ryan Stafford	Pre-doc	2007-2012	B.S., & M.S. University of Queensland, Australia	Design and testing of a multifunctional urethral catheter	Research Investigator, University of Queensland, Australia
Melanie L. Beaulieu	Pre-doc/ Kinesiology	2009-2014	B.S., & M.S. University of Ottawa	ACL Injury Mechanisms	Post-doctoral Fellow, University of Michigan
Payam Mirshams Shahshahshani	Pre-doc/ ME Post-doc	2012-2019 2019-2022	B.S., Iran	Control of Balance in Humans	UX Research Scientist Google, Inc. Mountain View, CA
Paige V. Tracy	Pre-doc	2014, 2015-17	B.S. University of Minnesota MS Biomedical Engineering, PhD Biomedical Engineering, University of Michigan	Maternal Birth-Related Injury	Research Development Engineer, Medtronic Inc., Minneapolis, MN.
Ali Attari	Pre-doc Post-doc	2008-2012 2012-2014 2014-2020 2020-2022	B.S., Sharif University, Iran M.S.ME, University of Michigan PhD, Mechanical Engineering, University of Michigan University of Michigan	Design of devices for assessing pelvic floor sphincter function.	Research Engineer Medtronic, Boston, MA

PhD Committees Chaired or Co-Chaired

	Student	Dept.	Year	Role	Doctoral Dissertation Title
1	Sara Hopper	BME	2023	Chair	Action Research in Biomedical Engineering
2	Mariana MastelingBME	2022	Chair	Viscoelastic properties of the human birth canal in pregnancy
3	So Young Baek	ME	2022	Chair	Mechanics of ACL Material Fatigue Failure
4	Ali Attari	ME	2020	Chair	Design of devices for assessing pelvic floor sphincter function
5	Payam Shahshahani	ME	2019	Chair	Capacity-Demand Relationships in One-Legged Balance: Biomechanical Analyses
6	Paige Tracy	BME	2017	Chair	On the Prediction of Pelvic Floor Muscle Injury during Vaginal Delivery in Nullipara: Anthropometric and Viscoelastic Biomechanical Analyses
7	Melanie L. Beaulieu	Kinesiology	2014	Chair	On the Fatigue Life of the Human Anterior Cruciate Ligament: Experimental Studies of the Effects of Limited Internal Femoral Rotation and Microscopic Enteseal Anatomy
8	Yunju Lee	ME	2013	Chair	On the Load-Displacement Behavior of the Tensed Adult Upper Extremity under Impulsive End-Loads: Theoretical and Experimental Studies of Age and Gender Effects
9	Jinyong Kim	ME	2012	Co-Chair	On the Mechanism of Levator Ani Muscle Injury During Birth
10	Jiajia Luo	ME	2012	Co-Chair	Biomechanical Analyses of Posterior Vaginal Wall Prolapse: MR Imaging and Computer Modeling Studies
11	Hogene Kim	BME	2012	Co-Chair	Effect of Age and Peripheral Neuropathy on Responses to an Unexpected Underfoot Perturbation during Gait

