# Sandra Janine Shultz PhD, ATC, FNATA, FACSM, FNAK

Work Address: University of North Carolina at Greensboro

1408 Walker Ave

252 HHP Bldg - PO Box 26170

Greensboro, NC 27402 Phone: (336) 334-3207 Fax: (336) 334-3238 E-Mail: sjshultz@uncg.edu

#### **EDUCATION**

University of Virginia May 1999

Doctor of Philosophy: Sports Medicine

Dissertation Title: Neuromuscular Response Characteristics in Males and Females Following Knee Perturbation

University of Arizona July 1985

Master of Science: Exercise and Sport Sciences

#### California State University, Fullerton

January 1984

Bachelor of Science: Physical Education; Athletic Training Emphasis

#### **CERTIFICATIONS & LICENSURE**

Certified Athletic Trainer 1984 - Present

National Athletic Trainers' Association - Certification # 08-462 February 27, 1984
Commonwealth of Virginia, Board of Medicine - Certification # 0126000035 October 2001-03
North Carolina Board of Athletic Trainer Examiners — License #0914 October 03 - Present

# Certified Strength and Conditioning Specialist

1989 - 2021

National Strength and Conditioning Association - Certification # 89329

June 1989

#### PROFESSIONAL POSITIONS

#### University of North Carolina at Greensboro - School of Health and Human Sciences

August 2020 - Present

#### Director, Center for Women's Health and Wellness (2020 - )

The mission of the Center for Women's Health and Wellness is to advance the health and wellness of all women and girls through collaborative research, educational programs, and community engagement.

# University of North Carolina at Greensboro - Department of Kinesiology

**August 2002 - Present** 

Professor (2011-Present); Associate Professor (2005-2011); Assistant Professor (2002-2005)

Department Chair (April 2012-2017)

Director of Graduate Study, Department of Exercise and Sport Science (2005-2011)

Director, Entry Level Master of Science in Athletic Training (2002-2004)

Co-Director, Applied Neuromechanics Research Laboratory (2002-Present)

Tenure track faculty appointment participating in research endeavors and academic programs in the Athletic Training and Applied Neuromechanics specializations. Responsibilities include graduate and undergraduate teaching in qualified areas; advising and mentoring of graduate students on research projects and program of study, chairing and serving on master's theses, doctoral program, and dissertation committees; assist in direction and supervision of the Applied Neuromechanics Research Laboratory; and pursuing external funding and collaboration with other faculty members to support both individual and laboratory research agendas. Filled a variety of administrative roles that are described under service.

#### University of North Carolina at Chapel Hill

**September 2003 – 2011** 

#### Adjunct Assistant Professor

Participating on master's thesis and doctoral dissertation committees in the Sports Medicine and Athletic Training specialization.

# University of Virginia June 1998 – 2003

## Adjunct Assistant Professor

*July 2002 – August 2003* 

Adjunct faculty appointment to complete ongoing academic advising and research endeavors in the Sports Medicine and Athletic Training Specialization.

#### Research Assistant Professor

June 2000 – July 2002

Interim Coordinator, Graduate Programs in Athletic Training and Sports Medicine Director, Strength and Balance Laboratory, General Clinical Research Center

July 2001 – July 2002 September 2001 – July 2002

Faculty appointment participating in research endeavors and academic programs in the Sports Medicine and Athletic Training Specialization. Responsibilities included: coordinator of NATA Accredited Graduate Program in Athletic Training (2001-02); classroom instruction at both graduate and undergraduate levels in qualified areas; advising and mentoring graduate students on research projects and program of study by chairing and serving on master's theses, doctoral program and dissertation committees; direction and supervision of the Sports Medicine and Athletic Training Research Laboratory; and pursuing external funding and collaboration with other faculty members to support both individual and sports medicine laboratory research agendas.

Research Associate

June 1999 - June 2000

Responsibilities included teaching graduate and undergraduate courses in the Sports Medicine and Athletic Training program areas, serving on doctoral dissertation and master's thesis committees, grant writing, daily operation, and maintenance of the Sports Medicine / Athletic Training Research Laboratory, and assisting with on going research projects.

# Graduate Research Assistant

June 1998 - May 1999

Responsible for daily operation and maintenance of the Sports Medicine / Athletic Training Research Laboratory. Assist faculty members, doctoral and master's students with on going research projects.

#### Blue Ridge School, Virginia

August 1996 - June 1998

#### Head Athletic Trainer

Responsible for care, prevention, treatment, and rehabilitation of athletic injuries for all athletic teams. Consulting with coaches on sport specific conditioning programs. Responsible for budget and ordering.

# University of California, Los Angeles

September 1991 - September 1996

Associate Director of Athletic Training and Rehabilitative Services Head Athletic Trainer: Women's Intercollegiate Athletics

Responsible for coordinating medical care for NCAA Division I women's intercollegiate athletic teams including preseason screening, prevention, treatment, and rehabilitation. Primary Coverage of Women's Basketball, Volleyball, Softball and M & W Cross Country. Assisted with Football. Director, UCLA Student Athletic Training Internship Program. Other administrative responsibilities included staff scheduling, budget and ordering, coordination of NCAA regional and national tournaments and championship events.

# **TRACC Sports Medicine, Inc.**

July 1985 - September 1991

#### **Assistant Director**

A combined physical therapy and conditioning center. Experienced in working with physical therapy patients, general population, recreational athletes, junior national athletes, elite and professional athletes. Responsible for consultation and development of rehabilitation, conditioning, and sport specific training programs for clients of all ages. Provided treatment to aid in injury rehabilitation to physical therapy clients. Provided athletic training services and coverage for sponsored and contracted athletic events. Administrative responsibilities included direction and scheduling of staff, specialty programs administration, facility promotions, equipment ordering and maintenance, development of staff policies and procedures.

#### **SCHOLARSHIP**

#### **Grants and Contracts Awarded**

#### NC IDEA – Business Development Support (David Wyrick, PI)

11/01/22 - Present

"Design and Development of Commercial Ready Instrumented Knee Arthrometer"

Project Principal Investigator (\$10,000)

Aim: The purpose of the NC Idea Next Steps funding is to promote the furthering of commercial development of intellectual property in North Carolina. For this project, funding was received to partner with Patricia Henderson (business consultant) and Augie Diana (SBIR consultant) to plan a funding pathway for continued commercial development of a prototype instrumented knee arthrometer.

#### UNCG – HHS Office of Research-Related Training Initiative

10/20/22 - 10/21/22

"CWHW Fall Scholarly Workshop with Community Engaged Scholar Sonyia Richardson"

Role: Principal Investigator (\$2500)

NIAMS – NRSA Post Doctoral Fellowship (1F32AR081708 - 01 PI: Birchmeier, Thomas B) August 2022-Present "The Effects of Vibration on Quadriceps Function and Landing Biomechanics in Individuals with Anterior Cruciate Ligament Reconstruction"

Role: Collaborating Mentor

<u>Aims</u>: To develop Dr. Birchmeier's skills in clinical trial management, neuromuscular functional assessment, and statistical analyses, this project will assess the effects of Vibration rehabilitation (WBV and LMV) versus Standard rehabilitation on quadriceps neuromuscular function, landing biomechanics, and the likelihood of meeting RTPA criteria

# UNCG - HHS School of Health and Human Sciences Faculty Research Grant

04/01/22 - 08/31/23

"Maturity Status at the Time of ACL Injury: A Multi-center Pilot Study

Role: Co-PI with RJ Schmitz (\$10,000)

Aims: To partner with orthopedic clinics to assess stage of pubertal development (Tanner Stage, estimated APHV, onset of menarche, skeletal age) at the time of ACL injury.

#### NC IDEA - Next Steps Grant (David Wyrick, PI)

03/29/22 - 08/31/22

"Design and Development of Commercial Ready Instrumented Knee Arthrometer" Project Principal Investigator (\$5,000)

Aim: The purpose of the NC Idea Next Steps funding is to promote the furthering of commercial development of intellectual property in North Carolina. For this project, funding was received to partner with Tiny Tank LLC and Spectacular LLC to plan a development pathway to advance a prototype instrumented knee arthrometer toward a more commercial ready prototype.

# UNCG - HHS Office of Research-Related Training Initiative

10/14/21 - 10/15/21

"CWHW Fall Scholarly Workshop: Tips and Strategies for Successful Clinical Trials"

Role: Principal Investigator (\$1,678)

#### North Carolina Biotechnology Center – Translational Research Grant

03/01/21 - 9/31/22

"Optimization of a Precision Measurement Solution for a Tri-Axial Knee Arthrometer" Principal Investigator (\$106,000)

<u>Aim</u>: To develop and optimize a measurement system that will be integrated into a mechanical prototype knee arthrometer to obtain accurate and reproducible measures of knee joint laxity reflective of true bone (joint) motion

# National Science Foundation National I-Corps<sup>TM</sup> Program

01/01/21 - 06/31/22

<u>SJ Shultz</u>; <u>Team Principal Investigator</u> (Entrepreneurial Leads - BR Bacon, HR Holden; Technical Lead – SJ Shultz; Industry Mentor - Robert Koshinskie); \$50,000.

Aim: To receive entrepreneurial training and conduct customer discovery research for an innovative knee support for the prevention of knee laxity.

UNCG Safrit Award 2020-2021

"A Measurement Solution for Assessing Anterior-Posterior Tibial Motion during Arthrometer Testing" Co-Principal Investigator with RJ Schmitz, University of North Carolina at Greensboro. \$8,000

# National Science Foundation Regional I-Corps<sup>TM</sup> Program

Fall 2020

SJ Shultz; Team Principal Investigator (Entrepreneurial Leads - BR Bacon, HR Holden, K Fox; Technical Leads - SJ Shultz, RJ Schmitz, D LaJeunesse; Industry Mentor - Robert Koshinskie); \$3,000-\$5,000.

Aim: To conduct customer discovery research for an innovative knee support for the prevention of knee laxity. I-Corps<sup>TM</sup> Program - UNCG + NCAT were awarded a 5-year, \$500,000 NSF grant to become established as an I-Corps Site (October 2017-2022). The NSF Innovation Corps (I-Corps<sup>TM</sup>) helps prepare scientists and engineers to extend their focus beyond the university laboratory and accelerates the transition of basic-research towards commercialization. The Program features a 5-week Short-Course that trains research teams on Lean Launchpad methodology.

#### North Carolina Biotechnology Center - Biotechnology Innovation Grant

08/01/18 - 03/31/21

"Early Prototype Development and Optimization of a Clinical Knee Arthrometer" Principal Investigator (\$100,000)

<u>Aim</u>: to build a Phase I prototype of an automated, clinical knee joint arthrometer to accurately and consistently measure knee laxity in 3 planes of motion in less than five minutes with minimal training

#### North Carolina Biotechnology Center

02/14/19 - 05/16/19

Biotechnology Meeting Grant for "ACL Research Retreat VIII: March 14-16, 2019"

SJ Shultz; Co-Investigator (RJ Schmitz Principal Investigator) (\$7,682)

Aim: A national meeting to promote information sharing and personal interaction among clinicians and scholars to advance the understanding and application of biotechnology to ACL injury and prevention. A secondary aim was to focus national and international attention on the North Carolina scientific communities.

# **UNCG Giant Steps Seed Grant**

2018-2019

"Tr-Axial Knee Laxity Measurement Solutions"

Principal Investigator (\$25,000)

<u>Aim</u>: To leverage 20 years of laboratory experience in the measurement of tri-planar knee laxity to develop a cost-effective and clinically assessible device to measure knee laxity in 3 planes of motion. The objective of this proposal is to solve two mechanical measurement solutions in preparation for prototype development.

# **UNCG Giant Steps Seed Grant**

2018-2019

"Health Girls Initiative"

Co- Investigator (\$25,000) (Calkins S and Wideman L, Co-PIs)

<u>Aim</u>: To plan and submit an inter-disciplinary longitudinal study of health risks in adolescent girls in Guilford County. The project engages a well-funded team of investigators from 7 different disciplines on campus to address biological, psychological, and social processes in a single cohort.

# National Science Foundation Regional I-Corps<sup>TM</sup> Program

Fall 2017

<u>SJ Shultz</u>; <u>Team Principal Investigator</u> (Entrepreneurial Leads; Elvis Foli and James Coppock – Industry Sponsor/Advisor; Robert Koshinskie); \$3,000-\$5,000.

Aim: To move forward commercialization of a knee laxity device.

I-Corps<sup>TM</sup> Program - UNCG + NCAT were awarded a 5-year, \$500,000 NSF grant to become established as an I-Corps Site (October 2017-2022). The NSF Innovation Corps (I-Corps<sup>TM</sup>) helps prepare scientists and engineers to extend their focus beyond the university laboratory and accelerates the transition of basic-research towards commercialization. The Program features a 5-week Short-Course that trains research teams on Lean Launchpad methodology. Teams consist of a student Entrepreneur Lead (EL), faculty Primary Investigator (PI) and Industry Sponsor. Each teams receives "mini grants" up to \$10,000 to fund their customer discovery process, prototyping, and other seed expenses the team.

# UNCG Strategic Plan Seed Grant

January 2017 – December 2018

"LEAP Forward: Common Goals and Common Measures"

Co-Principal Investigator with Emily Janke (\$25,000)

<u>Aim</u>: to work with community agencies to advance a common agenda with common goals and common measures so that the community, including UNCG faculty, staff, and students, can more closely align their programs, policies, research, and educational activities to have the greatest collective impact on health outcomes associated with lifetime eating and physical activity practices in our community

#### **UNCG Regular Faculty Grant**

January 2017 - June 2018

"The Effect of Exercise and Ligament Quality on Knee Laxity Variability Across the Menstrual Cycle" Co-Principal Investigator with RJ Schmitz and L Wideman, \$8,500.

<u>Aim</u>: To examine the magnitude of knee laxity changes in response to exercise and determine if they are correlated with knee laxity changes across the menstrual cycle and the quality of the ligament as determined by MRI.

# Department of Kinesiology Faculty Summer Pilot Grants

May 2015 - December 2016

"Associations between Relaxin and Knee Laxity Profiles in Eumenorrheic Women" Principal Investigator (L. Wideman, Co-Principal Investigator), \$5,000

#### UNCG HHS Research Excellence Grant

July 2015-Dec 2016

"Associations between Relaxin and Knee Laxity Profiles in Eumenorrheic Women"

S.J. Shultz; Co-Principal Investigator with Laurie Wideman

<u>Aim</u>: To examine the extent to which relaxin levels are associated with ABS<sub>LAX</sub> and CYC<sub>LAX</sub> in physically active eumenorrheic women, after controlling for sex hormone levels; and to better characterize through serial measures the individual variability in serum relaxin profiles in active, eumenorrheic females.

University of North Carolina at Greensboro \$5,000

#### NIH - National Institute of Arthritis and Musculoskeletal and Skin Diseases (R01 AR050421)

2007-2013

"A Case-Control Study of ACL Injury Risk Factors" (Consultant)

S.J. Shultz; Consultant

University of Vermont (B.D. Beynnon, Principal Investigator), 1,480,000

#### UNCG Regular Faculty Grant

Jan 2012-June 2013

"The effect of long-term strengthening on frontal plane knee laxity in older adults with osteoarthritis"

S.J. Shultz; Principal Investigator

<u>Aim</u>: To compare the effects of high-intensity strength training, low-intensity strength training, and attention control on frontal plane knee joint laxity.

#### UNCG Summer Excellence Research Award

Summer 2012

"The effect of long-term strengthening on frontal plane knee laxity in older adults with osteoarthritis"

S.J. Shultz; Principal Investigator

<u>Aim</u>: Using the project stated, develop experience in clinical trials research through collaborations with Dr. Steve Messier and Dr. Paul Devita. The goal is to build expertise and pilot data towards a future clinical trial research grant submission.

# UNCG School of HHP Office of Research

Summer 2011

# **Summer Scholarship Award**

S.J. Shultz; Principal Investigator

<u>Aim</u>: To develop a manuscript on the relationships between serum sex hormones, serum collagen markers and anterior knee joint laxity.

NFL Charities Grant 2010-2011

"The Effects of Exercise Induced Increases in Knee Laxity on Knee Joint Biomechanics"

S.J. Shultz; Principal Investigator (10% Effort); University of North Carolina at Greensboro; \$125,000

<u>Aim</u>: To characterize the effects of exercise induced increases in knee laxity on weight bearing knee biomechanics via serial measures before, during and following a prolonged, intermittent exercise protocol that simulates a soccer match.

Samara Innovations, Inc 2010-2011

"Performance and Biomechanical Testing of a Specialized Compression Short"

S.J. Shultz; Principal Investigator; \$55,750 (Fee or Service Contract)

<u>Aim</u>: To compare a specialized compression short to a standard compression short on functional performance (sprint speed, jump height and distance, balance) and 3-D joint biomechanics during a drop jump and single leg squat.

# NIH – National Institute of Arthritis and Musculoskeletal and Skin Diseases (3R01AR053172-03S1) 2009-2010 Administrative Supplement "Sex Hormone Mediated Knee Laxity and Knee Stability"

S.J. Shultz; Principal Investigator (10% Effort); \$105,000

<u>Aim</u>: To identify through advance statistical methods individual laxity profiles and individual landing and lower extremity perturbation profiles (joint motions and forces) and determine the laxity profile(s) that are most predictive of at-risk knee biomechanical profiles.

# NIH – National Institute of Arthritis and Musculoskeletal and Skin Diseases (RO1-AR053172)

2006-2010

"Sex Hormone Mediated Knee Laxity and Knee Stability"

S.J. Shultz; Principal Investigator (50% Effort)

University of North Carolina at Greensboro \$1,037,210

UNCG Safrit Award 2008 - 2009

"Changes in Serum Collagen Marker Levels Across the Menstrual Cycle"

Co-Principal Investigator with L. Wideman, University of North Carolina at Greensboro. \$3,000

# NIH – National Institute of Arthritis and Musculoskeletal and Skin Diseases (3R01AR053172 - 01A1W1) 2007

"Sex Hormone Mediated Knee Laxity and Knee Stability"; Minority Supplement to Promote Diversity in Health-Related Research (Michael Leonard-Garner, Undergraduate Student)

S.J. Shultz; Principal Investigator (50% Effort)

University of North Carolina at Greensboro \$15,337

#### **UNCG Regular Faculty Grant**

2007 - 2008

"Changes in Serum Collagen Marker Levels Across the Menstrual Cycle"

Co-Principal Investigator with L. Wideman, University of North Carolina at Greensboro. \$5,000

Faculty Grant 2005-2006

"Pilot Data for a Prospective Study of ACL Injury Risk Factors During Skeletal Maturation"

S.J. Shultz; Co-Principal Investigator with RJ Schmitz, University of North Carolina at Greensboro. \$10,000

# NATA Ethnic Diversity Advisory Council

2005-2006

"Summer Research Assistantships for Ethnically Diverse Undergraduate Students"

Co-Principal Investigator with AD Nguyen; University of North Carolina at Greensboro. \$7,000.00

# National Federation of State High School Athletics Associations

2004-2005

"Health and Safety Issues in High School Athletics"

Project Coordinator, University of North Carolina at Greensboro

Phase III continuation of previously funded project to develop the 3<sup>rd</sup> edition of the National Federation of State High School Association's Sports Medicine Handbook. \$9,994.00

# Warner / Fermaturo and KCOM Board of Trustees

2003-2005

"Gender Differences in Neuromuscular Response Characteristics Between Prepubescent Boys and Girls Following a Knee Perturbation". SJ Shultz; Consultant

Principal Investigator: Tamara C. Valovich, Arizona School of Health Sciences. \$3,985.

Faculty Grant 2003-2005

"Kinematic Analysis of Functional Knee Stability Following a Lower Extremity Perturbation"

S.J. Shultz; Co-Principal Investigator with RJ Schmitz, University of North Carolina at Greensboro. \$11,550

New Faculty Grant 2002- 2003

"Effect of Knee Joint Displacement and Load on Neuromuscular Reflex Behavior: A Reliability and Validity Study" Principal Investigator, University of North Carolina at Greensboro. \$5,000

# National Institutes of Health - General Clinical Research Center Grant # MO1 RR 00847-28

2001 - 2002

The major goal of this project is to make available to medical scientists the resources that are necessary for the conduct of clinical research.

S.J. Shultz; Director, Strength & Balance Laboratory (15% Effort), University of Virginia (Principal Investigator: Robert M. Carey). \$3,850,701 (Direct)

#### NIH – National Institute of Arthritis and Musculoskeletal and Skin Diseases (R03-AR47178)

2000 - 2004

"Gender, Sex Specific Hormones and Anterior Cruciate Ligament Compliance"

S.J. Shultz; Co-Principal Investigator and Project Coordinator (25% Effort)

University of Virginia (Years 1&2), University of North Carolina at Greensboro (Year 3; no cost extension Year 4) (Principal Investigator; David H. Perrin). \$222,000

#### National Federation of State High School Associations

2000 - 2002

Phase II continuation of previously funded project to develop a National Federation of State High School Association's Sports Medicine Handbook. S.J. Shultz; Principal Investigator (5% Effort), University of Virginia. \$12,548.39

#### Summer Grant Writing Award

Summer 2001

Internal award to prepare a research grant proposal to investigate the effects of knee joint displacement and load on neuromuscular reflex behavior (Incorporated into R01 Proposal). S.J. Shultz; Principal Investigator, University of Virginia. \$5,000.00

# Summer Grant Writing Award Summer 2000 Internal award to prepare a research grant proposal to compare neuromuscular response strategies, kinematics and ground contact forces in males and females during functional perturbations and landing maneuvers. (Incorporated into R01 Proposal) S.J. Shultz; Principal Investigator, University of Virginia. \$5,000.00 National Athletic Trainers' Association Research and Education Foundation 2000 - 2003"Effect of Lower Extremity Limb Alignment on Neuromuscular Activation Patterns" S.J. Shultz; Co-Principal Investigator with David H. Perrin; University of Virginia. \$35, 207.00 National Federation of State High School Associations *1999 – 2000* Collection and Analysis of Information on Current Sports Medicine Issues for Development of a National Association Sports Medicine Handbook. S.J. Shultz; Principal Investigator, University of Virginia. \$12,940.00 1997 - 1999 National Athletic Trainers' Association Research and Education Foundation "Neuromuscular Response Characteristics in Males and Females Following Knee Perturbation." S.J. Shultz; Co-Principal Investigator with David H. Perrin PhD, ATC; University of Virginia. \$18,811.00 Far West Athletic Trainers' Association 1997 - 1998 "Reliability and Validity of a Functional Perturbation Device to Assess Neuromuscular Response Characteristics." S.J. Shultz; Principal Investigator, University of Virginia. \$750.00 Student Grants Awarded as Faculty Advisor National Athletic Trainers' Association Research and Education Foundation 2016-2017 Doctoral Research Grant: "The influence of hip structure and gluteal activation on dynamic knee valgus" Jennifer Hogg, Principal Investigator; University of North Carolina at Greensboro, \$2,500 American Society for Biomechanics 2015-2016 Doctoral Research Grant: "Relationship between Hamstring Musculo-articular Stiffness and Anterior Cruciate Ligament Loading during Functional Unilateral and Bilateral Landing Tasks" Justin Waxman, Principal Investigator; University of North Carolina at Greensboro, \$2,000 National Athletic Trainers' Association Research and Education Foundation 2013-2014 Doctoral Research Grant: "Comparison of Neuromuscular Control Strategies between Female Dancers and Athletes" Michele Pye, Principal Investigator; University of North Carolina at Greensboro, \$2,500 National Athletic Trainers' Association Research and Education Foundation *2012 – 2013* Doctoral Research Grant: "Associations between Physical Characteristics and Landing Biomechanics in Adolescent Females" Amanda Tritsch, Principal Investigator; University of North Carolina at Greensboro, \$2,500 University of North Carolina Greensboro Summer Research Assistantship 2011 "Postural Balance Differences Between Dancers and Athletes" Summer Research Assistantship Awarded to Michele Pye; \$2,000. University of North Carolina Greensboro Summer Research Assistantship 2011 "Timing of Energy Absorption Strategies During a Drop Jump" Summer Research Assistantship Awarded to Amanda Tritsch; \$2,000. University of North Carolina Greensboro Undergraduate Research Assistant 2010-2011 "Genetic Associations with Knee Joint Laxity" (Co-Faculty Advisor with Vincent Henrich) Interdisciplinary Undergraduate Research Assistant: Richard Bell, \$3,000 National Athletic Trainers' Association Research and Education Foundation 2010 - 2011 Doctoral Research Grant: "The Effect of Relative Lean Body Mass and Strength on Hip, Knee, and Ankle Energy Absorption During Landing" Melissa Montgomery, Principal Investigator; University of North Carolina at Greensboro, \$2,500 University of North Carolina Greensboro Summer Research Assistantship 2010 "Effect of strength and body composition on changes in biomechanics during a soccer match simulation"

Summer Research Assistantship Awarded to Amanda Tritsch; \$2,000.

University of North Carolina Greensboro Undergraduate Research Assistant "The Independent and Interactive Effects of Estrogen, Tension and Heat on Gene Expression in Collagen Fibroblasts" (Co-Faculty Advisor with Vincent Henrich) Interdisciplinary Undergraduate Research Assistant: Richard Bell, \$3,000	2009– 2010
University of North Carolina Greensboro Undergraduate Research Assistant "The effect of Lean Muscle Mass and Strength to Body Weight Measures on Quadriceps Activation Amplitudes During a Drop Jump Landing" Undergraduate Research Assistant: Megan Christiansen, \$2,000	2008– 2009
National Athletic Trainers' Association Research and Education Foundation Doctoral Research Grant: "Relationships Between Lower Extremity Posture and Lower Extremity Kinematics with Posterior Lateral Hip Activation During a Single Leg Squat" AD Nguyen, Principal Investigator; University of North Carolina at Greensboro, \$2,500	2006 – 2007
University of North Carolina Greensboro Undergraduate Research Assistant "The Effect of Dance Training and General Joint Laxity" Undergraduate Research Assistant: Erin Laurie, \$2,000	2006 – 2007
University of North Carolina Greensboro Undergraduate Research Assistant "The Relationship Between Lower Extremity Alignment and Dynamic Knee Valgus During Drop Jump Landings" Undergraduate Research Assistant: Katherine LeMyre, \$2,000	2006 – 2007
National Athletic Trainers' Association Research and Education Foundation  Doctoral Research Grant: "The effect of tibialis anterior fatigue on the tibial internal rotation and eversion during heel-toe landing"  Y Shimokochi, Principal Investigator; University of North Carolina at Greensboro, \$2,500	2005 – 2006
National Athletic Trainers' Association Research and Education Foundation Doctoral Research Grant: "Comparison of Muscle Activation and Knee Joint Stiffness in Female Dancers and Basketball Players During Drop Jumps Landings" JP Ambegoankar, Principal Investigator; University of North Carolina at Greensboro, \$2,500	2005 – 2006
University of North Carolina Greensboro Undergraduate Research Assistant "The Prevalence of General Joint Laxity in a Division I Athletic Population" Undergraduate Research Assistant: Erin Laurie, \$1,500	2005 – 2006

# **Grants Submitted / Pending**

NIH-NIAMS Submitted October 2023

"ACL STORMS: Study of injury Timing and Outcomes Relative to Maturity Status"

Role: Principal Investigator

Aims: To determine the maturity status at the time of ACL injury in young athletes (Aim 1) and determine the extent to which maturity indicators at the time of injury influence and predict short term (2-year) health outcomes (Aims 2 & 3).

# NIH-NIMHD – P50 Mechanism

Submitted August 2023

"UNCG Center for Excellence for Investigator Development and Community Engagement

Role: Other significant contributor (Esther Leerkes, PI)

Aim: To increase the capacity of early career faculty, particularly those from underrepresented and health disparity groups, to engage in rigorous and innovative research to reduce disparities in cardiovascular health outcomes.

# NIH-NIAMS- 1R01AR082947-01

Resubmitted July 2023

"The Impact of Body Composition, Estrogen Exposure and Chronic Inflammation on ACL Risk Development in Perimenarche Females"

Role: Principal Investigator

Aims: To examine the interplay between fat mass contributions to BMI, E2 exposure and chronic inflammation, and longitudinal changes in thigh muscle volume, ACL volume and anterior knee laxity in girls across a key period in pubertal development. [Score: 28th percentile].

#### NIH-NIAMS - 2R01AR071985-06A1

Submitted July 2023

"Role of Hormones on Bundle-Specific ACL Function in the Growing Knee Joint" (PI-MB Fisher, NC State Univ) Role: Co-Investigator (Subcontract PI)

Aims: To determine how the timing and level of sex hormones impact short- and long-term ACL bundle size and function. [Scored: 2<sup>nd</sup> percentile; award notification pending]

NIH-NIAMS F32 Ruth L. Kirschstein National Research Service Award (NRSA) Re-submitted July 2023
Individual Postdoctoral Fellowship Applicant: Ms. Elizabeth Bjornsen, University of North Carolina, Chapel Hill
Role: Collaborating Mentor (2023-2025)

Aims: To characterize gait biomechanics, and determine the association between gait biomechanics, tibiofemoral joint contact forces and patient-reported outcomes (PROs), in pediatric patients with a primary anterior cruciate ligament reconstruction in reference to uninjured pediatric and adult ACLR controls. The proposed F31 is intended to establish the fellow applicant's research line aimed at understanding the biomechanical changes that influence poor long-term outcomes following pediatric ACL injury, with the long-term goal of identifying therapeutic targets to optimize life-long joint health.

#### NFL Research and Innovation Grant

Submitted May 2023

"GMetric Knee Arthrometer with Injury Criterion Software" (Schmitz – PI) Role: Co-Investigator

#### NIH-NIAMS- 1R01AR082947-01

Submitted October 2022

"The Impact of Body Composition, Estrogen Exposure and Chronic Inflammation on ACL Risk Development in Perimenarche Females"

Role: Principal Investigator

Aims: To examine the interplay between fat mass contributions to BMI, E2 exposure and chronic inflammation (C-reactive protein; CRP), and longitudinal changes in thigh muscle volume, ACL volume and anterior knee laxity across a key period in pubertal development.

#### **Patents**

*Multi-Axial Joint Laxity Testing Apparatus and Method* 2<sup>nd</sup> Utility Patent Application Filed and Pending (Application #US17/361,430)

Patent Filed June 2021

Multi-Axial Joint Laxity Testing Apparatus and Method
Patent Pending (International Application #PCT/US19/59648)

Patent Filed November 2019

# **Refereed Journal Articles**

- 1. <u>Shultz SJ, Morrisey MC, Vauhnik, R. Differences in Anterior Knee Laxity in Athletic Females based on Age at Menarche. Knee Surgery, Sports Traumatology, Arthroscopy. (In Review, September 1, 2023)</u>
- 2. Goldenstein SM, Montgomery MM, Schmitz RJ, Wideman L, <u>Shultz SJ</u>. Comparison of Regional Fat Mass and Lean Mass Indices in Males and Females Stratified by BMI. *Medicine and Science in Sport and Exercise (In Review, October 2023*)
- 3. Park-Braswell K, Shultz SJ, Ross SE, Sunnassee D, Grooms DR, Schmitz RJ. The Impact of Differential Knee Laxity on Brain Activation during Passive Knee Loading. *Journal of Orthopaedic Research (In Press; Accepted July 11th*, 2023). DOI: 10.1002/jor.25664
- 4. Cerminaro RM, Gardner H, Shultz SJ, Dollar JM, Wideman L, Duffy DM. The Accuracy of Early Reproductive History and Physical Activity Participation Recall Across Multiple Age Ranges. *Journal of Women's Health*. 2023;32(6)715-722. doi: 10.1089/jwh.2022.0460
- Park-Braswell K, Grooms DR, Shultz SJ, Raisbeck LD, Rhea CK, Schmitz RJ. Sex-specific Brain Function during Single Leg Exercise. *International Journal of Sports Physical Therapy* 2022;17(7):1249-1258. PMID: 36518825; PMCID: PMC9718712; DOI: 10.26603/001c.40367
- 6. Schmitz RJ, Ford KR, Pietrosimone BG, Shultz SJ, Taylor JB. ACL Research Retreat IX Summary Statement: The Pediatric Athlete. *Journal of Athletic Training*. 2022;57(9):990-995. doi: 10.4085/1062-6050-1004.22
- 7. <u>Shultz SJ</u>, Pietrosimone B. Editorial, Pediatric ACL: We Need to do Better for our Most Vulnerable Patients. *Journal of Athletic Training*. 57(9):828-829
- 8. Hogg JA, Waxman JP, <u>Shultz SJ</u>. The Effects of Femoral Anteversion and Passive Hip ROM on Knee Biomechanics and ACL Injury: A systematic Review and Meta-analysis. *Journal of Experimental Orthopaedics* 2022; 5(9):40 doi: 10.1186/s40634-022-00479-7; *PMID*: 35513749; PMCID: PMC9072613

- 9. <u>Shultz SJ</u>, Rodriguez-Cruz M, Casey E, Dompier T, Ford KR, Pietrosimone B, Schmitz RJ, Taylor JB. Developmental Trajectories of ACL Injury Risk Factors in Males and Females between 8 and 18 Years of Age. *Journal of Athletic Training*. 57(9):830-876. 10.4085/1062-6050-0038.22
- Beynnon BD, Tourville TW, <u>Shultz SJ</u>, Vacek PM. Intrinsic Risk Factors for First-Time Non-contact ACL Injury: A Prospective Study of College and High School Athletes. *Journal of Sports Health* 2023;15(3):433-442. PMCID: PMC10170220.
- 11. Kelley EA, Hogg JA, Gao L, Waxman JP, Schmitz RJ, <u>Shultz SJ</u>. Demographic Factors and Instantaneous Lower Extremity Injury Occurrence in a National Collegiate Athletic Association Division I Population. *Journal of Athletic Training*, 2023;58(5):393-400. PMID: 35789230
- 12. Nedelec E, Foli E, Shultz SJ, Swinton PA, Dolan E, Enright K, Piasecki J, Matthews JJ, Sale C, Elliott-Sale KJ. The effect of menstrual cycle phase, menstrual irregularities and hormonal contraceptive use on anterior knee laxity and non-contact anterior cruciate ligament injury occurrence in women: a protocol for a systematic review and meta-analysis. *BMJ Open Sport and Exercise Medicine*. 2021;7(4):e001170. doi:10.1136/bmjsem-2021-001170. PMID: 34745647 PMCID: PMC8559120
- 13. Taylor JB, Wright ES, Waxman JP, Schmitz RJ, Groves JD, Shultz SJ. Ankle Dorsiflexion Range of Motion Impacts Hip and Knee Biomechanics during Drop Vertical Jump Landings in Active Females. *Journal of Sports Health* 2022;14(3):328-335 PMID: 34096370; PMCID: PMC9112706
- 14. <u>Shultz SJ</u>, Valovich McLeod TC. Editorial: The Growing Influence of Female Athletic Training Scholars. *Journal of Athletic Training*. 2021;56(3):1. PMCID: PMC8010925
- 15. <u>Shultz SJ</u>, Schmitz RJ, Kulas AS, Labban JD, Wang HM. Quadriceps Muscle Volume Positively Contributes to ACL Volume. *Journal of Orthopaedic Research* 2022; 40:268-276. PMID: 33506964. DOI: 10.1002/jor.24989
- Hogg JA, Ackerman T, Nguyen AD, Ross SE, Schmitz RJ, Vanrenterghem J, Shultz SJ. The Effects of Gluteal Strength and Activation on the Relationship Between Femoral Alignment and Functional Valgus Collapse during a Single-Leg Landing. *Journal of Sport Rehabilitation* 2021;30(6):942-951 doi: 10.1123/jsr.2019-0528
- 17. Park-Braswell, A, Shultz SJ, Schmitz RJ. A Magnetic Resonance Imaging-Compatible Device to Perform In-Vivo Anterior Knee Joint Loading. *Journal of Sport Rehabilitation*. 2021;30(7): 1102-1105. PMID: 33596546.
- 18. Wang HM, Shultz SJ, Ross SE, Henson RA, Perrin DH, Schmitz RJ. The Relationship of ACL Volume and T2, Relaxation Times to Anterior Knee Laxity. *Orthopaedic Journal of Sports Medicine*. 2021; 9(2):2325967120979986. PMCID: PMC7925955.
- Hogg JA, Vanrenterghem J, Ackerman T, Nguyen AD, Ross SE, Schmitz RJ, <u>Shultz SJ</u>. Temporal Kinematic Differences Throughout Single and Double-Leg Forward Landings. *Journal of Biomechanics*. 2020;99:1-7. https://doi.org/10.1016/j.jbiomech.2019.109559. PMID: 31874706
- 20. Mulrey CR, Shultz SJ, Ford KR, Nguyen AD, Taylor JB. Methods for Identifying Limb Dominance in Adolescent Females Basketball Players: Implications for Clinical and Biomechanical Research. *Clinical Journal of Sports Medicine* 2020; 30:3; 279-281. PMID:29620577
- 21. Shultz SJ, Schmitz RJ. Recent Advances in Primary and Secondary ACL Prevention: What does the Future Hold for Optimizing Knee Joint Function". *Kinesiology Review.* 2020;1(1):72-78
- 22. Wang HM, Shultz SJ, Ross SE, Henson RA, Perrin DH, Kraft RA, Schmitz RJ Wang. ACL Size and Notch Width Between ACLR and Healthy Individuals: A Pilot Study. Sports Health. 2020;12(1):61-65. PMCID: PMC6931175.
- 23. Hogg JA, Schmitz RJ, Shultz SJ. The influence of hip structure on functional valgus collapse during a single-leg forward landing in females. *Journal of Applied Biomechanics* 2019;35(5):370-376 doi: 10.1123/jab.2019-0069.
- Shultz SJ, Schmitz RJ, Cameron KL, Ford KR, Grooms D, Lepley LK, Myer G, Pietrosimone B. ACL Research Retreat VIII Summary Statement: An Update on Injury Risk Identification and Prevention Across the ACL Injury Continuum. *Journal of Athletic Training* 2019;54(9):970–984. PMCID: PMC6795093.
- 25. Anderson T, Shultz SJ, Williams NI, Casey E, Kincaid Z, Wideman L. Capturing Detectable Relaxin Concentrations in Eumenorrheic Non-Pregnant Women. *Women in Sport and Physical Activity Journal* 2019;27, 30-36. doi.org/10.1123/wspaj.2018-0014.
- 26. Anderson T, Wasserman E, Shultz SJ. Anterior Cruciate Ligament Injury Risk by Season Period and Competitive Segment: An Analysis of National Collegiate Athletic Association Injury Surveillance Data. *Journal of Athletic Training*. 2019 Jul;54(7):787-795.PMCID: PMC6709760.
- Wang HM, Shultz SJ, Ross SE, Henson RA, Perrin DH, Kraft RA, Schmitz RJ. Sex Comparisons of In-Vivo ACL Morphology. *Journal of Athletic Training* 2019 May;54(5):513-518. PMCID: PMC6602368

- 28. Taylor JB, Ford KR, Nguyen AD, <u>Shultz SJ</u>. Hip Biomechanics Differ in Responder and Non-Responders to an ACL Injury Prevention Program. *Knee Surgery, Sports Traumatology, and Arthroscopy* 2020; 28(4):1236-1245. PMID: 30259145
- 29. Hogg JA, Schmitz RJ, Nguyen AD, Shultz SJ. Passive Hip Range of Motion Values Across Sex and Sport. *Journal of Athletic Training*. 2019;53(6):560-567. PMC6089031
- 30. Casey E, Anderson T, Wideman L, Schofer F, Shultz SJ. Optimal Paradigms for Measuring Peak Serum Relaxin in Eumenorrheic, Active Females. *Reproductive Medicine International* 2018;1(2):1-8 DOI: 10.23937/RMI-2017/1710006.
- 31. Wittstein MW, Starobin J. Schmitz RJ, <u>Shultz SJ</u>, Haran J, Rhea CK. Cardiac and Gait Rhythms in Healthy Younger and Older Adults during Treadmill Walking Tasks. *Aging Clinical and Experimental Research*. 2019;31(3):367-375 PMID:29777477
- 32. Schmitz RJ, Wang HS, Kraft R, Ross SE, Henson R, Perrin DH, <u>Shultz SJ</u>. Regional Differences in Anterior Cruciate Ligament Imaging Biomarkers: T2 and T2\* Values. *Muscle, Tendon and Ligament Journal*. 2018;8(2):238-245.
- Taylor JB, Ford KR, Schmitz RJ, Ross SE, Ackerman TA, Shultz SJ. Sport-specific biomechanical responses to an ACL injury prevention program: A randomized controlled trial. *Journal of Sports Sciences*. 2018;36(21):2492-2501. PMID 29671383.
- 34. Taylor JB, Ford KR, Schmitz RJ, Ross SE, Ackerman TA, Shultz SJ. A 6-week warm-up injury prevention program results in minimal biomechanical changes during jump landings: a randomized controlled trial. *Knee Surgery, Sports Traumatology and Arthroscopy.* 2018; 26(10):2942-2951. PMID29340745
- 35. Schmitz RJ, Kulas AS, Shultz SJ, Waxman JA, Wang HM, Kraft RA. Relationships of Hamstring Muscle Volumes to Lateral Tibial Slope. *The Knee.* 2017;24(6):1335-1341. PMID:28970127
- Kulas AS, Schmitz RJ, Shultz SJ, Waxman JR, Wang HM, Kraft RA, Partington HS. Bilateral Quadriceps and Hamstrings Muscle Volume Asymmetries in Healthy Individuals. *Journal of Orthopaedic Research*. 2018;36:963-970. PMID:28755488
- 37. Montgomery MM, Tritsch AJ, Cone JR, Henson R, Schmitz RJ, Shultz SJ. The Influence of Lower Extremity Lean Mass on Landing Biomechanics during Prolonged Exercise. *Journal of Athletic Training*. 2017;52(8): 738-746. PMC5561774
- 38. Taylor JB, Ford K, Schmitz RJ, Ross SE, Ackerman TA, Shultz SJ. Biomechanical Differences in Multi-Directional Jump Landings Among Female Basketball and Soccer Players. Journal of Strength and Conditioning Research. 2017;31(11):3034-3045. PMID:29065078.
- 39. Schmitz RJ, Harrison D, Wang H, Shultz SJ. Sagittal Plane Knee Moment during Gait is Related to Knee Cartilage Thickness. *Journal of Athletic Training*. 2017;52(6):560-566. PMC5488846
- Taylor JB, Ford K, Nguyen AD, <u>Shultz SJ</u>. Biomechanical Comparison of Single- and Double-Leg Jump Landings in Sagittal and Frontal Plane. *Orthopaedic Journal of Sports Medicine*. 2016;4(6): 2325967116655158. PMC4954550.
- 41. Vacek PM, Tourville TW, Sturnick DR, Gardner-Morse M, Holterman LA, Smith HC, Slauterbeck J, Hashemi J, Shultz SJ, Johnson RJ, Beynnon BD. Multivariate analysis of the risk factors for first-time non-contact ACL injury Part II: A prospective cohort study of college and high school athletes with a nested, matched case-control analysis. *American Journal of Sports Medicine*. 2016;44(6): 1492-501. PMID:27217522
- 42. Wang HM, Shultz SJ, Schmitz RJ. Association of Anterior Cruciate Ligament Width with Anterior Knee Laxity. *Journal of Athletic Training*. 2016;51(6):460-465. PMC5076280
- 43. Tourville TW, Shultz SJ, Vacek PM, Knudsen EJ, Bernstein IM, Tourville KJ, Hardy DM, Slauterbeck JR, Johnson RJ, Beynnon BD. Evaluation of an algorithm to predict menstrual cycle phase at the time of injury. *Journal of Athletic Training*.2016;51(1):47-56. PMC4851128
- 44. Taylor JB, Wang HM, Schmitz RJ, Rhea CK, Ross SE, <u>Shultz SJ</u>. Multi-planar Knee Laxity and Perceived Function During Activities of Daily Living and Sport. *Journal of Athletic Training* 2015;50(11):1199-206. PMC4732400.
- 45. Waxman JP, Schmitz RJ, <u>Shultz SJ</u>. The Inter-day Measurement Consistency of and Relationship Between Hamstring and Leg Musculoarticular Stiffness. *Journal of Applied Biomechanics*. 2015; 31(5):340-348. PMID:26035860