12	David B. Lipps	BME	2012	Co-Chair	The Effect of Gender-Related Differences in Knee Morphology on Peak ACL Strain During Repeated Simulated Pivot Landings: An In Vitro Investigation
13	Manuel E. Hernandez	BME	2012	Co-Chair	Biomechanical Analyses of Leaning and Downward Reaching Tasks: Importance of Rapid, Targeted Submovements in Young versus Older Women With and Without Stooping, Crouching, or Kneeling Difficulty
14	Daniel D. Johnson	ME	2012	Co-Chair	Efficacy of a Novel Thoracopelvic Orthosis in Reducing Lumbar Spine Loading and Muscle Fatigue in Flexion: A Study with Weighted Garments
15	Mark T. Gordon	ME	2012	Chair	Effect of Age, Elbow Muscle Co-contraction Level, and Elbow Moment Loading Characteristics on Elbow Angle Positional Variability in Postural Tasks
16	You Keun Oh	ME	2011	Co-Chair	On the Mechanisms of Non-Contact ACL Injury during a Simulated Jump Landing: Experimental and Theoretical Analyses.
17	Dejun Jing	ME	2010	Co-Chair	Biomechanics of Vaginal Birth: Theoretical and Experimental Studies
18	Luyun Chen	BME	2008	Co-Chair	Biomechanical Analyses of the Pathomechanics of Cystocele in Women
19	Kuo-Cheng Lien	ME	2006	Co-Chair	Biomechanical Analyses of the Maternal Pelvic Floor During the Second Stage of Labor
20	Jia-Hsuan Lo	ME	2006	Chair	On Minimizing Injury Risk in Forward and Lateral Falls: Effects of Muscle Strength, Movement Strategies, and Age
21	Jaebum Son	ME	2006	Co-Chair	Unipedal Balance: Biomechanical Analyses of the Effects of Age and Disease
22	Alaa Ahmed	BME	2005	Chair	A Theory for Identifying Loss of Balance: Analyses of Control Error

					and Compensatory Responses in Healthy Adults
23	Thomas J. Withrow	BME	2005	Co-Chair	Anterior Cruciate Ligament Strain: An Investigation of Muscular and Positional Constraints in a Cadaver Impact Model
24	Bing-Shiang Yang	ME	2004	Chair	Control of Frontal Plane Balance on a Laterally-Compliant Structure
25	Sibylle B. Thies	BME	2004	Co-Chair	Human Gait on an Irregular Surface: Effects of Age and Neuropathy on Step Variability
26	Brian W. Schulz	BME	2004	Co-Chair	Biomechanical Studies of Protective Stepping in Older Women With and Without Balance impairment
27	Kurt D. DeGoede¹	ME	2000	Chair	Arresting Forward Falls With the Upper Extremities: Biomechanical Factors Affecting Impact Forces in Young and Old Humans
28	Paul J. Moga	Kinesiology	2000	Co-Chair	Thoracic Hyperkyphosis: Its Relation to Annual Training Hours, Hamstring Shortness, and Spine Length
29	Ksenia Kozak	BME	1999	Chair	On the Control of Balance During the Performance of a Forward Reach: Effects of Age, Biomechanical and Psychological Factors
30	Laura Wojcik	ME	1997	Co-Chair	Effect of Age and Gender on the Ability to Recover With a Single Step From a Forward Fall
31	Cheng Cao	ME	1996	Co-Chair	Biomechanics of Forward Momentum Arrest When Walking: Age and Gender Differences
32	Janis M. Miller	Nursing	1996	Co-Chair	On Pelvic Floor Muscle Function and Stress Urinary Incontinence: Effects of Posture, Parity and Volitional Control
33	James K. Sprague	ME	1994	Chair	The Use of Stepping to Maintain Upright Balance: Biomechanical Analyses in Young and Old Adults
34	Kyu-Jung Kim	ME	1994	Co-Chair	Stress Urinary Incontinence: Pelvic Floor Biomechanics
35	Hsieh-Ching Chen	ME	1993	Co-Chair	Tripping Over Obstacles: Biomechanical Analyses of the Effects of Age and Gender on Obstacle Avoidance

36	Sanggyoo Lee	ME	1993	Chair	Biomechanical Analyses of Healthy and Spinal Cord Injured Subjects
37	Soon-Geul Lee	ME	1993	Chair	Performing Seated Three-dimensional Tasks.
					Theoretical and Experimental Biomechanical Analyses of the Effects of Age and Peripheral Neuropathy on Unipedal Stance
38	Kwon Son	ME	1988	Co-Chair	Biomechanical Analyses of Weight-Moving Tasks in the Seated Positions

Current Doctoral Students

	So Young Baek	ME	2022	Chair	Mechanics of ACI Material Fatigue Failure
	Zizheng Zhang	ME	2022	Chair	Mechanisms of Female Incontinence
	Mariana MastelingBME	2022	Chair	Viscoelastic properties of the human birth canal in pregnancy