- Beynnon BD, Sturnick SR, Argentieri EC, Slauterbeck JR, Tourville TW, Shultz SJ, Vacek PM. A Sex Stratified Multivariate Risk Factor Model for Anterior Cruciate Ligament Injury. *Journal of Athletic Training*; 2015; 50(10:1094-1096. PMC4641547
- 47. Nguyen AD, Shultz SJ, Schmitz RJ. Landing Biomechanics in Participants with Different Static Lower Extremity Alignment Postures. *Journal of Athletic Training*. 2015;50(5):498-507. PMC4560011
- 48. Beynnon BD, Sturnick DR, Vacek PM, DeSarno MJ, Gardner-Morse M, Tourville TW, Slauterbeck J, Johnson RJ, Shultz SJ. Combined anatomical factors predicting risk of ACL injury for males and females. *Am J Sports Med*. 2015;43(4)839-47. PMID:25583759
- 49. Norcross MF, Shultz SJ, Weinhold PS, Lewek MD, Padua DA, Blackburn JT. The influence of sex and posture on joint energetics during drop landings. *Scandinavian Journal of Sports Medicine*. 2015;25(2)e166-175. PMID:24995548
- 50. <u>Shultz SJ</u>. ACL Injury Risk in the Physically Active: Why are Females more Susceptible? *Kinesiology Review* 2015;4:52-62
- 51. Sturnick DR, Van Gorder R, Vacek PM, DeSarno MJ, Gardner-Morse M, Tourville TW, Slauterbeck J, Johnson RJ, Shultz SJ, Hashemi J, Beynnon BD. Tibial articular cartilage and meniscus geometries combine to influence female risk of anterior cruciate ligament injury. *Journal of Orthopaedic Research*. 2014;32(11)1487-94. PMID:25099246
- 52. Montgomery MM, Schmitz RJ, Shultz SJ. The effect of equalizing task demands on sex differences in lower extremity energy absorption. *Clinical Biomechanics* 2014;29(7):760-766. PMID:24998904
- 53. Sturnick DR, Argentieri E, Vacek PM, DeSarno M, Gardner-Morse M, Tourville TW, Slauterbeck JR, Johnson RJ, Shultz SJ, Beynnon BD. A decreased volume of the medial tibial spine is associated with an increased risk of suffering an anterior cruciate ligament injury for males but not females. *Journal of Orthopaedic Research*. 2014;32(11):1451-1457. PMID24962098
- 54. Beynnon BD, Vacek PM, Tourville TW, Smith HC, Shultz SJ, Slauterbeck J, Johnson RJ. First-time non-contact anterior cruciate ligament injury: The Effects of Level of Competition, Sport and Sex on the Incidence of First-time Non-Contact Anterior Cruciate Ligament Injury. *American Journal of Sports Medicine*. 2014;42(8):1806-1812. PMID:25016012
- 55. Whitney DC, Sturnick DR, Vacek PM, DeSarno M, Gardner-Morse M, Tourville TW, Smith HC, Slauterbeck JR, Johnson RJ, Shultz SJ, Hashemi J, Beynnon BD. The relationship between the risk of suffering a first-time non-contact ACL injury and geometry of the femoral notch and anterior cruciate ligament: A prospective cohort study with nested case control analysis. *Am J Sports Med.* 2014;42(8):1796-1805. PMID:24866891
- 56. Shultz SJ, Schmitz RJ, Cone JR, Henson RA, Montgomery MM, Pye ML, Tritsch, AJ. Changes in Fatigue, Multiplanar Knee Laxity, and Landing Biomechanics during Intermittent Exercise. *Journal of Athletic Training*. 2015;50(5):486-97. PMC4560009
- 57. Schmitz RJ, Cone JR, Copple TJ, Henson RA, <u>Shultz SJ</u>. Lower Extremity Biomechanics and Maintenance of Vertical Jump Height during Prolonged, Intermittent Exercise. *Journal of Sport Rehabilitation* 2014;23(4)319-329. PMID:24307057
- 58. Beynnon BD, Hall J, Sturnick DR, Vacek PM, DeSarno MJ, Gardner-Morse M, Tourville TW, Smith HC, Slauterbeck J, Johnson RJ, Shultz SJ, Hashemi J. An increase of the posterior-inferior directed slope of the lateral tibial plateau subchondral bone is associated with an increased risk of suffering a non-contact ACL injury: A prospective cohort study with a nested, matched case-control analysis. *American Journal of Sports Medicine*. 2014;42(5):1039-1048. PMID:24590006
- 59. Schmitz RJ, Kim HS, <u>Shultz SJ</u>. Effect of Neuromuscular Fatigue on Tibiofemoral Joint Biomechanics when Transitioning from Non-Weight Bearing to Weight Bearing. *Journal of Athletic Training*. 2015;50(1):23-29. PMC4299730
- Taylor JB, Waxman JP, Richter SJ, <u>Shultz SJ</u>. Evaluation of the Effectiveness of Anterior Cruciate Ligament Injury Prevention Program Training Components: A Systematic Review and Meta-Analysis. *British Journal of Sports Medicine*. 2015;49(2):79-87. PMID: 23922282
- 61. Fan L, Copple TJ, Tritsch AJ, Shultz SJ. Clinical and Instrumented Measurements of Hip Laxity and their Associations with Knee Laxity and General Joint Laxity. *Journal of Athletic Training*. 2014;49(5):590-598. PMC4208862
- 62. Beynnon BD, Vacek PM, Holterman LA, Gardner-Morse M, Tourville TW, Smith HC, Slauterbeck J, Johnson RJ, Shultz SJ, Hashemi J. Geometric Profile of the Tibial Plateau Cartilage Surface is Associated with the Risk of Noncontact Anterior Cruciate Ligament Injury. *Journal of Orthopaedic Research*. 2014;32(1):61-8. PMID:24123281

- 63. Schmitz RJ, Cone JR, Tritsch AJ, Pye ML, Montgomery MM, Henson RA, Shultz SJ. Changes in Drop Jump Landing Biomechanics During Prolonged Intermittent Exercise. Sports Health. 2014;6(2)128-135. PMC3931337
- Norcross M, Lewek M, Padua DA, <u>Shultz SJ</u>, Weinhold P, Blackburn JT. Lower extremity energy absorption and biomechanics during landing. Part I: Sagittal plane energy analyses. *Journal of Athletic Training*. 2013:48(6):748-756. PMC3867085
- 65. Norcross M, Lewek M, Padua DA, <u>Shultz SJ</u>, Weinhold P, Blackburn JT. Lower extremity energy absorption and biomechanics during landing. Part II: Frontal plane energy analyses and inter-planar relationships. *Journal of Athletic Training*. 2013:48(6):757-763. PMC3867086
- 66. Schmitz RJ, Sauret J, Shultz SJ. Anterior Tibiofemoral Intersegmental Forces during Landing are Predicted by Passive Restraint Mechanics. *Knee* 2013; 20(6):493-499. PMID: 23769139
- 67. Shultz SJ, Schmitz RJ, Cone JR, Copple TJ, Montgomery MM, Pye ML, Tritsch AJ. Multi-planar Knee Laxity Increases During a 90-Minute Intermittent Exercise Protocol. *Medicine and Science in Sport and Exercise*. 2013;45(8):1553-61. PMID:23470306
- 68. Shimokochi Y, Meyer E, Lee SY, Ambegaonkar JP, Shultz SJ. Changing Sagittal Plane Body Positions Influences Noncontact Anterior Cruciate Ligament Injury Risk during Single-Leg Landings. *Knee Surgery Sports Traumatology Arthroscopy*. 2013;21(4):888-897.
- 69. Schmitz RJ, Shultz SJ. Changes in Anterior Knee Stiffness in Laxity Responders vs. Laxity Non-Responders Across the Menstrual Cycle. *Journal of Athletic Training*. 2013; 48(1)39-46.
- 70. Wideman L, Montgomery MM, Levine BJ, Beynnon BD, <u>Shultz SJ</u>. Accuracy of Calendar Based Methods for Assigning Menstrual Cycle Phase in Women. *Sports Health*. 2013; 5:143-149. PMC3658377
- 71. Tourville TW, Smith HC, Shultz SJ, Vacek PM, Slauterbeck JR, Johnson RJ, Beynnon BD. Reliability of a New Stabilized Dynamometer System for the Evaluation of Hip Strength. Sports Health. 2013; 5:129-136. PMC3658376
- 72. <u>Shultz SJ</u>, Pye ML, Montgomery MM, Schmitz RJ. Associations Between Lower Extremity Muscle Mass and Knee Laxity: A Potential Contributor to Sex Differences in Frontal and Transverse Plane Knee Laxity. *American Journal of Sports Medicine*. 2012;40(12):2836-2844.
- 73. Montgomery MM, Shultz SJ, Schmitz RJ, Wideman L, Henson RA. Influence of Lean Body Mass and Strength on Landing Energetics. *Medicine and Science in Sport and Exercise*. 2012;44(12):2376-2383. PMID:22811034
- 74. Goetschius J, Smith HC, Vacek PM, Holterman LA, Shultz SJ, Tourville T, Slauterbeck J, Johnson RJ, Beynnon BD. Application of a Clinic-Based Algorithm as a Tool to Identify Female Athletes at Risk for Anterior Cruciate Ligament Injury: A Case-Control Study. *American Journal of Sports Medicine*. 2012;40(9):1978-84.
- 75. Shultz SJ, Schmitz RJ. Tibial Plateau Geometry Influences Lower Extremity Biomechanics During Landing. *American Journal of Sports Medicine* 2012;40(9): 2029-2036. PMID: 22837428
- 76. Bell RD, Henrich VC, Wideman L, Shultz SJ. Genetic Polymorphisms Previously Associated with ACL Injury are also Associated with Knee Joint Laxity. *Journal of Sports Health* 2012; 4: 312-318. PMC3435918
- Shultz SJ, Wideman L, Montgomery MM, Beasley KN, Nindl BC. Changes in Serum Collagen Markers, IGF-I and Knee Joint Laxity Across the Menstrual Cycle. *Journal of Orthopaedic Research*. 2012; 30:1405–1412. PMC3371148
- 78. Shultz SJ, Schmitz RJ, Kong Y, Dudley WN, Beynnon BD, Nguyen AD, Kim HS, Montgomery MM. Cyclic Variations in Knee Joint Laxity Profiles Influence Landing Biomechanics. *Medicine and Science in Sport and Exercise*. 2012 May;44(5):900-9. PMID22033513 DOI: 10.1249/MSS.0b013e31823bfb25
- 79. Cone JR, Berry NT, Goldfarb AH, Henson R, Schmitz RJ, Wideman L, <u>Shultz SJ</u>. Effects of an Individualized Soccer Match Simulation on Vertical Stiffness and Impedance. *Journal of Strength and Conditioning Research*. 2012; 26(8):2027-2036.
- 80. Smith HC, Johnson RJ, Shultz SJ, Tourville T, Holterman LA, Slauterbeck JR, Vacek PM, Bernstein IM, Beynnon BD. A prospective evaluation of the Landing Error Scoring System (LESS) as a screening tool for anterior cruciate ligament injury risk. *American Journal of Sports Medicine* 2012;40(3):521-526
- 81. <u>Shultz SJ</u>, Dudley WN, Kong Y. Identifying Knee Laxity Profiles and Associated Physical Characteristics. *Journal of Athletic Training* 2012;47(2): 159-169. [PMCIA in process]
- 82. Smith HC, Vacek PM, Johnson RJ, Slauterbeck JR, Hashemi J, <u>Shultz SJ</u>, Beynnon BD. Risk Factors for Anterior Cruciate Ligament Injury: A Review of the Literature: Part 1: Neuromuscular and Anatomic Risk. *Journal of Sports Health* 2012 4:69-78.

- 83. Smith HC, Vacek PM, Johnson RJ, Slauterbeck JR, Hashemi J, Shultz SJ, Beynnon BD. Risk Factors for Anterior Cruciate Ligament Injury: A Review of the Literature: Part 2: Hormonal, Genetic, Cognitive Function, Previous Injury and Extrinsic Risk Factors. *Journal of Sports Health* 2012;4(2):155-161.
- 84. Shultz SJ, Tritsch A, Montgomery MM, Schmitz RJ. Methodological Considerations of Task and Shoewear on Joint Energetics During Landing. *Journal of Electromyography and Kinesiology*. 2012; 22(1):124-30
- 85. Hashemi J, Breighner R, Chandrashekar N, Hardy DM, Chaudhari AM, <u>Shultz SJ</u>, Slauterbeck JR, Beynnon BD. Hip extension, knee flexion paradox: A new mechanism for non-contact ACL injury. *Journal of Biomechanics*. 2011;44(4):577-85.
- 86. Shultz SJ, Schmitz RJ, Beynnon BD. Variations in Varus/Valgus and Internal/External Rotational Knee Joint Laxity and Stiffness Across the Menstrual Cycle. *Journal of Orthopaedic Research*. 2011;29(3):318-25. PMID: 20882589 NIHMSID #323478. [PMC3176732]
- 87. Ambegaonkar JP, <u>Shultz SJ</u>, Perrin DH. A subsequent movement alters lower extremity muscle activity and kinetics in drop jumps versus drop landings. *Journal of Strength and Conditioning Research*. 2011; 25(10): 2781-2788. PMID: 21873898
- 88. Nguyen AD, Schmitz RJ, Leucht R, Perrin DH, Shultz SJ. A Preliminary Multifactorial Approach Describing the Relationships between Lower Extremity Alignment, Hip Strength and Lower Extremity Joint Excursion. *Journal of Athletic Training*. 2011; 46(3):246-256. PMC3419552
- 89. Ambegaonkar JP, <u>Shultz SJ</u>. Changing Filtering Parameters Affects Lower Extremity Pre-Landing Muscle Activation Onset Times. *Isokinetics and Exercise Science*. 2010;18:125–132.
- 90. Ambegaonkar JP, Shultz SJ, Perrin DH, Schmitz RJ, Ackerman TA. Lower Body Stiffness and Muscle Activity Differences between Female Dancers and Basketball Players during Drop Jumps. *Journal of Sports Health* 2011; 3(1):89-96. PMC3445185
- 91. Shultz SJ, Schmitz RJ, Nguyen AD, Levine BJ, Kim HS, Montgomery MM, Shimokochi, Y, Beynnon BD, Perrin DH. Absolute Baseline and Cyclic Increases in Knee Laxity and Anterior Tibial Translation. *Medicine and Science in Sport and Exercise* 2011; 43(2):287–29. PMCID: PMC2992800
- 92. Montgomery MM, Shultz SJ. Isometric Knee Extension and Flexion Torque Does Not Change from Early Follicular to Post- Ovulatory Phases in Recreationally active Females. *Journal of Athletic Training* 2010;45(6):586-93. PMC2978010
- 93. Shultz SJ, Perrin DH, Nguyen AD, Montgomery MM, Kim HS, Levine BJ. A Comparison of Cyclic Variations in Anterior Knee Laxity, Genu Recurvatum and General Joint Laxity Across the Menstrual Cycle. *Journal of Orthopaedic Research* 2010;28(11):1411-7. PMC2947333
- 94. Schmitz RJ and Shultz SJ. Contribution of Knee Flexor/Extensor Strength on Sex-Specific Energy Absorption and Torsional Joint Stiffness Patterns during Drop Jumping. *Journal of Athletic Training* 2010; 45(5):445-52. PMC2938314
- 95. Shultz SJ, Wideman L, Montgomery MM, Levine BJ. Some Sex Hormone Concentrations Are Consistent Over Time in Normal Menstruating Females. *British Journal of Sports Medicine*. 2011;45:735-742. PMC2937098 [Available on 2011/4/1]
- 96. Schmitz RJ, Kim HS, Shultz SJ. Effect of Axial Load on Anterior Tibial Translation when Transitioning from Non-Weight Bearing to Weight Bearing. *Journal of Clinical Biomechanics*. 2010 Jan;25(1):77-82
- 97. <u>Shultz SJ</u>, Schmitz RJ, Nguyen AD, Levine BJ. Joint Laxity is Related to Lower Extremity Energetics During a Drop Jump Landing. *Medicine and Science in Sports and Exercise* 2010; 42(4):771-780. PMC2936657
- 98. Bell DR, Myrick M, Padua DA, Guskiewicz KM, Blackburn TJ, Shultz SJ. The Effect of Menstrual Cycle Phase on Hamstring Extensibility and Muscle Stiffness. *Journal of Sport Rehabilitation*. 2009 Nov;18(4):553-63.
- 99. Nguyen AD, Shultz SJ. Identifying Relationships Among Lower Extremity Posture Characteristics. *Journal of Athletic Training*. 2009 Sep-Oct;44(5):511-8. PMC2742461
- 100. Shimokochi Y, Ambegaonkar JP, Lee SY, Shultz SJ. The relationships among sagittal-plane lower extremity moments: implications for landing strategy in anterior cruciate ligament injury prevention. *Journal of Athletic Training* 2009;44(1)33-38
- 101. Shultz SJ, Schmitz RJ. Effects of Transverse and Frontal Plane Knee Laxity on Hip and Knee Neuromechanics During Drop Landings. *American Journal of Sports Medicine* 2009; 37(9): 1821-1830. PMCID: PMC2894638

- 102. Ambegaonkar JP, <u>Shultz SJ</u>, Perrin DH, Schulz MR. Anterior Cruciate Ligament Injury in Collegiate Female Dancers. *Athletic Therapy Today*. 2009; 14(4):13-16.
- 103. Nguyen AD, Boling MC, Levine BJ, <u>Shultz SJ</u>. Relationships Between Lower Extremity Alignment and the Quadriceps Angle. *Clinical Journal of Sports Medicine*. 2009 May;19(3):201-6
- 104.Zinder SM, Granata KP, Shultz SJ, Gansneder BM. Ankle bracing and the neuromuscular factors influencing joint stiffness. *Journal of Athletic Training*. 2009;44(4):363-9.
- 105. Shultz SJ, Beynnon BD, Schmitz RJ. Sex Differences in Coupled Knee Motions During the Transition from Non-Weight Bearing to Weight Bearing. *Journal of Orthopaedic Research* 2009;27(6):717-23
- 106. Shultz SJ, Nguyen AD, Leonard MD, Schmitz RJ. Thigh Strength and Activation as Predictors of Knee Biomechanics During a Drop Landing Task. *Medicine and Science in Sports and Exercise*. 2009;41(4)857-866. PMC2744399. DOI: 10.1249/MSS.0b013e3181e3b3f
- 107. Schmitz RJ, Shultz SJ, Nguyen AD. Dynamic Valgus Alignment and Functional Strength in Males and Females during Maturation. *Journal of Athletic Training*. 2009; 44(1):26-32. PMCID: PMC2629036 DOI: 10.4085/1062-6050-44.1.26
- 108. Shultz SJ, Nguyen AD, Levine B. The Relationship Between Lower Extremity Alignment Characteristics and Anterior Knee Joint Laxity. *Journal of Sports Health* 2009; 1(1):54-60. PMCID: PMC2952959
- 109. Shultz SJ, Schmitz RJ, Nguyen AD. ACL Injuries: The Gender Bias. Research Retreat IV. April 3-5th, 2008. *Journal of Athletic Training* 2008;43(5):530-537
- 110. Schmitz RJ, Ficklin TK, Shimokochi Y, Nguyen AD, Beynnon BD, Perrin, DH, Shultz SJ. Varus-Valgus and Internal-External Torsional Knee Joint Stiffness Differs Between Sex. *American Journal of Sports Medicine*. 2008; 36(7):1380-8. PMCID: PMC2562882
- 111. Shultz SJ, Schmitz RJ, Nguyen AD. Changes in Lower Extremity Anatomical and Postural Characteristics in Males and Females Between Maturation Stages. *Journal of Orthopaedic and Sports Physical Therapy*. 2008;38(3):137-49
- 112. Shimokochi, Y, Shultz SJ. Mechanisms of Non-Contact Anterior Cruciate Ligament Injury. *Journal of Athletic Training*. 2008;43(4):396-408
- 113. Hamilton, RT, Schmitz RJ, Perrin DH, Shultz SJ. The Single-leg Triple Hop is a Valid Test of Lower Limb Strength and Power. *Journal of Athletic Training*. 2008;43(2):144-51
- 114. Shultz SJ, Nguyen AD. Bilateral Asymmetries in Clinical Measures of Lower Extremity Alignment. *Clinical Journal of Sports Medicine*. 2007; 17(5):357-361
- 115.Nguyen AD, Shultz SJ. Sex Differences in Lower Extremity Postural Characteristics. *Journal of Orthopaedic and Sports Physical Therapy.* 2007; 37(7):389-98
- 116. Shultz SJ, Shimokochi Y, Nguyen AD, Schmitz RJ, Beynnon BD, Perrin DH. Measurement of Varus-Valgus and Internal-External Rotational Knee Laxities In-Vivo Part I: Assessment of Measurement Reliability and Bilateral Asymmetry. *Journal of Orthopaedic Research*. 2007; 25(8):981-988. PMID: 17457828
- 117. Shultz SJ, Shimokochi Y, Nguyen AD, Schmitz RJ, Beynnon BD, Perrin DH. Measurement of Varus-Valgus and Internal-External Rotational Knee Laxities In-Vivo Part II: Relationship with Anterior-Posterior and Generalized Joint Laxity in Males and Females. *Journal of Orthopaedic Research*. 2007; 25(8):989-996. PMID: 17469179
- 118. Schmitz RJ, Kulas AS, Perrin DH, Riemann BL, <u>Shultz SJ</u>. Sex Differences in Lower Extremity Biomechanics during Single Leg Landings. *Clinical Biomechanics* 2007; Jul;22(6):681-8
- 119.Kulas AS, Schmitz RJ, Shultz SJ, Henning JM, Perrin DH. Sex Specific Abdominal Activation Strategies During Landing. *Journal of Athletic Training*. 2006 Oct-Dec;41(4):381-6
- 120.Docherty CL, Valovich McLeod TC, <u>Shultz SJ</u>. Postural Control Deficits in Participants with Functional Ankle Instability as Measured by the Balance Error Scoring System. *Clinical Journal of Sports Medicine* 2006 May;16(3):203-8.
- 121.Kulas AS, Schmitz RJ, Shultz SJ, Watson MA, Perrin DH. Energy Absorption as a Predictor of Leg Spring Stiffness in Highly Trained Females. *Journal of Applied Biomechanics* 2006; 22(3): 177-185
- 122. Shultz SJ, Carcia CR, Gansneder BG, Perrin DH. The Independent and Interactive Effects of Navicular Drop and Quadriceps Angle on Neuromuscular Responses to a Weight Bearing Perturbation. *Journal of Athletic Training*. 2006; 41(3): 251-259 (Commentary and Response, pp 260-263)

- 123. Shultz SJ, Nguyen A, Windley TC, Kulas AS, Botic TL, Beynnon BD. Intratester and Intertester Reliability of Clinical Measures of Lower Extremity Anatomical Alignment; Implications for Multi-center Studies. *Clinical Journal of Sports Medicine* 2006; 16(2):155-161
- 124. Shultz SJ, Shimokochi Y, Nguyen A, Ambegaonkar JP, Schmitz RJ, Beynnon BD, Perrin DH. Non-Weight Bearing Anterior Knee Laxity is Related to Anterior Tibial Translation During Transition from Non-Weight Bearing to Weight Bearing. *Journal of Orthopaedic Research* 2006; 24(3):516-23. PMID: 16456828
- 125. Shultz SJ, Gansneder BM, Sander TC, Kirk SE, Perrin DH. Absolute Hormone Levels Predict the Magnitude of Change in Knee Laxity Across the Menstrual Cycle. *Journal of Orthopaedic Research*. 2006; 24(2):124-31. PMCID: PMC1993900
- 126. Shultz SJ, Sander TC, Kirk SE, Perrin DH. Sex Differences In Knee Joint Laxity Change Across The Female Menstrual Cycle. *Journal of Sports Medicine and Physical Fitness* 2005; 45(4):594-603. PMCID: PMC1890029
- 127. Carcia CR, Eggen JM, Shultz SJ. Hip Abductor Fatigue Affects Frontal Plane Landing Angle, But Not Excursion During a Drop Jump. *Journal of Sport Rehabilitation* 2005; 14:321-331
- 128. Carcia CR, Shultz SJ, Granata KP, Perrin DH, Martin RL. Females recruit quadriceps faster than males at multiple knee flexion angles following a weight-bearing rotary perturbation. Clin J Sports Med 2005; 15(3): 167-171
- 129.Cote KP, Brunet ME, Gansneder BM, Shultz SJ. Pronated and Supinated Foot Postures Effect both Static and Dynamic Postural Stability. *Journal of Athletic Training* 2005; 40:41-46
- 130. Shultz, SJ, Windley, TC, Kulas, AS, Schmitz, RJ, Valovich McLeod, TC, Perrin, DH. Low Levels of Anterior Tibial Loading Enhance Knee Extensor Reflex Response Characteristics. *Journal of Electromyography and Kinesiology* 2005;15:61-71
- 131. Schmitz RJ, Shultz SJ, Kulas AS, Windley TC, Perrin DH. Kinematic Assessment and Consistency of a Functional Lower Body Perturbation. *Clinical Biomechanics* 2004; 19:1032-1039
- 132. Carcia CR, Shultz SJ, Granata KP, Gansneder BM, Perrin DH. Knee Ligament Behavior Following a Controlled Loading Protocol Does Not Differ by Menstrual Cycle Day. *Clinical Biomechanics*. 2004; 19:1048-1054
- 133. Tripp BL, Boswell LL, <u>Shultz SJ</u>. Functional Fatigue Decreases Three-dimensional Multi-joint Position Reproduction Acuity in the Overhead-throwing Athlete. *Journal of Athletic Training* 2004;39:316-320
- 134. Valovich TC, Perrin DH, Guskiewicz KM, Shultz SJ, Diamond R, Gansneder BM. Serial Administration Of Clinical Concussion Assessments And Practice Effects In Healthy Young Athletes. *Clinical Journal of Sports Medicine* 2004; 14:287-295
- 135. Susco TM, Valovich TC, Gansneder BG, Shultz SJ. Balance Recovers within Twenty Minutes Following Exertion as Measured by the Balance Error Scoring System. *Journal of Athletic Training*. 2004; 39: 241-246
- 136. Shultz SJ, Sander TC, Kirk SE, Johnson ML, Perrin DH. Relationship Between Sex Hormones and Anterior Knee Laxity Across the Menstrual Cycle. *Medicine and Science in Sport and Exercise*. 2004; 36(7): 1165-1174. PMCID: PMC1993893
- 137. Shultz SJ, Carcia CR, Perrin DH. Knee Joint Laxity Affects Muscle Activation Patterns in the Healthy Knee. *Journal of Electromyography and Kinesiology*. 2004; 14(4):475-483. PMID: 15165597
- 138. Gross SM, Carcia CR, Gansneder BM, Shultz SJ. Rate of Force Application During Knee Arthrometer Measurements Affects Stiffness but Not Displacement. *Journal of Orthopaedic and Sports Physical Therapy*. 2004; 34(3):132-9
- 139. Hargrave MD, Carcia CR, Gansneder BM, Shultz SJ. Subtalar Pronation Does Not Affect Impact Forces and Absorption During a Single Leg Forefoot Landing. *Journal of Athletic Training*. 2003; 38:18-23
- 140.Drouin JM, Valovich TC, <u>Shultz SJ</u>, Gansneder BM, & Perrin DH. Reliability and Validity of the Biodex<sup>™</sup> System 3 Pro Isokinetic Dynamometer Velocity, Torque and Position Measurements. *European Journal of Applied Physiology*. 2003;91:22-29
- 141.Demeritt KM, Shultz SJ, Gansneder BM, Docherty CL & Perrin DH. Functional Ankle Instability Does Not Effect Lower Extremity Functional Performance. *Journal of Athletic Training*. 2003;37:507-511
- 142.Olmsted LC, Carcia CR, Hertel J, and Shultz SJ. Efficacy of the Start Excursion Balance Test in Detecting Reach Deficits in Subjects with Chronic Ankle Instability. *Journal of Athletic Training* 2003;37:501-506

- 143.Moore BD, Drouin J, Gansneder BM, and Shultz SJ. The Effect of Gender and Fatigue on Electromechanical Delay in Elite Athletes. *Journal of Electromyography and Kinesiology*. 2002; 12:351-360
- 144.Rose HM, <u>Shultz SJ</u>, Arnold BL, Gansneder BM & Perrin DH. Orthotic Intervention Does Not Effect Muscular Response Times and Activation Patterns at the Knee. *Journal of Athletic Training*. 2002;37:133-140.
- 145. Shultz SJ, Perrin DH, Adams JM, Arnold BL, Gansneder BM & Granata KP. Neuromuscular Response Characteristics in Males and Females Following Knee Perturbation in a Single Leg Weight Bearing Stance. *Journal of Athletic Training*. 2001; 36(1):37-43
- 146.Oshikoya CA, Shultz SJ, Mistry D, Perrin DH, Arnold BL & Gansneder BM. Effect of Coupling Medium Temperature on Rate of Intra-muscular Temperature Rise Using Continuous Ultrasound. *Journal of Athletic Training*. 2000; 35(4); 417-421
- 147. Shultz SJ, Perrin DH, Adams JM, Arnold BL, Gansneder BM & Granata KP. Assessment of Neuromuscular Response Characteristics at the Knee Following a Functional Perturbation. *Journal of Electromyography and Kinesiology*. 10(3):159-170, 2000
- 148. Shultz SJ & Perrin DH. Using Surface Electromyography to Assess Gender Differences in Neuromuscular Response Characteristics. *Journal of Athletic Training*. 1999; 34(2):165-176
- 149. Shultz SJ & Perrin DH. The Role of Dynamic Hamstring Activation in Preventing Knee Ligament Injury: Training Implications. *Athletic Therapy Today*. 1999; 4(3):49-53
- 150. Weldon GA, Snouse SL, & Shultz SJ. Normative Strength Values for Knee, Shoulder, Elbow and Ankle for Females Ages 9 73 as Determined by Isokinetic Testing. *Journal of Athletic Training*. 1988; 23(4):325-331

## **Consensus Statements and Guidelines (Peer-Reviewed)**

- Schmitz RJ, Ford KR, Pietrosimone BG, Shultz SJ, Taylor JB. ACL Research Retreat IX Summary Statement: The Pediatric Athlete. *Journal of Athletic Training*. 2022;57(9):990-995 (Accepted May 25th, 2022). doi: 10.4085/1062-6050-1004.22
- Shultz SJ, Schmitz RJ, Cameron KL, Ford KR, Grooms D, Lepley LK, Myer G, Pietrosimone B. ACL Research Retreat VIII Summary Statement: An Update on Injury Risk Identification and Prevention Across the ACL Injury Continuum. *Journal of Athletic Training* 2019;54(9):970–984.
- 3. Padua DA, DiStefano L, Hewett TE, Garrett W, Marshall S, Gilchrist J, Golden G, Shultz SJ, Sigward S. National Athletic Trainers' Association Position Statement: Prevention of Anterior Cruciate Ligament (ACL) Injury. *Journal of Athletic Training*. 2018;53(1):5-19. PMC5800728
- 4. <u>Shultz SJ</u>, Schmitz RJ, Benjaminse A, Collins M, Ford K, Kulas AS. ACL Research Retreat VII: An Update on Anterior Cruciate Ligament Injury Risk Factor Identification, Screening and Prevention: March 19-21, 2015; Greensboro, NC. Journal of Athletic Training. 2015;50(10):1076-93. PMC4641546
- 5. American Academy of Orthopaedic Surgeons. Appropriate Use Criteria for the Treatment of Anterior Cruciate Ligament Injury. <a href="http://www.aaos.org/research/Appropriate Use/aclauctreatment.pdf">http://www.aaos.org/research/Appropriate Use/aclauctreatment.pdf</a> Published October 2, 2015 Shea KG, Carey JL, Richmond J, Sandmeier R, Pitts RT, Polousky JD, Chu C, <a href="https://shutz.sty.com/Shut
- 6. <u>Shultz SJ</u>, Schmitz RJ, Benjaminise A, Chaudhari A, Collins M, Padua A. ACL Research Retreat VI: An Update on ACL Injury Risk and Prevention. March 22<sup>nd</sup>-24<sup>th</sup>, 2012. *Journal of Athletic Training*. 2012;47(5):591-603.
- Shultz SJ, Schmitz RJ, Nguyen AD, McLean SC, Padua DA, Sigward SG. ACL Research Retreat V. March 25<sup>th</sup>-27<sup>th</sup>, 2010. Consensus Statement. *Journal of Athletic Training* 2010:45(5):499-508. PMC2938324
- 8. Renstrom P, Ljungqvist A, Arendt E, Beynnon B, Fukubayashi T, Garrett W, Georgoulis T, Hewett T, Johnson R, Krosshaug T, Mandelbaum B, Michelil L, Myklebust G, Roos E, Roos H, Schamasch P, Shultz S, Werner S, Wojtys E, Engebretsen L. Non-contact ACL Injuries in the Female Athlete Current Concepts: An International Olympic Committee Current Concept Statement. *Br J Sports Med.* 2008;42(6):394-412
- 9. Griffin LY\*, Albohm MJ, Arendt EA\*, Bahr R\*, Beynnon BD\*, DeMaio M\*, Dick RW, Engebretsen L, Garrett WE, Hannafin JA\*, Hewett TE, Huston LJ\*, Ireland ML, Johnson RJ, Lephart SM, Mandelbaum BR, Mann B\*, Marks PH, Marshall SW\*, Myklebust G, Noyes FR, Powers C\*, Shields S, Shultz SJ\*, Silvers H, Slauterbeck J\*, Taylor D, Teitz CC\*, Wojtys EM\*, Yu B\*. Update on ACL Injury Prevention: Theoretical and Practical

Considerations: A Review of the Hunt Valley II Meeting, February 2005. *American Journal of Sports Medicine* 2006; 34(9):1512-32 (\*Denotes major contributors)

#### **Invited Papers**

- 1. <u>Shultz SJ</u>. Anterior Cruciate Ligament Injury in the Female Athlete: A Multifactorial Problem That Remains Poorly Understood. *Journal of Athletic Training*. 2008;43(5):455
- 2. Beynnon BD, Shultz SJ. Keynote Address II: Anatomic Alignment, Menstrual Cycle Phase, and the Risk of Anterior Cruciate Ligament Injury. *Journal of Athletic Training*. 2008;43(5):541–542
- 3. Perrin DH, Shultz SJ. Physical Rehabilitation and the Challenge of Anterior Cruciate Ligament Injury in the Physically Active Female. *Quest* 2005; 57:154-161

#### **Refereed Published Abstracts**

- 1. Wideman L, Dollar JM, Zaplatosch ME, Shultz SJ, Keane SP, Shriver LH, Shanahan L. Influence of Early vs Late Puberty and Menarche on Body Composition in Female Emerging Adults. *Medicine and Science in Sport and Exercise*. 2023; 55(9S):482. DOI: 10.1249/01.mss.0000984320.83607.53
- 2. Fegley JA, Boeyer M, Shultz SJ. Skeletal Age at the Time of Pediatric ACL Injury: A Retrospective Chart Review. *Journal of Athletic Training.* 2023: 58(6S):123
- 3. Schmitz SJ, Bacon BR, Park-Braswell KY, Shultz SJ. Relationship of ACL Volume to Clinical Knee Arthrometer and Imaging Derived Laxity Measures. *Journal of Athletic Training*. 2023: 58(6S):219
- 4. Henderson SA, Monroe DC, Park-Braswell K, Raisbeck L, Shultz SJ, Schmitz RJ. Attentionally focused Neuromuscular Training and Brain Structure-Function Coupling. North American Society for Psychology of Sport and Physical Activity Annual Meeting; *Journal of Sport and Exercise Psychology (In Review)*
- 5. Shultz SJ, Montgomery MM, Schmitz JR, Wideman L. The Influence of Gynoid Fat Mass Percentage on Sex Hormone Levels and Knee Laxity. Orthopaedic Transactions. 2023;Volume 48: Paper 0955 <a href="https://www.ors.org/transactions/2023/955.pdf">https://www.ors.org/transactions/2023/955.pdf</a>
- Shultz SJ, Montgomery MM, Schmitz RJ, Wideman L. Comparison of Leg Fat Mass and Lean Mass Indices in Males and Females Stratified by Body Mass Index. American College of Sports Medicine Annual Meeting; Medicine and Science in Sport and Exercise. 2022;54(9S):166. doi: 10.1249/01.mss.0000877112.78533.5c
- 7. Monroe DC, Park-Braswell K, Raisbeck L, Shultz SJ, Schmitz RJ. Eight Weeks of Attentionally Focused Neuromuscular Training Changes Single Leg Hop Performance and Brain White Mater Architecture. American College of Sports Medicine Annual Meeting; *Medicine and Science in Sport and Exercise* 2022; 54(9S):263
- 8. Bechke EE, Anderson T, Wideman L, Shultz SJ. Body Fat Percentage Does Not Predict Sex Hormone Variability Within and Between Menstrual Cycles. American College of Sports Medicine Annual Meeting; *Medicine and Science in Sport and Exercise (In Review)*. 2022; 54(9S):599
- 9. Cerminaro RM, Gardner HM, Dollar J, Shultz SJ, Wideman L, Duffy DM. The Reliability of Adult Female's Recall of Their Menstrual Cycle Characteristics and Physical Activity Status at the Onset of Menses. American College of Sports Medicine Annual Meeting; *Medicine and Science in Sport and Exercise*. 2022;54(9S):600
- Shultz SJ, Rodriguez-Cruz M, Casey E, Dompier T, Ford KR, Pietrosimone B, Schmitz RJ, Taylor JB.
   Developmental Trajectories of ACL Injury Risk Factors in Males and Females between 8 and 18 Years of Age.
   Journal of Athletic Training. 57(9):996
- 11. Park-Braswell K, Shultz SJ, Ross SE, Sunnassee D, Grooms DR, Schmitz RJ. The Impact of Differential Knee Laxity on Brain Function and Structure. *Journal of Athletic Training*. 57(9):1001
- 12. Park-Braswell, K, Raisbeck LD, Rhea CK, Shultz SJ, Grooms DR, Schmitz RJ. Sex-specific Brain Activation During Single Leg Movements. National Athletic Training Association Annual Meeting 2020. *Journal of Athletic Training* 2020; 55(5): S74
- 13. Schmitz RJ, Park-Braswell K, Raisbeck LD, Grooms DR, Shultz SJ, Rhea CK,: Wilkins RW. Neural Correlates of Knee Extension Exercise and Single Leg Hop following 8 Weeks of Attentionally Focused Neuromuscular Training. National Athletic Training Association Annual Meeting 2020. *Journal of Athletic Training* 2020; 55(5): S27