Member, PhD Committees

Department of Mechanical Engineering

Cain, Steven	2013
Ma, Jinjin	2012
Chang, Chia-Yuan	2009
Gao, Yingxin	2006
King, Kevin	2006
Lee, Ikjoong	2006
Dokeh, Jiro	2005
Lin, Chia-Yin	2004
Park, Sukyung	2002
Bauby, Catherine	1999
Speers, Rosemary	1998
Triano, Jay	1996
Shoval, Shraga	1994
Thelen, Darryl G	1994
Kalnas, Ronald	1993
Gu, Mian Ju	1992
Luchies, Carl W	1991
Tomovic, Mileta M.	1991
Chun, Sam Pyo	1990
Miller, Mark	1990
Chun, Sam Pyo	1990
Wynarksy, George T	1988
Romick-Allen, Richard	1986

Department of Biomedical Engineering

Dickerson, Clark Rutherford	2005
Langenderfer, Joseph	2002
Buhr, Trina Ann	1998
Miller Stephanie	1997
Rascke, Ulrich	1994
Brooks, Susan V.	1992
Butler, Barclay	1992
Kadheresan, Veerechelly A.	1991

Department of Industrial & Operations Engineering

Albert Fu	2020
Young, JG	2010
Seo, Na Jin	2006
Grieshaber, C	2007
Parkinson, Matt	2004
Marshall, Mathew Michael	2002
Reed, Mathew Paul	1998
Nussbaum, Maury Albert	1996
Raschke, Ulrich	1994
Hughes, Richard E.	1992
Buchholz, Brian O	1989

School of Kinesiology

Whitney Wolff	2020
Eunjoo Wang	2013
Smith, Beth	2009
Huang, Min-Hui	2005
Hinderer, Kathleen	2003
Moga, Paul J.	2002

Department of Psychology

Martinez, Shelley H.	2000
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School of Nursing

Miller, Janis M.	1998
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Student Projects Mentored for Academic Credit (1996 thru 2008 only listed)

Graduate ME/BME 590 Independent Research Projects

Campbell, Bradley	2008
Braslow, Andrew	2008

Undergraduate ME/BME 490 Independent Research Projects

Smith, Beth	2008
Johnston, Derek	2008

Friedman, Michael	2008	Maynard, Kelly	2008
Kim, Jinyong	2008	Ravi, Sneha	2008
Tseng, Yi	2007	Ikhani-Pour, Sara	2007
Lee, Yunju	2007	Aurora, Katie	2007
Oh, Youkeun	2006	Cho, Michelle	2007
Roslund, Jeff	2006	Bach, Katie	2006
Battjes, Eric	2006	Isquick, David	2006
Chasteen, Jodi	2006	Wilke, Erin	2006
Hernandez, Manuel	2005	Makhzoum, Fatima	2006
Hinz, Erica	2005	Lawrenchuck, Michael	2005
Kim, Heon-Jeong	2005	Peterson, Carrie	2005
Kim, Hogene	2005	Pang, Chien Wen (Mark)	2005
McIntyre, Erin	2005	Ho, Yung-Hsin (Jonathan)	2004
Shih, Cheng-Wei	2005	Battjes, Eric	2004
Tayeh, Violeta	2005	Finlay, Adam	2003
Mathias, Anne	2004	Tung, Adeline Hsiu Li	2003
Brock, Stephanie	2003	Doyle, Colleen	2002
Case, Lisa	2003	Seamans, John	2002
Chen, Luyun	2003	Barrigar, Fred	2001
Jing, Dejun	2003	Boekstein, Vanessa	2001
Naylor, John P.	2002	Peters, Portia	2001
Alexander, Mykia	2002	Sanchez, Julie	2001
Costa, Elizabeth	2002	Schaltis, Phil	2001
Lien, Kuo-Cheng	2002	Yelian, Samantha	2001
Lo, Jia-Hsuan	2002	Davis, Daniel	2000
Marin, Elena	2002	Aurora, Anita	1999
Meinhart, Peggy	2002	Lohrmeyer, Kendra Dawn	1999
Son, Jaebum	2002	Endo, Mari	1999
Yang, Bing-Shiang	2002	Hunefeld, Ross Allan	1999
Endo, Mari	2001	Rossiter, Dana Alyson	1999
Huang, Min-Hui	2001	Gabourie, Jessica	1998
Kramer, Michelle	2001	Rosaen, Alexander	1998
Lilley, Heather	2001	Hahn, Michelle	1997
McCabe, Glenn	2001	Kerecman, Kimberly	1997
Mooney, Brian	2001	Veerapaneni, Sudha	1997
Roehrig, Jaime	2001	Helber, Matthew	1996
Sadasiwan, Thyag	2001	Jakobs, Kathy	1996
Sanders, Ebony	2001		
Schaelekamp, Laurens	2001		
Schulz, Brian	2001		
Tvaska, Devon	2001		
Withrow, Thomas	2000		
Ahmed, Alaa	2000		
Lavender, Mark	2000		
Aysola, Amit	1999		
Boylan, James P.	1999		
Emanuel, Steven	1999		
Su, Ann	1999		
Schuiling, Kerry	1998		
Wang, Ying-Xiao	1998		
Iyengar, Jyothsna	1997		