- 14. Taylor JB, Shultz SJ, Ford K. The effect of warm-up-based injury prevention program on ankle biomechanics. APTA Combined Sections Meeting, February 15<sup>th</sup>, 2020. Denver, CO. *Journal of Orthopaedic and Sports Physical Therapy.* 2020;50(1):
- Shultz SJ, Anderson T, Park A, Gold L, Schmitz RJ. Relationships between ACL structural properties and intersubject variability in anteroposterior knee laxity across the menstrual cycle and during exercise in physically active females. Presented at the ACL Research Retreat VIII, Greensboro NC – March 14<sup>th</sup>, 2019. Journal of Athletic Training 2019;54(9):989
- 16. Wang HM, Shultz SJ, Ross SE, Henson R, Perrin DH, Schmitz RJ. The Relationship of ACL Volume and T2\* Relation Times to Anterior Knee Laxity. *Presented at the ACL Research Retreat VIII, Greensboro NC March 14<sup>th</sup>, 2019. Journal of Athletic Training 2019;54(9):989*
- 17. Pierson M, Raisbeck L, Shultz SJ. Transferring the Optimal Theory Protocol to ACL Prevention. *Presented at the Human Movement Science Research Symposium, UNC Chapel Hill.* March 23<sup>rd</sup>, 2019.
- Schmitz RJ, Park K, Raisbeck L, Wilking RW, Grooms DR, Rhea C, Shultz SJ.
   Changes in Brain Function During Knee Extension Exercise Following 8 Weeks of Attentionally Focused
   Neuromuscular Training. Presented at the NATA Annual Meeting and Clinical Symposium June 2018. *Journal of Athletic Training* 2018;53(6): S99
- Hogg JA, Schmitz RJ, Ackerman TA, Shultz SJ. Mediating Effects of Gluteal Function on the Relationship Between Femoral Alignment and Functional Valgus Collapse. Presented at the NATA Annual Meeting and Clinical Symposium June 2018. *Journal of Athletic Training*. 2018;53(6): S360
- 20. Anderson T, Shultz SJ, Wideman L. Relaxin and Sex Hormone Contributions to Laxity Changes Across the Menstrual Cycle. *Medicine and Science in Sports and Exercise*. 2017;45(5S):681. *Presented at the American College of Sports Medicine Annual Meeting and Clinical Symposium, Denver, CO.*
- 21. Wang HM, Shultz SJ, Ross SE, Henson RA, Perrin DH, Kraft RA, Schmitz RJ. Comparisons of ACL Laxity, Size and Intrinsic Properties Between ACLR and Healthy Individuals. *Journal of Athletic Training*. 2017;52(6):S-83. *Presented at National Athletic Trainers Association Annual Meeting and Clinical Symposium June 2017*.
- 22. Hogg JA, Shelton Z, Schmitz RJ, Shultz SJ. Neuromechanical Differences during a Single-Leg Forward landing in Females with High and Low Hip Internal Rotation Range of Motion. *Journal of Athletic Training*. 2017;52(6):S-90. *Presented at National Athletic Trainers Association Annual Meeting and Clinical Symposium. June 2017*.
- 23. Waxman JP, Blackburn JT, Rhea CK, Schmitz RJ, Henson RA, <u>Shultz SJ</u>. The Influence of Hamstring Stiffness on ACL Loading Characteristics. 41<sup>st</sup> Annual Meeting of the American Society of Biomechanics. (Accepted for Presentation, August 2017)
- 24. Taylor JB, Ford K, Nguyen A, Shultz SJ. Biomechanical characteristics of responders and non-responders to an ACL injury prevention program. APTA Combined Sections Meeting. February 2017, San Antonio, TX. (accepted)
- 25. Wittstein MW, Starobin JM, Schmitz RJ, Shultz SJ, Haran FJ, Rhea CK. Task Demands during Walking Enhance Cardiolocomotor Coupling. 40<sup>th</sup> Annual Meeting of the American Society of Biomechanics, August 2<sup>nd</sup>-5<sup>th</sup>, 2016.
- 26. Wang HM, Shultz SJ, Waxman JP, Pye MO, Kraft RA, Schmitz RJ. Dominant to Non-Dominant Limb Measures of ACL Volume and Anterior Knee Laxity. *Journal of Athletic Training*. 2016; 51(6):42
- 27. Hogg JA, Schmitz RJ, Shultz SJ. The Influence of Femoral Anteversion and Hip ROM on Dynamic Knee Valgus in Females During a Single-Leg Forward Hop. *Journal of Athletic Training*. 2016; 51(6):76
- 28. Mulrey CR, Ford KR, Shultz SJ, Nguyen AD, Taylor JB. Identifying Limb Dominance in Adolescent Female Basketball Players: Implications for Biomechanical Research. Presented at the 62<sup>nd</sup> Annual Meeting of the American College of Sports Medicine. *Medicine Science in Sports and Exercise*. 2016;48(5S):741
- 29. Tripp SG, Ford KR, Shultz SJ, Nguyen AD, Taylor JB. Single-Sport Athletes Exhibit More Lower Extremity Valgus than Multi-Sport Athletes. Presented at the 62<sup>nd</sup> Annual Meeting of the American College of Sports Medicine. *Medicine Science in Sports and Exercise*. 2016;48(5S):286
- 30. Taylor JB, Ford KR, Shultz SJ. Knee biomechanics of bilateral and unilateral multi-directional landings: Implications for ACL Injury. APTA Combined Sections Meeting. February 2015, Indianapolis, IN. (accepted)
- 31. Taylor JB, Ford KR, <u>Shultz SJ</u>. Performance consistency of multi-directional bilateral and unilateral jump landings. APTA Combined Sections Meeting. February 2015, Indianapolis, IN.
- 32. Waxman, J.P., Schmitz, R.J., & Shultz, S.J. (2015). The inter-day measurement consistency and precision of hamstring and leg musculo-articular stiffness. (Presented at the 25<sup>th</sup> Congress of the International Society of Biomechanics Conference, Glasgow, Scotland)
- 33. Waxman, J.P., Schmitz, R.J., & <u>Shultz, S.J.</u> (2015). Hamstring stiffness is related to anterior tibial translation when transitioning from non-weight bearing to weight bearing. (Presented at the 33<sup>rd</sup> International Society of Biomechanics in Sports Conference, Poitiers, France)

- 34. Waxman, J.P., Schmitz, R.J., & <u>Shultz, S.J.</u> (2015). The inter-day measurement consistency and precision of hamstring musculo-articular stiffness. (Presented at the 2015 Human Movement Science Research Symposium, Chapel Hill, NC)
- 35. Shultz SJ, Taylor JB, Wang HM, Rhea CK, Ross SE, Schmitz RJ. Associations between multi-planar knee laxity and self-report perceptions of knee function. ACL Research Retreat. March 2015, Greensboro, NC. *Journal of Athletic Training*. 2015; 50(10):1103-1112.
- 36. Waxman, J.P., Schmitz, R.J., & Shultz, S.J. (2015). The relationship between hamstring and leg musculo-articular stiffness. (Presented at ACL Research Retreat VII, Greensboro, NC), *Journal of Athletic Training*. Journal of Athletic Training: October 2015, Vol. 50, No. 10, pp. 1103-1112.
- 37. Taylor JB, Ford KR, Shultz SJ. Knee biomechanics of bilateral and unilateral multi-directional landings: Implications for ACL Injury. APTA Combined Sections Meeting. February 2015, Indianapolis, IN.
- 38. Taylor JB, Ford KR, <u>Shultz SJ</u>. Performance consistency of multi-directional bilateral and unilateral jump landings. APTA Combined Sections Meeting. February 2015, Indianapolis, IN.
- 39. Waxman, J. P., Schmitz, R. J., & <u>Shultz, S. J.</u> (2014). The relationship between hamstring musculo-articular stiffness and lower-extremity body composition. (Presented at the 32<sup>nd</sup> International Society of Biomechanics in Sports Conference, Johnson City, TN)
- 40. Taylor JB, Waxman JP, Shultz SJ, Richter SJ. Relative Effectiveness of Anterior Cruciate Ligament Injury Prevention Program Training Components: A Systematic Review and Meta-Analysis. *Journal of Orthopaedic and Sports Physical Therapy*. 2014;44(1)A173.
- 41. Sturnick DR, Von Gorder R, Vacek P, DeSarno M, Gardner-Morse M, Tourville T, Slauterbeck J, Johnson R, <u>Shultz S</u>, Beynnon B. The Risk of Suffering Non-contact Anterior Cruciate Ligament Tear is Related to the Geometry of the Meniscus and Articular Cartilage. *Orthopaedic Transactions*. 2014; 60:1969.
- 42. Tritsch AJ, Shultz SJ, Schmitz RJ, Wideman L, Rulison KL. Associations Between Physical Characteristics and Landing Biomechanics in Adolescent Females. *Journal of Athletic Training*. 2014;49(3):S40
- 43. Pye ML, Shultz SJ, Schmitz RJ. Dancers Land with Greater Knee Extension but an Anteriorly Positioned Center of Mass Compared to Athletes During a Drop Jump Task. *Journal of Athletic Training*. 2014;49(3):S91
- 44. Schmitz RJ, Harrison DK, Wang HM, Shultz SJ. Sagittal Plane Knee Moment During Gait is Predictive of Knee Cartilage Thickness. *Journal of Athletic Training*. 2014;49(3):S207
- 45. Slauterbeck J, Sturnick D, Whitney D, Smith H, Vacek P, Holterman LA, Johnson R, Hashemi J, Shultz SJ, Beynnon. Femoral Intercondylar Notch Geometry and Anterior Cruciate Ligament Size in Association with Risk of ACL Injury: A Multivariate Model. *Arthroscopy*. 2013;29(10):e107-e108
- 46. Montgomery MM, Shultz SJ, Schmitz RJ. The Effect of Equalizing Task Demands According to Sex Differences in Lower Extremity Lean Mass During Landing. *Journal of Athletic Training*. 2013; 48(3):S164
- 47. Pye ML, Ross SE, Schmitz RJ, Shultz SJ. Female Dancers Stabilize Earlier than Recreationally Active Females Following a Jump Landing Task. *Journal of Athletic Training* . 2013; 48(3):S65
- 48. Schmitz RJ, Shultz SJ, Wang HM, Copple TJ, Rhea CK. Frontal Plane Knee Laxity is Predictive of Measures Associated with Medial Knee Loading During Gait. *Journal of Athletic Training*. 2013; 48(3):S168
- 49. Tritsch AJ, Montgomery MM, Cone JC, Schmitz RJ, Shultz SJ. Effect of Body Composition on Changes in Biomechanics and Performance During an Exercise Challenge. *Journal of Athletic Training*, 2013; 48(3):S161
- 50. Wang HM, Schmitz RJ, <u>Shultz SJ</u>. ACL Volume and Width are Correlated with Anterior-Posterior Knee Laxity. *Journal of Athletic Training*. 2013; 48(3):S225
- 51. Whitney, D, Sturnick D, Smith H, Vacek P, Holterman LA, Quinttus S, Foot N, Slauterbeck J, Shultz SJ, Hashemi J, Johnson R, Beynnon B. Femoral Intercondylar Notch Geometry and Anterior Cruciate Ligament Size in Association with Risk of ACL Injury: A Multivariate Model. *Orthopaedic Transactions*. 2013; 38:0087
- 52. Montgomery MM, Schmitz RJ, <u>Shultz SJ FACSM</u>. Influence of Lean Mass on Lower Extremity Biomechanics during a Prolonged Exercise Bout. *Medicine Science in Sports and Exercise*. 2012;44(5):635
- 53. Tritsch AJ, Pye ML, <u>Shultz SJ</u>. Lower Extremity Injury Rates in Children and Adolescents: A Systematic Review. *Journal of Athletic Training*. 2012;47(3):S100
- 54. Montgomery MM, Shultz SJ, Schmitz RJ, Wideman L, Perrin DH, Henson RA. Influence of Lean Mass on Lower Extremity Energetic Capabilities during Landing. *Journal of Athletic Training*. 2012;47(3):S146
- 55. Norcross MF, Lewek MD, Padua DA, Shultz SJ, Weinhold PS, Blackburn JT. Modifiable Biomechanical Factors Predict Total Lower Extremity Initial Energy Absorption During Landing. *Journal of Athletic Training*. 2012;47(3):S82
- 56. Norcross MF, Lewek MD, Padua DA, Shultz SJ, Weinhold PS, Blackburn JT. The Influences of Knee Flexion Angle at Initial Contact and Sex on Knee Kinetics. ACL Retreat VI. Journal of Athletic Training. 2012;47(5):e7

- 57. Pye ML, Schmitz RJ, Shultz SJ. Less Lower Extremity Muscle Mass is Associated with Greater Knee Laxity and Lower Stiffness in the Frontal and Transverse Planes. *ACL Retreat VI. Journal of Athletic Training*. 2012;47(5):e1
- 58. Bell R, Wideman L, Henrich VC, <u>Shultz SJ</u>. Exploratory Analysis of Joint Laxity and Genotypes Associated with ACL injury. *ACL Retreat VI. Journal of Athletic Training*. 2012;47(5):e2
- 59. <u>Shultz SJ</u>, Tritsch AJ, Schmitz RJ. Females Increase Knee Laxity More Than Males During a 90-Minute Intermittent Exercise Protocol. *ACL Retreat VI. Journal of Athletic Training*. 2012;47(5):e2
- 60. Scheinman A, Beynnon BD, Smith HC, Sturnick D, Vacek P, Holterman L, Gardner-Morse M, Tourville T, Slauterbeck J, Bernstein I, Shultz SJ, Hashemi J, Johnson R. The Geometry of the Articular Cartilage of the Tibial Plateau and Anterior Cruciate Ligament Injury Risk. *Orthopaedic Transactions*. 2012;37:100
- 61. Smith HC, Beynnon BD, Goetschius J, Holterman L, Vacek PM, Shultz SJ, Tourville TW, Bernstein I, Slauterbeck JR, Johnson RJ. Application of a Clinic-Based Algorithm as a Tool to Identify Female Athletes at Risk for Anterior Cruciate Ligament Injury: A Case-Control Study. *Orthopaedic Transactions*. 2012;37:855
- 62. Beynnon BD, Sturnick DR, Dubief Y, Smith HC, Scheinman A, Vacek P, Holtermann L, Gardner-Morse M, Tourville T, Slauterbeck J, Bernstein I, Shultz SJ, Hashemi J, Johnson R. Knee Joint Geometry Characterization: Local Curvature in Relationship with ACL Injury Risk. *Orthopaedic Transactions*. 2012;37:1854
- 63. <u>Shultz SJ</u>, Wideman L, Montgomery MM, Beasley KN, Nindl BC. Changes in Serum Collagen Markers and IGF-I and Knee Joint Laxity across the Menstrual Cycle. *Medicine and Science in Sports and Exercise*. 2011; 43(5):S178
- 64. Wideman L, Ritsche K, Shultz SJ. Sex hormones predict collagen turnover in normal menstruating women. *Medicine and Science in Sports and Exercise*. 2011; 43(5):S542
- 65. Shultz SJ and Schmitz RJ. Tibial Plateau Slope Geometry Predicts High-Risk Knee Joint Biomechanics During Landing. *Journal of Athletic Training* 2011; 46(3):162
- 66. Montgomery MM, Shultz SJ, Schmitz RJ. Relationships Between Various Strength Measures and Energy Absorption During Landing. *Journal of Athletic Training* 2011; 46(3):124
- 67. Schmitz RJ, Sauret JJ, Shultz SJ. Anterior Knee Intersegmental Forces during Landing are predicted by Passive Restraint Mechanics. *Journal of Athletic Training* 2011; 46(3):158
- 68. Norcross MF, Blackburn JT, Lewek MD, Padua DA, <u>Shultz SJ</u>, Weinhold PS. Landing Biomechanics Differ Between High and Low Energy Absorption Groups. *Journal of Athletic Training* 2011; 46(3):176
- 69. Shultz SJ, Schmitz RJ, Kong Y, Dudley WN, Beynnon BD, Nguyen AD, Kim HS, Montgomery MM. Cyclic Variations in Knee Joint Laxity Profiles Influence Landing Biomechanics. *Transactions of the Orthopaedic Research Society*. 2011;36:0041. http://www.ors.org/web/Transactions/57/0041.PDF
- 70. Tourville TW, Smith HC, Davidson SL, Shultz SJ, Holterman L, Vacek PM, Slauterbeck JR, Burnstein IM, Johnson RJ, Beynnon BD. Design and Evaluation of a New Device to Measure Isometric Hip Muscle Strength. *Transactions of the Orthopaedic Research Society*. 2011;36:1362 <a href="http://www.ors.org/web/Transactions">http://www.ors.org/web/Transactions</a>
- Beynnon BD, Smith HC, Holterman L, Vacek PM, Davidson SL, Shultz SJ, Tourville TW, Slauterbeck JR, Johnson RJ. A Prospective Evaluation of the Landing Error Scoring System (LESS) as a Screening Tool for Anterior Cruciate Ligament Injury Risk. *Transactions of the Orthopaedic Research Society*. 2011; 36:160 <a href="http://www.ors.org/web/Transactions">http://www.ors.org/web/Transactions</a>
- 72. Shultz SJ, Schmitz RJ. Cyclic Variations in Varus/Valgus and Internal/External Torsional Knee Joint Laxity and Stiffness Across the Menstrual Cycle. *Journal of Athletic Training*. 2010; 45(5):527
- 73. Wideman L, Montgomery MM, Levine, BJ, Beynnon BD, Shultz SJ. The Accuracy of Generalized Methods for Assigning Menstrual Cycle Phase in Young Women. *Medicine and Science in Sport and Exercise*. 2010; 42(5):341-342.
- 74. Nguyen AD, Cone JR, Shultz SJ. Influence of Femoral Anteversion and Pelvic Angle on Hip and Knee Motions During a Single Leg Hop. *Journal of Athletic Training*. 2010;45(3):S-26
- 75. Montgomery MM, Schmitz RJ, <u>Shultz SJ</u>. Comparisons of Sagittal Plane Hip and Knee Biomechanics in Males and Females During a Cutting Task When Relative Demands are Controlled. *Journal of Athletic Training*. 2010;45(3):S-49
- 76. Shultz SJ, Schmitz RJ, Nguyen AD, Levine BJ, Kim HS, Montgomery MM, Shimokochi Y, Beynnon BD, Perrin DH. Absolute Baseline and Cyclic Variations in Knee Laxity are Related to Anterior Tibial Translation When Transitioning from Non-Weight Bearing to Weight Bearing. Journal of Athletic Training. 2010;45(3):S-28

- 77. Tritsch AJ, Montgomery MM, Schmitz RJ, Shultz SJ. Comparison of Energy Absorption Strategies During a Terminal vs. Non-terminal Landing Task. Journal of Athletic Training. 2010;45(3):S-113
- 78. Shimokochi Y, Ambegoankar JP, Lee SY, <u>Shultz SJ</u>. Effect of Instruction on Lower Extremity Muscle Activity During Landing. Journal of Athletic Training. 2009;44(3):S-18
- 79. Kim HS, Schmitz RJ, Shultz SJ. Neuromuscular fatigue impacts lower extremity biomechanics when transitioning from non-weight bearing to weight bearing. Journal of Athletic Training 2009; 44(3):S-54
- 80. Nguyen A, Cone JR, Stevens LM, Schmitz RJ, <u>Shultz SJ.</u> Influence of Hip Internal Rotation Range of Motion on Hip and Knee Motions During Landing. *Journal of Athletic Training* 2009; 44(3):S-68
- 81. Schmitz RJ, Shultz SJ. Contribution of Knee Flexor/Extensor Strength on Sex-Specific Energy Absorption and Torsional Joint Stiffness during Drop Jumping. *Journal of Athletic Training* 2009; 44(3):S-17
- 82. <u>Shultz SJ</u>, Schmitz RJ, Nguyen AD, Beynnon BD. Anatomical Predictors of Knee Rotation During the Transition from Non-Weight Bearing to Weight Bearing. *Medicine and Science in Sport and Exercise*. 2009; 41(Supp 15):80
- 83. Montgomery MM, <u>Shultz SJ</u>. Isometric thigh muscle contraction torque does not change from early follicular to post-ovulatory phases. *Medicine and Science in Sport and Exercise*. 2009; 41(Supp 15):429
- 84. Nguyen AD, Schmitz RJ, Shultz SJ. Influence of Femoral Anteversion on Hip and Knee Motions During Landing. *Medicine and Science in Sport and Exercise*. 2009; 41(Supp 15):289-290.
- 85. Shultz SJ, Schmitz RJ. Effect of Transverse and Frontal Plane Knee Laxity on Hip and Knee Kinematics During Drop Landings. *Orthopaedic Research Transactions 2009;* Vol.34, #0268, Las Vegas, NV, 2009
- 86. Shultz SJ, Nguyen AD, Perrin DH. Comparison of Cyclic Variations in Anterior Knee Laxity, Genu Recurvatum and General Joint Laxity Across the Female Menstrual Cycle. Journal of Athletic Training ACL Retreat IV Special Issue. 2008;43(5): 553
- 87. Schmitz RJ, Nguyen AD, Kim HS, Shultz SJ. Accessory knee joint motion differs by sex during transition from non-weight bearing to weight bearing. *Journal of Athletic Training ACL Retreat IV Special Issue.* 2008;43(4): 556
- 88. Nguyen A, Schmitz RJ, <u>Shultz SJ</u>. Differences in Lower Extremity Anatomical and Postural Characteristics in Males and Females Between Maturation Groups. *Journal of Athletic Training ACL Retreat IV Special Issue*. 2008;43(4): 555
- 89. Nguyen A, Schmitz RJ, Shultz SJ. Influence of static lower extremity posture on hip and knee motions during drop jump landings. *British Journal of Sports Medicine* 2008;42(6):536. Presented at the 2<sup>nd</sup> World Congress of Sport Injury Prevention; Tromso, Norway July 2008.
- 90. Schmitz RJ, Leonard MD, Nguyen A, <u>Shultz SJ</u>. Relationship of clinical laxity measures to energy absorption during drop jump landings. *British Journal of Sports Medicine* 2008;42(6):500. Presented at the 2<sup>nd</sup> World Congress of Sport Injury Prevention; Tromso, Norway July 2008.
- 91. Shultz SJ, Leonard MD, Nguyen A, Schmitz RJ. Relationship between clinical measures of joint laxity and sagittal plane joint excursion and stiffness during a drop jump landing. *British Journal of Sports Medicine* 2008;42(6):498. Presented at the 2<sup>nd</sup> World Congress of Sport Injury Prevention; Tromso, Norway July 2008.
- 92. Ambegaonkar JP, Shultz SJ. Effect of Filtering Parameters on Lower Extremity Muscle Activation Onset Times During Drop Jumps. *Journal of Athletic Training* 2008;43(3):26
- 93. Kim, HS, Schmitz RJ, Shultz SJ. The effect of axial load on anterior tibial translation (ATT) and quadriceps and hamstring muscle activations when transitioning from non-weight bearing to weight bearing. *Journal of Athletic Training* 2008;43(3):118
- 94. Leonard MD, Nguyen A, Schmitz RJ, Shultz SJ. Influence of Strength on Quadriceps and Hamstring Activation During a Drop-Jump Landing. *Journal of Athletic Training* 2008;43(3):27
- 95. Nguyen AD, Perrin DH, Schmitz RJ, Shultz SJ. Single Leg Squat as a Functional Assessment of Hip Strength. *Journal of Athletic Training* 2008;43(3):138
- 96. Shimokochi, Y\*, Ambegaonkar, JP†, Lee, SY‡, <u>Shultz, SJ</u>. Effects of Landing Strategies on Lower Extremity Sagittal Plane Kinetics and Kinematics. *Journal of Athletic Training* 2008;43(3):14
- 97. Smith K, Schmitz RJ, Perrin DH, Shultz SJ. Relationships Between Types and Dosages of Oral Contraceptives and Joint Laxity. *Journal of Athletic Training* 2008;43(3):119