Jain, Mukund	1997
Deyer, Timothy	1996
Gutierrez, Elena Marie	1996
Kozak, Ksenia	1996

Short Courses and Workshops

Dr. Ashton-Miller gives annual seminars to the Department of Physical Medicine and Rehabilitation residents on the biomechanics of the spine and age-related effects on human mobility. He gives a BME 500 seminar each year to the graduate students in biomedical engineering, and a seminar every other year to graduate students in IOE 836. He also gives seminars to the Institute of Gerontology, Michigan Initiative for Women's Health, and organizes a weekly seminar for the graduate students he supervises in his laboratory.

Courses Taught at U of M

ME 456 Biomechanics	W 1991
ENG 100 (3 guest lectures)	W 1999
IOE 836 (seminar 10/29 "Human Gait Research with Emphasis on Aging Effects")	F 2002

Other Educational Activities at U-M

ME or BME 450 Senior Design Projects (mentored since 2000)

Rahul S. Anand, Kristi Joi Downing , LaQuette S. Freeman, Melanie M. Leitzel ("Improved Women's Sneoe Shoes")	S 2000
Matthew H. Astridge, Caonstantine D. Hatzis, John D. Newberry, Bradley R. Rockers ("Dual-Axis, Powered, Ceiling Safety Harness System")	S 2000.
Amy L. Alexander, Albert J. Geldres, Jose R. Garcia, Joseph M. Masten Brian S. Pritchard ("Automatic Vertical Safety Harness System")	F 2000
Fred Barrigar, Vanessa Boekstein, Julie Sanchez ("Ceiling Safety Harness Truss")	W 2001
Scott Gallagher, Adam Finlay ("Measuring Knee Power in the Elderly")	F 2001
Daniel Allen, James Bertino, Stephanie Brock, Aimee Constantine Matt Feustel, Darrin Mathis ("Elderly Walker")	F 2001
Diana Fernandez, Prateek Pradhoke, Christopher Irwin, Umang Khanna ("Elbow Extensor Dynamometer")	F 2004
Megan Moore, Cipta Utama, Richard Chiang, Wisit Jirattigalachote ("Reduced Lower Extremity Loading During Overland Walking and Jogging for Exercise")	F2008
Amir Sarvestani, Jake Wolenberg, Lauren Ehardt, Kathryn Maier, Ki-Hong Park, Xiaohu Zhao ("Instrumented Intravaginal Device")	W 2009

Biomechanics Research Laboratory Summer Undergraduate Interns (mentored since 2000)