- 98. Shultz SJ, Nguyen AD, Perrin DH. A Comparison of Cyclic Variations in Anterior Knee Laxity, Genu Recurvatum and General Joint Laxity Across the Female Menstrual Cycle. Orthopaedic Research Society Transactions. Paper #190 Vol.33, San Francisco, CA, 2008
- 99. Shultz SJ, Nguyen AD, Levine BJ, Perrin DJ. Lower Extremity Posture is Related to Anterior Knee Laxity. *Medicine and Science in Sport and Exercise* 2008;40(5):S-93
- 100.Nguyen AD, Schmitz RJ, Shultz SJ. Anatomical Contributions of the Hip on Dynamic Knee Valgus. *Medicine and Science in Sport and Exercise* 2008;40(5):S-118
- 101. Ambegaonkar JP, Shultz SJ, Perrin DH, Schmitz RJ, Ackerman TA, Schulz MR. Ground Reaction Forces, but not Knee Muscle Activation, or Sagittal Knee Joint Stiffness Differ between Female Dancers and Basketball Players during Drop Jumps. *Journal of Athletic Training*. 2007;42(2):S-90
- 102. Laurie EM, Nguyen A, Schmitz RJ, Shultz SJ. Prevalence of General Joint Laxity in an Athletic Population. *Journal of Athletic Training* 2007;42(2):S-107
- 103. Leonard MD, Nguyen A, Shultz SJ. Hip Strength as a Predictor of Single Leg Triple Hop for Distance. *Journal of Athletic Training* 2007;42(2):S-102
- 104. Nguyen A, Leonard MD, Shultz SJ. Influence of Static Hip and Pelvis Alignment on Hip Strength. *Journal of Athletic Training* 2007;42(2):S-16
- 105. Rogers BR, Freeman AM, Shultz SJ, Valovich McLeod TC. Neuromuscular Activation of Lower Extremity Muscles in Prepubescent Males and Females During a Single-Leg, Weight-Bearing Perturbation. *Journal of Athletic Training* 2007;42(2):S-78
- 106. Schmitz RJ, Ficklin TK, Shultz SJ, Shimokochi Y, Nguyen A, Perrin DH, Beynnon BD. Varus/Valgus and Internal/External Torsional Knee Joint Stiffness differs between Sexes. *Journal of Athletic Training* 2007;42(2):S-86
- 107. Shimokochi Y. Shultz SJ. Less ankle dorsiflexion range of motion is related to greater ground reaction force during a single leg landing. *Journal of Athletic Training* 2007;42(2):S-80
- 108. Nguyen AD, Moncrieff MJ, Laurie EM, Schmitz RJ, Shultz SJ. Sex Differences in Lower Extremity Posture Across Maturational Stages. *Medicine and Science in Sport and Exercise* 2007;39(5): S-2.
- 109. Shimokochi Y, Schmitz RJ, Perrin DH, Goldfarb AH, Luecht RM, <u>Shultz SJ</u>. Rearfoot Eversion and Tibialis Anterior Muscle Fatigue Are Not Associated with Knee Internal Rotation during a Single-Leg Forward Jump Stop. *Medicine and Science in Sport and Exercise* 2007;39(5): S-79
- 110. Shultz SJ, Shimokochi Y, Nguyen A, Schmitz RJ, Beynnon BD, Perrin DH. Greater Anterior Knee Laxity and General Joint Laxity Predict Greater Varus-Valgus and Rotation Knee Laxity. *Medicine and Science in Sport and Exercise* 2006; 38(5):S66
- 111. Nguyen AD, Shultz SJ. Sex Differences in Lower Extremity Posture. *Medicine and Science in Sport and Exercise* 2006; 38(5):S108
- 112. Shultz SJ, Shimokochi Y, Nguyen A, Schmitz RJ, Beynnon BD, Perrin DH Females with Greater Anterior Knee Laxity Also Have Greater Varus-Valgus and Internal-External Rotation Knee Laxity. *Journal of Athletic Training* 2006; 41(2): S65
- 113.Kulas AS, Schmitz RJ, Shultz SJ, Henning JM, Perrin DH. Sex Differences in Trunk-Pelvis Angle but Not Hip Angle in Landing. *Journal of Athletic Training* 2006; 41(2): S14
- 114. Shimokochi Y, Schmitz RJ, <u>Shultz SJ</u>. Knee extensor moment is related to plantarflexor moment and center of pressure in the anterior/posterior plane. *Journal of Athletic Training* 2006; 41(2): S99
- 115. Nguyen A, Shultz SJ. Identifying Relationships of Static Lower Extremity Postural Characteristics. *Journal of Athletic Training*. 2006;41(2): S19
- 116. Shultz SJ, Shimokochi Y., Nguyen A, Ambegaonkar JA, Schmitz RJ, Beynnon BD, Perrin DH. Non-weight Bearing Anterior Knee Laxity is Related to Anterior Tibial Translation During Transition from Non-weight bearing to Weight bearing. ACL Research Retreat, III. ACL Injuries: The Gender Bias. Journal of Orthopaedic and Sports Physical Therapy (In Press)
- 117. Shimokochi Y, Lee SY, Schmitz RJ, Shultz SJ. Eccentric Thigh Strength and Ankle Eversion Motion Predict Tibial Internal Rotation at the Knee. ACL Research Retreat, III. ACL Injuries: The Gender Bias. *Journal of Orthopaedic and Sports Physical Therapy (In Press)*

- 118. Schmitz RJ, Kulas AS, Perrin DH, Riemann BL, <u>Shultz SJ</u>. Lower Extremity Energetics Differ by Sex During Single Leg Landings. ACL Research Retreat, III. ACL Injuries: The Gender Bias. *Journal of Orthopaedic and Sports Physical Therapy (In Press)*
- 119. Windley TC, Schmitz RJ, Gross MT, Luecht RM, Perrin DH, Shultz SJ. Hamstrings Pre-Landing Activation Predicts Sagittal Plane Knee Joint Kinetics During a Single-leg Landing in Females. *Journal of Orthopaedic and Sports Physical Therapy*. 2006; 36(1):A71.
- 120. Shultz SJ, Shimokochi Y, Nguyen A, Ambegaonkar JP, Schmitz RJ, Beynnon BD, Perrin DH. Non-Weight Bearing Anterior Knee Laxity is Related to Anterior Tibial Translation During Transition from Non-Weight Bearing to Weight Bearing. *British Journal of Sports Medicine* 2005; 39(6):379. Presented at the 1st World Congress of Sport Injury Prevention; Oslo, Norway June 2005.
- 121. Shultz SJ, Ambegaonkar JP, Botic TL, Kulas AS, Nguyen A, Shimokochi Y, Windley, TC, Beynnon BD. Intratester and Intertester Reliability of Clinical Measures of Lower Extremity Anatomical Alignment. *Journal of Athletic Training* 2005; 40(2):S109
- 122. Ambegaonkar JP, Shultz SJ and Perrin DH. Lower Extremity Muscle Activity and Kinetic Patterns Differ Between Double-leg Drop Landings and Drop Jumps. *Journal of Athletic Training* 2005; 40(2):S47
- 123. Shimokochi Y, Schmitz RJ, Lee SY, Windley TC, <u>Shultz SJ</u>. Plantar Flexor to Dorisflexor Isokinetic Eccentric Strength Ratio and Ankle Eversion Predict Tibial Internal Rotation During a Single-Leg Landing. *Journal of Athletic Training* 2005; 40(2):S33
- 124.Kulas AS, Schmitz RJ, Shultz SJ, Ulm, M, Perrin DH. Validation of Abdominal Hollowing in Standing Versus 4 Point Kneeling and Prone Positions. *Medicine and Science in Sport and Exercise* 2005; 37(5):S120
- 125. Kulas AS, Windley TC, Schmitz RJ, Perrin DH, Shultz SJ. Sex Differences in Neuromuscular Responses to Knee Extension Perturbations as Evidenced by Reflex Timing, Amplitude and Knee Extension Moments. *Journal of Athletic Training*. 2004; 39(2):S16
- 126.Perrin DH, Kirk SE, Sander TC, Shultz SJ. Minimum Serum Hormone Levels at Menses Predict the Magnitude of Change in Knee Joint Laxity Across the Menstrual Cycle. *Journal of Athletic Training*. 2004; 39(2):S13
- 127. Sander TC, Gansneder BM, Bunker LK, Gaesser GA, Saliba EN, Perrin DH, Shultz SJ. Females Utilize Quadriceps Dominant Landing Strategies That Increase Knee Shear Forces and Internal Extension Moments. *Journal of Athletic Training*. 2004; 39(2):S110
- 128. Schmitz RJ, Shultz SJ, Kulas AS, Windley TC, Perrin DH. Between-Day 3D Kinematic Measurement Consistency during Lower Extremity Perturbations. *Journal of Athletic Training*. 2004; 39(2):S116
- 129.Martin NMG, Sanderson HL, Schmitz RJ, Perrin DH, Shultz SJ, Watson MA. Functional Fatigue Decreases Leg Spring Stiffness During Drop Landings. *Journal of Athletic Training*. 2004; 39(2):S113
- 130. Shultz SJ, Windley TC, Kulas AS, Schmitz RJ, Valovich- McLeod TC, Perrin DH. Within and Between Test Measurement Consistency Obtained from a Custom Reflex Testing Device. *Journal of Athletic Training*. 2004; 39(2):S116
- 131. Windley TC, Kulas AS, <u>Shultz SJ</u>, Perrin DH, Schmitz RJ. Navicular Drop Predicts Transverse Plane Knee Moments in a Single-Leg Weight-Bearing Perturbation. *Journal of Athletic Training*. 2004; 39(2):S30
- 132. Shultz SJ, ML Johnson, SE Kirk, TC Sander, DH Perrin. Sex Hormones Explain More of The Variance in Anterior Knee Laxity Across the Menstrual Cycle When a Time Delay Is Considered. *Med Sci Sports Exer*. 2004; 36(5):S36
- 133. Perrin DH, SE Kirk, TC Sander, <u>SJ Shultz</u>. Sex Differences in Knee Joint Laxity Change Across the Female Menstrual Cycle. *Medicine and Science in Sports and Exercise*. 2004; 36(5):S151
- 134.Kulas TS, RJ Schmitz, TC Windley, <u>SJ Shultz</u>, DH Perrin. Pilot Investigation: Sex specific effects of abdominal maneuvers on lower extremity energetics during landings. *Medicine and Science in Sports and Exercise*. 2004; 36(5):S230
- 135. Windley TC, Kulas AS, Schmitz RJ, Perrin DH, <u>Shultz SJ</u>. Tibiofemoral Angle, Not Q-angle, is Related to Frontal Plane Lower Extremity Kinematics During a Weight-Bearing Perturbation. *Medicine and Science in Sports and Exercise*. 2004; 36(5):S345-6
- 136. Shultz SJ, Carcia CR, Perrin DH. Knee Joint Laxity Affects Muscle Activation Patterns at the Knee. *Journal of Orthopaedic and Sports Physical Therapy* 2003; 33(8):A20
- 137. Anstee LJ, Docherty CL, Gansneder BM, <u>Shultz SJ</u>. Intertester and Intratester of a Functional Movement Screen. *Journal of Athletic Training*. 2003;38(2):S85

- 138.Bell DR, Sander TC, Gansneder BM, Shultz SJ. Posterior Trunk Position Increases Reflex Amplitude at the Knee in Response to a Perturbation. *Journal of Athletic Training*. 2003;38(2):S103
- 139. Carcia CR, Shultz SJ, Granata KP, Gansneder BM, Perrin DH. Controlled Anterior Loading Does Not Affect Knee Joint Behavior Across The Menstrual Cycle. *Journal of Athletic Training*. 2003;38(2):S14
- 140.Drouin JM, Arnold BL, Gansneder BM, Shultz SJ, Perrin, DH. The Relationship Between Muscular Amplitude During a Stepping Task and Subjectively Reported Ankle Instability. *Journal of Athletic Training*. 2003;38(2):S12
- 141.Eggen JM, Carcia CR, Gansneder BM, Shultz SJ. Hip Abductor Fatigue Affects Knee Motion Following a Drop Jump. *Journal of Athletic Training*. 2003;38(2):S22
- 142. Gross SM, Carcia CR, Gansneder BM, Shultz SJ. Rate of Force Application Affects Stiffness but not Displacement Measures with the KT 2000. *Journal of Athletic Training*. 2003;38(2):S111
- 143.Kelly TK, Zinder SM, Gansneder BM, Shultz SJ. The Effect of Peroneal Muscle Fatigue on Medial/Lateral Ankle Stiffness. *Journal of Athletic Training*. 2003;38(2):S50
- 144.Murrell ML, Sander TC, Gansneder BM, Shultz SJ. Moderate Exertion Does Not Substantially Affect Neuromuscular Characteristics of the Lower Extremity Following a Knee Perturbation. *Journal of Athletic Training*. 2003;38(2):S49
- 145. Susco TM, Valovich TC, Gansneder BG, Shultz SJ. Balance Recovers within Twenty Minutes Following Exertion as Measured by the Balance Error Scoring System. *Journal of Athletic Training*. 2003;38(2):S104
- 146. Tripp BL, Boswell LL, Gansneder BM, <u>Shultz SJ</u>. The effect of functional fatigue on active multi-joint position reproduction of the throwing shoulder. *Journal of Athletic Training*. 2003;38(2):S71
- 147. Valovich TC, Perrin DH, Guskiewicz KM, Diamond R, Shultz SJ, Gansneder BM. Test-retest Reliability and Reliable Change Index Scores of the Standardized Assessment of Concussion and Balance Error Scoring System in Young Athletes. *Journal of Athletic Training*. 2003;38(2):S27
- 148.Zinder SM, Shultz SJ, Gansneder BM, Gieck JH, Granata KP. Ankle braces improve passive but not active ankle stability in functionally unstable and healthy subjects. *Journal of Athletic Training* 2003;38(2):S51
- 149. Shultz SJ, Perrin DH (FACSM), Sander TC, Kirk SE. Knee Laxity but Not Compliance Increases Across the Menstrual Cycle. *Medicine Science in Sports & Exercise*. 2003; 35(5):S81
- 150. Valovich TC, Guskiewicz KM, Diamond R, Shultz SJ, Gansneder BM, Perrin DH (FACSM). Practice Effects with Serial Administration of Clinical Concussion Assessments in Healthy Young Athletes. *Medicine Science in Sports & Exercise*. 2003; 35(5):S247.
- 151.Sander TC, Shultz SJ, Gansneder BM. Muscular Co-contraction Increases Muscular Preactivity and Reflex Peak Amplitude After Functional Knee Perturbations. *Journal of Orthopaedic and Sports Physical Therapy*. 2003;33(2):A51
- 152. Shultz S.J., Carcia C.R., Gansneder B.G., Perrin D.H. Lower Extremity Limb Alignment Effects Neuromuscular Activation Patterns in Weight Bearing. *Journal of Athletic Training*. 2002; 37(2):S28
- 153. Shultz S.J., Carcia C.R. & Hargrave M.D. Gender Differences in Muscle Activation Patterns and Peak Vertical Force During a Single Leg Forefoot Landing. *Journal of Athletic Training*. 2002; 37(2):S19
- 154.Cote K, Brunet ME, & Shultz SJ. The Effect of Foot Type on Static and Dynamic Postural Balance. *Journal of Athletic Training*. 2002; 37(2):S93
- 155.D'Amico JD, Boswell LL & <u>Shultz SJ</u>. The Effect of Fatigue on Dynamic Balance in Subjects with Functional Unstable vs Stable Ankles. *Journal of Athletic Training*. 2002; 37(2):S22
- 156.Hargrave MD, Carcia CR, Shultz SJ, & Gansneder BM. Subtalar Pronation Does Not Affect Impact Forces and Absorption During a Single Leg Forefoot Landing. *Journal of Athletic Training*. 2002; 37(2):S26
- 157. Terranova A, Zinder SM & Shultz SJ. The Effect of Functional Ankle Instability and Taping on Peroneal Muscle Latency Following a Sudden Inversion Perturbation. *Journal of Athletic Training*. 2002; 37(2):S21
- 158.Perrin DH, Shultz SJ, Sander TC, Carcia CR. Reliability of Ligament Compliance and Tibial Displacement Measures Obtained from Two Knee Arthrometers. *Medicine and Science in Sports and Exercise*. 2002; 34(5):S147
- 159. Shultz SJ, Sander TC, Carcia CR, Perrin DH. Knee Arthrometer Measurement Consistency of Slope and Displacement as Calculated by Software that Replaces Radiography. *Medicine and Science in Sports and Exercise*. 2002; 34(5):S147

- 160. Sander TC, Shultz SJ, Carcia CR, Perrin DH. Knee Arthrometer Measurement Stability of Anterior Displacement and Ligament Compliance Across Repeated Trials. *Medicine and Science in Sports and Exercise*. 2002; 34(5):S147
- 161.Zinder SM, Granata KP, Perrin DH, Arnold BL, <u>Shultz SJ</u>, & Gansneder BM. Reliability and Validity of Inversion/Eversion Effective Ankle Stiffness Measurement. *Med Sci Sports Exer* 2002; 34(5):S178
- 162. Shultz SJ, Carcia CR & Perrin DH. Performance Consistency of Reflex Response Times Following a Lower Extremity Functional Perturbation. *Medicine and Science in Sports and Exercise*. 2001;33(5):S89
- 163. Carcia CR, Shultz SJ, & Perrin DH. Neuromuscular Recruitment at the Knee Following a Functional Perturbation at Three Knee Flexion Angles. *Medicine and Science in Sports and Exercise*. 2001;33(5):S89
- 164. Shultz SJ, Perrin DH, Gansneder BM, Granata KP, Adams JM & Arnold BL. Effect of Lower Extremity Limb Alignment on Muscular Activation Patterns. ACL Injuries: The Gender Bias National Research Retreat I. Lexington, KY April 2001. Journal of Clinical Biomechanics (Reprint of Previous Abstract)
- 165. Shultz SJ, Changes in Knee Joint Compliance Index and Maximal Displacement Across the Menstrual Cycle. ACL Injuries: The Gender Bias National Research Retreat I. Lexington, KY April 2001. Journal of Clinical Biomechanics (Accepted Reprint of Previous Abstract)
- 166.Depp TM, Padua DP. Shultz SJ, Gansneder BM. The Effects of Foot Orthotics on Muscle Activation Patterns in Selected Lower Extremity Muscles. *Journal of Athletic Training*. 2001; 36(2):S65
- 167. Drouin JM, Valovich TC, <u>Shultz SJ</u>, Perrin DH, Gansneder BM. Validity of the Biodex™ System 3 Pro Isokinetic Dynamometer Position, Torque and Velocity Measurements. *Journal of Athletic Training*. 2001;36(2):S103
- 168. Moore BD, Drouin J, Shultz SJ, Gansneder BM. The Effect of Gender and Fatigue on Electromechanical Delay in Elite Athletes. *Journal of Athletic Training*. 2001; 36(2):S9
- 169.Olmsted LC, Carcia CR, Shultz SJ, Gansneder BM. The Effect of Functional Ankle Instability on Performance of the Star Excursion Balance Test. *Journal of Athletic Training*. 2001; 36(2):S75
- 170. Teprovich JM, King MA, Perrin DH, Gansneder BM, Shultz SJ. Functional Playing Position Does Not Effect Quadriceps and Hamstring Average Torque and Muscle Group Ratios in Division I Female Field Hockey and Lacrosse Players. *Journal of Athletic Training* 2001;36(2):85
- 171. Valovich TC, Drouin JM, Shultz SJ, Perrin DH, Gansneder BM. Reliability of the Biodex™ System 3 Pro Isokinetic Dynamometer Velocity, Torque and Position Measurements. *Journal of Athletic Training*. 2001;36(2):S103
- 172. Demeritt KM, Shultz SJ, Perrin DH, Gansneder BM. Functional Ankle Instability Does Not Effect Lower Extremity Functional Performance. *Journal of Athletic Training*. 2000; 34(2):S39
- 173. Hobbs MC, Shultz SJ, Arnold BL, Gansneder BM. Changes in Knee Joint Compliance Index and Maximal Displacement across the Menstrual Cycle. *Journal of Athletic Training*. 2000; 34(2):S37
- 174.Rose HM, Shultz SJ, Arnold BL, Gansneder BM. The Effect of Orthotic Intervention on Muscular Response Times and Activation Patterns at the Knee. *Journal of Athletic Training*. 2000; 34(2):S32
- 175. Shultz SJ, Perrin DH, Gansneder BM, Granata KP, Adams JM & Arnold BL. Effect of Lower Extremity Limb Alignment on Muscular Activation Patterns. *Medicine and Science in Sports and Exercise*. 1999; 31(5):S284
- 176. Shultz SJ, Perrin DH, Gansneder BM, Granata KP, Adams JM & Arnold BL. Neuromuscular Response Characteristics in Males and Females Following Knee Perturbation. *Journal of Athletic Training*. 1999;34(2):S11
- 177.Oshikoya CA, Shultz SJ, Perrin DH, Arnold BL, Mistry D & Gansneder BM. Effect of Coupling Medium Temperature on Rate of Intra-muscular Temperature Rise Using Continuous Ultrasound. *Journal of Athletic Training*. 1999; 34(2):S74

#### **Books**

- Shultz, S.J., Valovich McLeod, T, Houglum, P.A. & Perrin, D.H. Examination of Musculoskeletal Injuries. 5<sup>th</sup> Edition. Human Kinetics: Champaign, IL. (In Preparation)
- <u>Shultz, S.J.</u>, Houglum, P.A. & Perrin, D.H. <u>Examination of Musculoskeletal Injuries</u>. 4<sup>th</sup> Edition. Human Kinetics: Champaign, IL. 2016.
- <u>Shultz, S.J.</u>, Houglum, P.A. & Perrin, D.H. <u>Examination of Musculoskeletal Injuries</u>. 3<sup>rd</sup> Edition. Human Kinetics: Champaign, IL. 2010.