Grant Kuilik, Patrick Ransford 2017 • Grace Carey 2016 • Kathryn van Ham 2012 & 2013 • Kayla Curtis 2012 • Ryan Holstad 2011 • Patricia Pacheco 2010 • Sarah Napier 2009 • Kelley Maynard, Sarah Ilkhani-Pour 2008 • Derek Johnston, Fatima Mahkzoum 2007 • Fatima Mahkzoum, 2006 • Amy Bicknell, Victoria Campbell, Michael Franklin, Chien Wen Pang, Carrie Peterson, Lisa Winkel 2004 • Tricia Bass 2003 • Colleen Doyer, Anna Fisher, Michael Francis, Beth Lee, Heather Lilley, Maureen Loy, Monica Nelson, Alicia Gehle, Erica Hinz, Stephanie Huang, Zachary Meza, Portia Peters, Kirsten Sasaki, Erin Wilkie, Vinita Bapna, John DeLancey, Ciara Stella, Aimee Summer, Deepak Reddy 2002 • Vanashette Henderson 2001 • James Liao 2000

College of Engineering Sarah Parker Scholars (mentored since 2000)

Erin Kirkpatrick 2008 • Fatima Makhzoum 2006 • Katie Bach 2005 • Lauren Safran 2004 • Tricia Bass 2003 • Portia Peters 2002 • Beth Lee 2001

U-M Medical School Summer Research Interns (mentored, since 2000)

Robert Ottaviani, Brady Vibert 1997 • Mark Milia 1998 • Timothy Deyer 2000

Visiting Professors Hosted on 1-year Sabbaticals (since 2000)

Hiroshi Hashimoto (Japan) 2008
Etsuo Horikawa (Tohoku U, Japan) 2002
Hiroyasu Okuizumi, M.D. (Chuba National Hospital, Japan) 2001

Visiting Physical Therapists (1-Year MS Thesis, Mentor)

Margot Gilsing, P.T. , Vrije Universitet (Kinesiology), Amsterdam, Holland, 1995
Carin vandenBosch, P.T., Vrije Universitet (Kinesiology), Amsterdam, Holland, 1995
Margot Kinds, P.T. Vrije Universitet (Kinesiology), Amsterdam, Holland, 2007
Lara Allet, P.T., University Hospital, Geneva, Switzerland, 2011

Fullbright Scholars Hosted

Mariana Masteling, University of Porto, Portugal, March 1 – September 1, 2016

U-M Tenure-Track Clinicians mentored

Aidin Pour Eslam, M.D., Orthopedic Surgery, K-08 mentee, 2019-
Riann Palmieri-Smith, ATC, Ph.D., School of Kinesiology, K-08 mentee, 2010-2015
James T. Eckner, M.D. U-M Physical Medicine & Rehabilitation, K-12 & LRP Mentee, 2008-ongoing
Christine Morton, M.D., UM- Physical Medicine & Rehabilitation, K-12 Mentee, 2009-2012
Yvonne Hsu, M.D. U-M Obstetrics & Gynecology, K-12 Mentee, 2007-8
Janis M. Miller, RN, CNP U-M School of Nursing & Obstetrics & Gynecology, NIH P60, 1996-
James K. Richardson, M.D., U-M Physical Medicine & Rehabilitation, NIH K23 & R01, 1992-
John O.L. DeLancey, M.D., U-M Obstetrics & Gynecology, NIH R01 and P60, 1990-
Edward M. Wojtys, M.D., U-M Orthopedic Surgery, NIH R01, 1990-

Neil B. Alexander, M.D., U-M Geriatrics & Internal Medicine, NIH K23 & K24, 1988-

Visiting Physicians mentored (1-year stays)

Cornelia Betschart, M.D., University of Zurich, Switzerland, 2013

Vicky Morris, M.D., Geriatrician, London, United Kingdom, 2010

Ralph Tunn, M.D., Obstetrics & Gynecology, University of Berlin, Germany,

Rohna Kearney, M.D., Obstetrics & Gynecology, University of Cambridge, United Kingdom

Meghana Pandit, M.D., Obstetrics & Gynecology, University of Oxford, United Kingdom

Wolfgang Umek, M.D., Obstetrics & Gynecology, University of Vienna, Austria

Danielle Perucchini, M.D., Obstetrics & Gynecology, University of Lucerne, Switzerland.

Harald Steen, M.D., Orthopedic Surgeon, University of Oslo, Norway