<u>Shultz, S.J.</u>, Houglum, P.A. & Perrin, D.H. <u>Examination of Musculoskeletal Injuries</u>. 2<sup>nd</sup> Edition. Human Kinetics: Champaign, IL. 2005.

Shultz, S.J., Houglum, P.A. & Perrin, D.H. Assessment of Athletic Injuries. Human Kinetics: Champaign, IL. 2000.

### **Book Chapters**

Shultz SJ. (2016) "Chapter 6: The Effect of Sex Hormones on Ligament Structure, Joint Stability and ACL Injury Risk". In Sex Hormones, Exercise and Women: Scientific and Clinical Aspects. 2<sup>nd</sup> Edition Hackney A, Ed. Springer Science+Business Media, New York. 2<sup>nd</sup> Edition in Preparation (Submission expected February 28<sup>th</sup>, 2022)

Shultz S.J. & Schmitz R.J. (2018) "Chapter 22. Current Understanding and Directions Future Research" In <u>ACL Injuries in the Female Athlete</u>. 2<sup>nd</sup> Edition FR Noyes & S Barber-Westin, Eds. Springer-Verlag. 271 pages (pp. 641-666)

Shultz SJ. (2016) "Chapter 6: The Effect of Sex Hormones on Ligament Structure, Joint Stability and ACL Injury Risk". In Sex Hormones, Exercise and Women: Scientific and Clinical Aspects. Hackney A, Ed. Springer Science+Business Media, New York. 370 pages. (pp. 113-138)

Caldwell M, Casey E, Powell B & <u>Shultz SJ</u>. 2016 "Influence of Sex Hormones on the Musculoskeletal System" In <u>Sex and Gender Differences in Sports Medicine</u>. Demos Medical Publishing, New York.

Shultz S.J. & Schmitz R.J. "Chapter 22. What we Know and Goals for Future Research" In <u>ACL Injuries in the Female</u> Athlete. FR Noyes & S Barber-Westin, Eds. Springer-Verlag. 450 pages. 2013 (pp 507-524)

Shultz S.J. & Brumels K. "Chapter 7. Injury Mechanisms and Classifications" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 163-182)

Shultz S.J. & Brumels K. "Chapter 8. Principles of Examination" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 183-200)

Shultz S.J. & Brumels K. "Chapter 9. Upper Extremity Injury Recognition" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 201-222)

Shultz S.J. & Brumels K. "Chapter 10. Lower Extremity Injury Recognition" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 223-248)

Shultz S.J. & Brumels K. "Chapter 11. Head, Spine, and Thorax Injury Recognition" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 249-276)

Shultz S.J. & Brumels K. "Chapter 12. General Medical Conditions" In Core Concepts in Athletic Training and Therapy. S.K. Hillman, Ed. Human Kinetics: Champaign. 613 pages. 2012 (pp. 277-306)

Shultz S.J., Nguyen A.D. "Gender Differences in Anatomy". In <u>Unique Considerations of the Female Athlete</u>. Thomas Delmar Learning: New York. 2009

Shultz S.J., Nguyen A.D., Beynnon B.D. Chapter 20: "Anatomical Factors in ACL Injury Risk" In <u>Understanding and Preventing Non-Contact ACL Injury</u>. <u>TE Hewett, LY Griffin, & SJ Shultz Editors</u>. Human Kinetics: Champaign, IL. 310 pages. 2007 (pp. 239-258)

Shultz S.J. Chapter 19: "Hormonal Influences on Ligament Biology" In <u>Understanding and Preventing Non-Contact ACL Injury</u>. <u>TE Hewett, LY Griffin, & SJ Shultz Editors</u>. Human Kinetics: Champaign, IL. 310 pages. 2007 (pp. 219-238)

Shultz S.J. Chapter 6: "Preventative Training Programs: Changing Strength Ratios versus Positions of Muscular Efficiency?" In <u>Understanding and Preventing Non-Contact ACL Injury</u>. <u>TE Hewett, LY Griffin, & SJ Shultz Editors</u>. Human Kinetics: Champaign, IL. 310 pages. 2007 (pp. 91-102)

Shultz S.J. Introduction to Grant Writing and Research Funding Sources. 2005. In: Arnold B.L., Perrin D.H. & Gansneder B.G. Research in Athletic Training. Philadelphia: F.A. Davis; Chapter 19.

Perrin D.H., <u>Shultz S.J.</u> *Models for clinical research involving proprioception and neuromuscular control*. 2000. In: Lephart SM, Fu FH, eds. <u>Proprioception and Neuromuscular Control in Joint Stability</u>. Champaign: Human Kinetics.

#### **Book Editor**

Section IV: Hormonal and Anatomical Risk Factors and Preventative Bracing for ACL Injuries. Shultz SJ. Section Editor. In Understanding and Preventing Non-Contact ACL Injury. 2005. Human Kinetics: Champaign, IL.

#### **Book Ancillaries / Multimedia Publications**

Shultz, S.J., Houglum, P.A. & Perrin, D.H. Examination of Musculoskeletal Injuries Presentation Package (CD ROM). 2000. Human Kinetics: Champaign, IL.

Valovich, T.C. for Shultz, S.J., Houglum, P.A. & Perrin, D.H. Assessment of Athletic Injuries Graphics Package (CD ROM). 2000. Human Kinetics: Champaign, IL.

Valovich, T.C. for Shultz, S.J., Houglum, P.A. & Perrin, D.H. Assessment of Athletic Injuries Instructor Guide and Test Package (CD ROM). 2000. Human Kinetics: Champaign, IL.

#### Monographs / Handbooks

Pollard CD, Sigward SM, and Shultz SJ. Risk Factors for ACL Injuries. Monograph for Independent Study Course 19.1 Update on Anterior Cruciate Ligament Injuries Orthopaedic Section, American Physical Therapy Association. Approval Dates 2009-2010.

Shultz, S.J., Valovich, T.C. & Zinder, S.M. Sports Medicine Handbook. 3rd Edition. National Federation of State High School Associations: Indianapolis, IN. In Press.

Shultz, S.J., Valovich, T.C. & Zinder, S.M. Sports Medicine Handbook. 2nd Edition. National Federation of State High School Associations: Indianapolis, IN. 2002.

Shultz, S.J., NFL Youth Football Project. Series of articles on the topic of Strength and Conditioning specific to youth football sport participation. "Essential Components of a Strength and Conditioning Program", "Proper Warm Up and Cool Down", and "When Not to Ignore Aches and Pains". National Football League, 2002.

Shultz, S.J., Zinder, S.M. & Valovich, T.C. Sports Medicine Handbook. National Federation of State High School Associations: Indianapolis, IN. 2001.

Shultz, SJ, Rudd, D.A., Miller, D.A. & Dixon-Burns, A. Revised Recommendations and Guidelines for Appropriate Medical Coverage of Intercollegiate Athletics. National Athletic Trainers Association; Dallas, TX. March 2003

Shultz, SJ, Rudd, D.A., Miller, D.A. & Dixon-Burns, A. Recommendations and Guidelines for Appropriate Medical Coverage of Intercollegiate Athletics. National Athletic Trainers Association; Dallas, TX. March 2000

#### TEACHING AND ADVISING

#### **Course Instruction**

University of North Carolina @ Greensboro: Department of Exercise & Sport S	Sciences
"Recognition of Injuries and Illness in Physical Activity (KIN 353)	Spring 2018 - 2020
"Neural Aspects of Injury and Rehabilitation" (KIN 711): Instructors	Spring 2012
"Applying Research to Profession Practice in Kinesiology" (KIN 601): Instructor	Spring 2011, 2012
"Research Seminar in Applied Neuromechanics (KIN 702): Instructor	Fall & Spring 2005-Present
"Neural Aspects of Motor Control (KIN 730): Co-Instructor	Spring 2004, 2006, 2008, 2010, 2018
"Doctoral Seminar in Grant Writing" (KIN 798): Instructor	Fall 2003-2006, 2009-2020
"Doctoral Seminar in Grant Writing (KIN 798 – Online): Developer and Instruct	or Spring 2017
"Management and Professional Issues in Athletic Training" (KIN725): Co-Instru	ector Fall 2003, 2004, 2005
"Therapeutic Techniques in Rehabilitating Athletic Injuries" (KIN 640): Instruct	tor Spring 2003 - 2006, 2008
"Clinical Education III: Athletic Injury Assessment" (KIN 541): Co-Instructor	Fall 2002

University of Virginia: Department of Human Services	
"Orthopedic Basis of Sport Injury" (EDHS 841): Instructor	Spring 2002
"Emergency Medical Care" (EDHS 451/552): Instructor	Spring 2000, 2001, 2002
"Seminar in Educational Research" (EDHS 744): Co-Instructor	Spring 2000, 2001, 2002
"Masters Thesis: Research in Athletic Training" (EDHS 899): Co-Instructor	Fall & Spring 1999-2002
"Current Trends in Athletic Training" (EDHS 850): Instructor	Fall 1999, 2000, 2001
"Doctoral Seminar in Grant Writing" (EDHS 850): Instructor	Fall 2000
"Instrumentation in Clinical Assessment and Sports Medicine Research" (EDHS 589).	Instructor Spring & Fall 1999
"Masters Thesis: Research in Athletic Training" (EDHS 899): Teaching Assistant	Fall & Spring 1997-98
"Anatomical Basis of Sports Medicine" (EDHS 758): Graduate Assistant Instructor	Summer 1998

"Skeletal Biomechanics" (BIOM 793): Guest Lecturer	Fall, 2000
"Orthopaedic Basis of Athletic Training" (EDHS 841): Guest Lecturer	Spring 1998 & 1999
"Advanced Athletic Training" (EDHS 589): Guest Lecturer	Spring 1998
UCLA Extension: Department of Humanities, Sciences and Social Sciences	
"Basic Care and Prevention of Athletic Injuries" (X457.5)	Winter 1995 & 1996
"Advanced Athletic Training: Evaluation of Athletic Injuries" (X457.4)	Spring 1993 & 1994
"Prevention and Recognition of Injuries for Fitness Instructors" (X468)	Winter 1994
California State University, Fullerton: Depart, of Kinesiology and Health Promotions	

"Rehabilitation and Therapeutic Modalities" (PHED 367): Co-Instructor

Fall 1993 & 1994

# **Doctoral Advisory / Dissertation Committee Chair**

Justin Fegley (2021-Present).

Jennifer Hogg (2013 – 2017). "The Influence of Femoral Structure, Hip Capsular Constraints, and Gluteal Muscle Strength and Activation on Temporal Patterns of Functional Valgus Collapse"

Matthew Wittstein (2013 - 2016). "Variability and Coupling of Cardiac and Locomotor Rhythms During Treadmill Walking Tasks"

Justin Waxman (2012 – 2016). "The Influence of Hamstring Musculo-Articular Hamstring Stiffness on Biomechanical Factors of ACL Loading"

Jeffrey Taylor (2012 – 2016). "Differential Biomechanical Effects of an ACL Injury Prevention Program in Women's Basketball and Soccer Players"

Michele Pye (2010-2014). "Comparison of Neuromuscular Control Strategies between Collegiate Female Dancers and Athletes"

Amanda Tritsch (2009-2013). "Associations between Physical Characteristics and Landing Biomechanics in Adolescent Females"

Vasanth Subramanian (2009-2014; Co-Chair w/ K Kornatz). "Effect of Low Back Pain on Movement Accuracy" (DNF)

Melissa Montgomery (2007 – 2011). "The Effect of Lean Body Mass and Strength on Lower Extremity Energy Absorption Strategies during Landing"

John Cone (2007 - 2010). "The Effect of an Individualized Soccer Match Simulation on Movement and Performance" Hyunsoo Kim (2006 – 2011). Did not complete program.

Aaron Terranova, Ed.D. (2005 - 2008; Co-Chair with JM Henning). "The Relationship Between Job Satisfaction and Intent to Leave in Collegiate Certified Athletic Trainers"

Anh-Dung Nguyen, PhD (2004 - 2007). "Effects of Lower Extremity Posture on Hip Strength and Their Influence on Lower Extremity Kinematics During a Single Leg Squat"

Yohei Shimokochi, PhD (2003 – 2006). "The Effect of Tibialis Anterior Fatigue on Knee Internal Rotation and Ankle Eversion During Heel to Toe Landings"

Jatin Ambegoankar, PhD (2003 - 2006; Co-Chair with DH Perrin). "A Comparison of Muscle Activation and Knee Joint Stiffness between Female Dancers and Basketball Players during Drop Jumps"

Michelle Lesperance, Ed.D (2002 – 2008; Co-Chair with JM Henning). "The Effects of Problem-Based Learning on Students' Critical Thinking Skills"

Thomas Windley, PhD (2002 - 2005). "Anatomical and Neuromuscular Contributions to Anterior Knee Shear Force During Single-Leg Landings in Females"

Christopher Carcia, PhD (1999 - 2002). "Effect of Controlled Loading on Knee Ligament Behavior Between Genders"

Todd Sanders, PhD (2000-2003). "Sex Related Motor Control Compensations During Landing Tasks"

# **Doctoral Advisory / Dissertation Committee Member**

Elizabeth Bjornsen, UNC Chapel Hill (2023-)

Jacob Thompson, NC State University (2023 - )

Brandon Warner (2019 - ). "Development of Practice-Based Seminar for the Use of Electrical Stimulation on Acute and Post-Operative Pain"

Anne Park-Braswell (2016-2020). "The Impact of Differential Knee Laxity on Brain Function/Structure and Postural Control"

Hsing-Min Wang (2011 – 2017). "The Relationship of ACL Morphology and Structural Composition to Knee Joint Laxity"

Marc Norcross (2010-2012). "Energetic Analysis of Landing: A Novel Approach to Understanding Anterior Cruciate Ligament Injuries" (Doctoral Student at University of North Carolina at Chapel Hill)

Jerome Sauret (2007 – 2011). "The Validation of sEMG-Torque Relationship During a Dynamic Landing Task"

Megan Granquist (2005 – 2008). "Development of a Rehabilitation Adherence Measure for Athletic Training"

Lee Howard, PhD (2002 – 2005). "Kinematic and Kinetic Effects of Knee and Ankle Sagittal Plane Joint Restrictions During Squatting"

Anthony Kulas, PhD (2002 – 2005). "Effects of the Abdominal Hollowing Maneuver on Lower Extremity Biomechanics during Drop Landings"

Carrie Docherty, PhD (2000 – 2003). "Characteristic changes in functional performance in volunteers with ankle instability" (Advisory Committee Only)

Joshua Drouin, PhD (1999 – 2002). "The Relationship Between Muscular Timing and Magnitude During a Stepping Task and Subjectively Reported Ankle Instability"

Steven Zinder, PhD (1999 – 2002). "The Effect of Ankle Bracing and Functional Ankle Instability on Inversion/Eversion Ankle Stiffness"

Tamara Valovich, PhD (1998 – 2001). "The Use of the Standardized Assessment of Concussion and Balance Error Scoring System and Learning Effects in Youth Sports Participants"

#### **Masters Thesis Committee Chair**

Elvis Foli (2017-2021). "The Biological Effect of Progestins on Anterior Knee Laxity in Females on Oral Contraceptive Pills"

Mara Mohler (2012 – 2014). "The Ability of the FMS to Predict Knee Injury in Female Collegiate Athletes"

Elena Schacht (2012 – 2014). "Effect of Ankle Dorsiflexion Range of Motion on Knee Biomechanics; Implications for Patellofemoral Pain Syndrome"

Lavanya Kailas (2009 – 2011). "Effect of Oral Contraceptive Pills on Anterior Cruciate Ligament Injury Risk"

Ashley Rockey, MS (2006 – 2008). "The Relationship between Anterior Pelvic Tilt, Hamstring Extensibility and Hamstring Strength"

Krystal Smith, MS (2005 – 2007). "Hormone Status and Measures of Joint Laxity"

Tyler Hamilton, MS (2004 – 2006). "Tests of Lower Limb Strength, Power and Balance as Predictors of Performance on a Single Leg Triple Hop for Distance"

Timothy Botic, MS (2003 – 2005). "Development of a Landmark Protocol to Construct Segment Axes for Lower Extremity Kinematic Analyses"

Linda Anstee, M.Ed. (2001 – 2002). "Intertester and Intratester Reliability of a Functional Movement Screen<sup>TM</sup>"

David Bell, M.Ed. (2001 – 2002). "The Effect of Trunk Position on Reflex Timing and Amplitude in Response to a Lower Extremity Perturbation"

James Eggen, M.Ed. (2001 – 2002). "Hip Abductor Fatigue Affects Frontal Plane Motion Following a Drop Jump"

Scott Gross, M.Ed. (2001 – 2002). "Effect of Rate of Force Application on Anterior Knee Laxity and Stiffness"

Timothy Kelly, M.Ed. (2001 – 2002). "The Effect of Peroneal Muscle Fatigue on Medial/Lateral Ankle Stiffness"

Sarah Lathrop, M.Ed. (2001 – 2002). "Evaluation of Eating Behaviors and Attitudes in Male Athletes Using Two Survey Instruments"

Monica Murrell, M.Ed. (2001 – 2002). "The Effect of Moderate Exertion on Neuromuscular Activation Following a Lower Extremity Perturbation"

Katie Rybak, M.Ed. (2001 – 2002). "The Effect of Functional Ankle Instability on Static and Dynamic Joint Reposition Sense"

Thomas Susco, M.Ed. (2001 - 2002). "Gender Effects on Balance Recovery Timelines from Exertion as Measured using the Balance Error Scoring System."

Lauren Swisher, M.Ed. (2001 – 2002). "Gender Differences in Muscular Activation Patterns at the Knee in Pre-pubescents"

Brady Tripp, M.Ed. (2001 – 2002). "The Effects of Functional Fatigue on Active Multi-joint Position Reproduction of the Throwing Shoulder"

Shelley Croom, M.Ed. (2001 – 2002). "The Effect of Lower Extremity Injury on Postural Control as Measured by the Balance Error Scoring System"

Karen Cote, M.Ed. (2000 – 2001). "Effect of Foot Type on Center of Pressure and Balance"

Jennifer D'Amico, M.Ed. (2000 - 2001). "The Effect of Functional Fatigue on Balance in Stable and Unstable Ankles"

Melissa Hargrave, M.Ed. (2000 – 2001). "Influence of Navicular Drop on Ground Reaction Forces and Rate of Loading During Landing"

Aaron Terranova, M.Ed. (2000 – 2001). "The Effect of Athletic Taping on Fibularis Muscle Latency"

Tori Depp, M.Ed. (1999 – 2000). "The Effect of Foot Orthotics on Muscle Activation Patterns in Selected Lower Extremity Muscles During Gait"

Brian Moore, M.Ed. (1999 - 2000). "The Effect of Gender and Fatigue on Electromechanical Delay in Elite Athletes"

Lauren Olmsted, M.Ed. (1999 – 2000). "Effects of Functional Ankle Instability on the Performance of the Star Excursion Balance Test"

Jasper Richardson, M.Ed. (1999 – 2000). "The Relationship between Foot Placement Angle and Navicular Drop"

#### LEADERSHIP TRAINING

# **BRIDGES Academic Leadership for Women**

Fall 2015

**BRIDGES** is an inclusive professional development program for women in higher education who seek to gain or strengthen their academic leadership capabilities. It is designed to help women identify, understand, and build their leadership roles in the academy. Through an intensive program, participants: 1) develop insights into leadership, with a particular focus on the special skills and attributes women bring to their leadership roles; 2) acquire an understanding of the many facets of colleges and universities; 3) refine and improve their cross-cultural communication skills; and 4) create a program of personal and professional development to benefit themselves and their institutions.

#### **SERVICE**

#### **University Service - Administrative**

# University of North Carolina at Greensboro

Director, Center for Women's Health and Wellness, School of Health and Human Sciences

August 2020 - Present
The mission of the Center for Women's Health and Wellness is to advance the health and wellness of all women and girls through collaborative research, educational programs, and community engagement.

Chair, Department of Kinesiology

April 2013 – June 2017

Responsible for planning, program development, budget allocations and management of resources, student services, curricula, accreditation, recommendation for appointments as well as promotion and tenure recommendations in consultation with the faculty, faculty and staff orientation and development, resource enhancement, and the advancement of the department's mission and goals within the University and the College or school. The department head represents

the department on and off campus and fosters interdepartmental relationships as well as interactions with appropriate external constituencies.

Interim Chair, Department of Kinesiology

August 2012 – April 2013

Responsible for planning, program development, budget allocations and management of resources, student services, curricula, accreditation, recommendation for appointments as well as promotion and tenure recommendations in consultation with the faculty, faculty and staff orientation and development, resource enhancement, and the advancement of the department's mission and goals within the University and the College or school. The department head represents the department on and off campus and fosters interdepartmental relationships as well as interactions with appropriate external constituencies.

Graduate Studies Committee (Department of Kinesiology)

September 2010 – August 2011

In cooperation with The Graduate School, Department Head, and Director of Graduate Studies establish, collate, and administer departmental policies regarding a) the recruitment, admission, retention and advising of graduate students; b) the evaluation of graduate program effectiveness; c) the administration of department graduate programs, and d) the monitoring and evaluation of student progress for those who are matriculating through the graduate programs in the Department of Kinesiology. Review and select applicants for graduate student grants and awards.

Director of Graduate Study (Department of Kinesiology)

January 2006 – August 2011

Responsible for the administration of processes related to the recruitment, admission, advising and qualifying of graduate students in the Department of Kinesiology. Directors of Graduate Study work collaboratively with The Graduate School on all matters relating to graduate education. Chair the Department of Kinesiology Graduate Studies Committee.

#### **University Service – Committee Work**

UNCG Research Policies Committee

August 2019 – 2022, 2023-Present

To make advisory recommendations to the Faculty Senate and/or to the Vice Chancellor for Research & Economic Development, acting for the provost, about new policies or changes in existing policies that affect research conducted by faculty at the University. The overall goal for the committee is to enhance the research climate of the University. This is a dean-appointed committee with a three-year term.

UNC Faculty Senate Budget Committee

August 2022 - 2023

To make recommendations to the Vice Chancellor for Business Affairs, the Provost, and other appropriate administrators and to the Senate regarding strategic planning related to the University budget.

HHS Master of Science in Information Analytics (MSIA) task force

*April* 2019

To identify at least on concentration related to health informatics and capitalize on synergies with our expanding collaborations with Cone and planning for the Millennial campus.

Faculty Mentor

UNCG ACE Mentor, Anne Parsons, Department of History	2023 - Present
Grant Writing Mentor, Tracy Nichols, Department of Public Health Education	2021-2022
New Faculty Mentor, Eric Drollette, Department of Kinesiology	2018 - Present
New Faculty Mentor, Traci Parry, Department of Kinesiology	2017 - Present
Grant Writing Mentor, Randy Schmitz, School of Health and Human Sciences	2018 - 2019

#### Faculty Search Committees

Assistant/Associate Professor of Neuroscience; Department of Kinesiology (Chair)	August 2018 - 2020
Department Chair and Professor of Nursing; Department of Family and Comm Health	October 2016 – April 2017
Assistant/Associate Professor and MSAT Program Director	October 2011 – February 2012
Assistant/Associate Professor, Sports Medicine and Applied Neuromechanics (Chair)	December 2009 – May 2010
Associate Dean for Research, School of Health and Human Performance	May 2007 – July 2007
Professor and Head, Department of Exercise and Sport Science (Chair)	December 2006 - 2008
Provost and Vice Chancellor for Academic Affairs	November 2006 – May 2007
Director of Undergraduate Research, Office of the Vice Provost for Research	August 2005 – December 2005
Senior Faculty Member, Department of Public Health Education	October 2003 – June 2004
Senior Research Professor (2 positions), Office of the Provost	November 2003 – June 2005
Athletic Training Program Director, Department of Exercise & Sport Science (Chair)	January 2004-May 2004

#### Research Excellence Selection Committee

*April – May 2010, 2014* 

Reviewed Materials and Selected Research Excellence Award Recipients for the 2009-2010 and 2013-14 Academic Year

Promotion & Tenure Committees

Promotion to Full Professor; Department of Peace and Conflicts Studies

Fall, 2021

Promotion with Tenure; Department of Nanoscience

Fall, 2013

Research Advisory Council (School of Health and Human Performance)

January 2005 - 2008

Advisory committee to the Associate Dean of Research in the School of Health and Human Performance; Serve as Awards Committee for all School research awards.

Center for Women's Health and Wellness (School of Health and Human Performance)

August 2004 – 2007

The mission of the Center for Women's Health and Wellness is to advance the health and wellness of all women and girls through collaborative research and educational programs.

Ed.D. Curriculum Task Force

Spring 2006; 2012-2014

Revised the Ed.D. Program Mission, Vision, Goals and Curricular Program of Study in the Department of Exercise and Sport Science (2006); transition EdD in Kinesiology to fully online program (2012-)

Undergraduate Research Committee

September 2003 – 2006

Interim Chair (2005-2006)

This University Wide committee is intended to support undergraduate research activities on campus, including the review and selection of candidates for undergraduate research internships.

External Grant Reviewer February 2004

NCARS Proposal: "Effect of Exercise Training During Lactation on Maternal Bone Status". C. Lovelady, Principal Investigator. School of Human Environmental Sciences.

Grant Writing Workshop Selection Committee

April 2003

Committee selected by the Associate Provost for Research to review applications and select participants for a one-year intensive grant writing course.

Program Director – CAAHEP Accredited Entry Level Masters Degree Program in Athletic Training 2002 - 2004Responsible for overall direction of the CAAHEP Accredited Entry Level Masters Degree Program; including admission and retention of students, on-going program evaluation, curricular revisions, student orientation and advisement, coordination of in-services, and preparation of annual reports to the Joint Review Committee on Athletic Training Programs.

CAAHEP Accreditation Committee – Entry Level Masters' Degree Program

August 2002 - April 2003

Assisted with completion of the self-study document, and in coordination and preparation for the site-visit. Responsible for the preparation and submission of the UNCG Site Visit Rejoinder.

University of Virginia

Interim Program Director- Graduate Program in Athletic Training

2001-02

Responsible for overall direction of the NATA Accredited Post-Certified Masters Degree Program in Athletic Training, including admission and retention of students, student advisement, program evaluation and annual reporting.

1999 - 2000

Assisted with completion of the self-study document, and in the coordination and preparation for the site-visit.

NATA Accreditation Self Study Committee – Advanced Graduate Program in Athletic Training

# Professional Organizations / Committees - International / National

#### ACL Injury Research Retreat IV, V, VI, VII, VIII & IX

2007 - 2022

Conference Co-Chair – 2008, 2010, 2012, 2015, 2019 & 2022 meetings

Plan and organize meeting, seek sponsors and outside funding to support meeting, review, and selection of abstracts for presentation, program development, secure keynote speakers and moderators.

#### National Academy of Kinesiology

2017 - 2021

Executive Committee – Member at Large (2021-2023)

Doctoral Program Review (2021)

Membership Committee (2016-2019)

National Athletic Trainers' Association - Fellows Award Committee

2020-Present

Review and make recommendations to the Board regarding the awarding of fellowship status.

Orthopedic Research Society- Abstract Reviewer for 2022 Annual Meeting

September 2021

American Kinesiology Association

2014-2018

Board of Directors (Chair, Future Directions Committee 2016-2018)

#### NATA Foundation Mentorship Program

2013 - 2015

Professional Mentor for Marc F Norcross, PhD

Serve as professional and scientific mentor to young academic-researchers in the field of athletic training.

### American Academy of Orthopaedic Surgeons

2015

Appropriate Use Criteria for Management of Anterior Cruciate Ligament Injuries

#### American Academy of Orthopaedic Surgeons

2011 - 2015

Writing Group Member; The Management of Anterior Cruciate Ligament Injuries: Evidence-Based Guideline and Evidence Report. <a href="http://www.aaos.org/research/guidelines/ACLGuidelineFINAL.pdf">http://www.aaos.org/research/guidelines/ACLGuidelineFINAL.pdf</a>. Published September 8, 2014. Participate on a committee of orthopaedists, pediatricians, physical therapists, biomechanists and athletic trainer clinician/researchers to develop clinical practice guidelines on the diagnosis, care, rehabilitation, and prevention of ACL Injuries.

#### National Athletic Trainers' Association

Awards Recognition Task Force (Member)

2010-2013

Review and revise existing award mechanisms.

Pronouncements Committee - Writing Group Member ACL Injury Prevention Position Statement 2010 – 2016 Develop a position statement on the current state of knowledge in ACL injury prevention programs and make recommendations for clinical practice and future research.

Fellows Award Committee (Chair, 2009 - 2013)

2008-2013

Review and make recommendations to the Board regarding the awarding of fellowship status.

Convention Committee 2003-2007

Past Chair (2006-2007); Committee Chair (2004-2006); Chair Elect (2003-04). Oversee the planning and organization of the NATA's Annual Meeting and Clinical Symposia for ~10,000 attendees.

Appropriate Medical Care for Secondary School Athletes Task Force

2002-2005

Writing Team / Research Consultant, Task Force Member. The mission of this task force (comprised of physician, allied health professional, and high school athletic administrative organizations) was to write a consensus statement and background document providing recommendation and guidelines for appropriate medical care of secondary school aged athletes.

Strategic Planning Task Force

2001-2002

Task Force Member; Team Leader for Strengthening Credibility and Visibility. To develop a strategic plan for the National Athletic Trainers' Association to clarify and strengthen professional and public identity; increase funding levels; and effectively address the employment reimbursement, education and regulatory issues affecting the membership.

Convention Committee 1998-2002

Organization and planning of educational programming for the NATA's Annual Meeting and Clinical Symposium; Clinical Program Sub-Committee Chair planning 65 Workshops, Dallas, TX - June 2002; Clinical Program Sub-Committee Chair planning 16 Symposia Sessions, Los Angeles, CA - June 2001; Clinical Program Sub-Committee Chair planning 12 Minicourses, Nashville, TN - June 2000

Appropriate Medical Coverage for Intercollegiate Athletics Task Force

1998-2003

Writing Group Chair; Committee Member. To develop and publish recommendations and guidelines for appropriate medical coverage and care of intercollegiate athletes.

Pronouncements Committee 1997-2004

Committee member. Oversee the development, review, and approval of NATA Position Statements on Lightening Safety (2000), Fluid Replacement (2000), Emergency Planning (2002), Exertional Heat Illness (2002), Spearing (2004), and Sport Related Concussion (2004).

Education Council - Entry Level Education Committee

1997-2000

Committee member. A sub-committee of the National Athletic Trainers' Association Education Council, providing direction, guidelines, and resources for entry-level athletic training education programs.

District Secretary and Treasurer's Committee

1996-1999

Committee member. A committee comprised of the district secretaries and treasurers of the 10 districts of the NATA, to address membership, financial and organization issues.

College and University Athletic Trainers Committee

1994 – 1996

Committee member, 1994-1996; Task Force Member, 1993-94. Mission is to 1) promote institutional ownership in the integrated health care delivery system in intercollegiate athletics; 2) identify and address issues related to the health and safety of the student athlete; and 3) address concerns of the certified athletic trainer in the collegiate setting.

# National Athletic Trainers' Association Research and Education Foundation Research Committee Vice Chair for Student Grants 2009-2012

Review and make recommendations to the Board regarding all grant and research applications awarded through the Foundation; Review, approve and schedule all Free Communications for the Annual Meeting. Review and select research excellence awards.

# World Congress of Sport Injury Prevention

Scientific Committee (2<sup>nd</sup> Congress Tromso, Norway 2008; 3<sup>rd</sup> Congress, Monaco 2011) 2006 – 2011

The role of the scientific committee is to contribute to the planning phase of the meeting, review and selection of topic proposals, speaker selection.

# Joint Review Committee on Athletic Training Education Programs (JRC-AT)

Site-Visitor; Long Island University, Brooklyn, NY
Site-Visitor; Northeaster University, Boston, MA
Spring 2004
Spring 2005

American College of Sports Medicine 1998 - Present

Member #126976

National Strength and Conditioning Association 1988 - Present

Certified Member

REEBOK C.O.R.P.S. Program 1991 - 1996

Member

# **Professional Organizations / Committees - Regional**

# Mid Atlantic Athletic Trainers' Association 1999 - Present

Certified Member

#### Far West Athletic Trainers' Association 1980 - 1999

District Secretary-Treasurer (1996-1999)

College and University Athletic Trainers Committee, Chair (1994 - 1996)

#### **Professional Organizations / Committees - State or Local**

# North Carolina Athletic Trainer's Association 2002 - Present

Certified Member

#### Virginia Athletic Trainer's Association 1999 - 2002

Certified Member

California Athletic Trainer's Association 1985 - 1999

Treasurer: Political Action Committee (1987-1990)

## Consultant / Panelist / Advisory Roles

External Review February 2022

AAOS Clinical Practice Guideline for the Management of Anterior Cruciate Ligament Injuries; American Academy of Orthopaedic Surgeons.

External Examiner April 2016

Samantha J Beckley, PhD Thesis (2021). Exploring the Genetic Contribution to Knee Joint Laxity

#### External Program Review

Department of Kinesiology, California State University Fullerton

October 2017

External Examiner April 2016

Aaron S. Fox, PhD Thesis (2016). Neuromechanics of the Lower Limb: Implications for ACL Injury Prevention

External Examiner October 2014

MC Burger, PhD (2014). Genetic Risk Factors for Carpal Tunnel Syndrome. University of Cape Town, South Africa

# Samara Innovations LLC July 2008 – 2010

Consultant to assist in the development of a business opportunity and associated products in athletic injury prevention, rehabilitation, and performance improvement.

#### International Olympic Committee; Lausanne, Switzerland

February 2008

Participated on an International Expert Panel for Consensus Meeting on ACL Injury in the Female Athlete

#### Oslo Sports Trauma Research Center, Norwegian School of Sports Sciences; Oslo Norway

May 2007

Invited guest to participate in three-day research retreat to critique and provide feedback on student research projects at the MS, PhD, and Post-Doctoral levels.

# University of Michigan Sports Injury Prevention Center

August 2006 – Present

Advisory Council Member: Assist with defining the research direction for the center. Participated in Inaugural symposium to open the center (May 2007).

#### Hunt Valley II: Consensus Conference on ACL Injury Prevention Programs

January 2005

Participant and Presenter: Impact of Prevention Programs on Agonist/Antagonist Strength Ratios Sponsored by the American Orthopaedic Society for Sports Medicine, Atlanta, GA

#### Greensboro Youth Soccer Sports Medicine Consortium

September 2002 – Present

This non-profit group of sports medicine and fitness professionals are developing a web site and educational materials with the goal of "Soccer-related Injury Prevention through Education and Performance Enhancement."

#### Sports Health Care Community Advisory Committee

October 2002 – Present

Arizona School of Health Sciences: Mesa Arizona

The committee serves to insure the ASHS Sport Health Care Program remains in the professional forefront, exceeds accreditation requirements, attracts qualified students and faculty, and improves the health within their community, the nation and profession.

#### AOSSM, NATA & NCAA Consensus Group on Non-Contact ACL Injury

June 1999

Participant: Development of a Consensus Statement on Non-Contact ACL Injuries; Hunt Valley, MD

# National Collegiate Athletic Association

1996 - 2000

Participant: Anterior Cruciate Ligament Study Group

# Reebok Women's Sports Training Program

1995 -1996

Technical Consultant / Development Team

United States Tennis Association - Player Development Program

1989 - 1992

Sports Science Advisor

#### **Editorial**

#### Journal of Athletic Training

2000 - 2023

Senior Associate Editor (2015- 2023)

Guest Editor, Special Issue on ACL Injury in the Pediatric Athlete (2021-2022)

Guest Editor-n-Chief, Special Issue on Women's Scholars in Athletic Training (2020-2021)

Section Editor: Biodynamics and Motor Control (July 2007 – Present)

Editorial Board Member (August 2000 – July 2007)

Editorial Assistant (September 1996 - May 2000)

# Sports Health Editorial Board Member

2008 - Present

Editoriai Board Melliber

# Medicine and Science in Sport and Exercise

2010 - 2022

Editorial Board Member (May 2010 – 2022)

# Isokinetics and Exercise

2008 - 2020

Editorial Board Member

# **External Reviewer for Promotion and Tenure**

Promotion to Associate with Tenure, Dept of Orthopaedic Surgery, University of Virginia	October 2001
Promotion to Associate with Tenure, Dept of Physical Education and Health, College of Charleston	October 2002
Review for Continuing Faculty Status, Dept of Exercise Science, Brigham Young University	August 2008
Promotion to Associate with Tenure, School of HPER, Indiana University	August 2008
Promotion to Associate with Tenure, Dept of Kinesiology, University of Michigan	October 2009
Promotion to Associate with Tenure, Dept of Kinesiology, University of Georgia	March 2011
Promotion to Full Professor, Dept of Exercise Science, Brigham Young University	September 2011
Promotion to Associate with Tenure; PT and Rehabilitation Science, University of Iowa	October 2011
Promotion to Full Professor; Health Sciences, University of Cape Town	August 2012
Promotion to Tenure; Dept of Nanoscience, University of North Carolina at Greensboro	October 2013
Promotion to Full Professor; School of Physical Therapy and Athl Training Old Dominion University	November 2013

Promotion to Associate with Tenure; Dept of Kinesiology, University of Connecticut	June 2014
Promotion to Full Professor; Dept of Exercise Science, University of Cape Town, South Africa	August 2014
Promotion to Full Professor; Dept of Kinesiology, Indiana University	July 2015
Promotion to Full Professor; Dept of Kinesiology and Applied Physiology, University of Delaware	July 2015
Promotion to Full Professor; Dept of Kinesiology and Dept of Orthopaedics, University of Virginia	October 2019
Promotion to Full Professor; Dept of Kinesiology, University of Connecticut	August 2020
Promotion to Associate with Tenure; Divs of PM&R, Sports Medicine, and Research, Univ of Florida	August 2020
Promotion to Clinical Associate Professor; School of Kinesiology, University of Michigan	October 2021
nuscript Reviewer	

# Mai

American Journal of Sports Medicine	2011- 2016, 2020-2023
British Journal of Sports Medicine	2001, 2007, 2008, 2023
BMC Musculoskeletal Disorders	2020
Clinical Biomechanics	2009, 2010, 2011
Clinical Journal of Sports Medicine	2011
Exercise and Sport Science Reviews	2009
Journal of Athletic Training	1997 – Present
Journal of Applied Biomechanics	2011
Journal of Biomechanics	2006, 2008, 2010, 2012, 2014, 2021
Journal of Bone and Joint Surgery	2003
Journal of Electromyography and Kinesiology	2012, 2013, 2014, 2015
Journal of Motor Learning and Development	2021
Journal of Orthopaedic Research	2006, 2008, 2010, 2018, 2020, 2021
Journal of Sports Health	2008 - Present
Journal of Sport Sciences	2018
International Journal of Sports Medicine	2006, 2007, 2011
Medical Engineering and Physics	2009, 2013, 2020
Medicine and Science in Sport and Exercise	2005, 2007-Present
Neuroscience Letters	2010
Plus One	2015
Research Quarterly	2006, 2009
Scandinavian Journal of Sports Medicine	2008
Sport and Exercise Science	2020
Sports Medicine	2006, 2010, 2011, 2019, 2020
Women in Sport and Physical Activity	2006, 2010, 2011, 2019, 2020
Tomon in Sport una 1 hysical Hourity	2000

# **Grant Reviewer**

nt reviewe	
NIH-NIAMS 2023/03 AMS Study Section – K01, K08 and K23 Mechanisms	March 2023
NIH-NIAMS 2021/08 ZAR1 FY (M2) 1 - NIAMS Loan Repayment Program Review	March 2021
NIH-NIAMS AMSC Study Section – R21 and R01 Clinical Trials, R01 Observation studies	June 2019
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (1 primary review, 3 secondary reviews, 4 discussant r	July 2013 eviews)
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (2 primary review, 3 secondary reviews, 4 discussant r	July 2012 eviews)
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (3 primary review, 3 secondary reviews, 3 discussant r	October 2011 eviews)
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (3 primary review, 4 secondary reviews, 3 discussant r	July 2011 eviews)
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (2 primary review, 3 secondary reviews, 4 discussant r	March 2011 eviews)
NIH-NIAMS ZRG1 F10B Study Section - NRSA Fellowships Special Emphasis Grants Review Committee (1 primary review, 1 secondary review, 2 discussant re	November 2010 views)
NIH-NIAMS AMS 1 - Arthritis and Musculoskeletal and Skin Diseases	October 2007

Special Emphasis Grants Review Committee (1 primary review, 1 secondary review, 2 discussant reviews)

*Page* | 37

#### National Athletic Trainers' Association - Research and Education Foundation

2000-Present

University of Florida - Doctoral Student Grant Proposal

2000

#### **Book Reviewer**

Human Kinetics Publishers

March 2001

Delforge, G. Sports Injury Management: A Problem-Solving Approach. Human Kinetics: Champaign, IL

#### **Athletic Training Service**

#### Area Medical Coordinator

United States Olympic Festival

Los Angeles, July 1991

#### Athletic Trainer

USA Track and Field vs. Great Britain Edinburgh Scotland; June 1993 Sunkist Indoor Track Meet Los Angeles; California 1985 - 1993 PAC - 10 Women's Basketball All-Star Tour Belgium & France; August 1992 Volvo Men's Professional Tennis Tournament Los Angeles; August 1990 & 1991 World Cup / ADT London Marathon London, England; April 1991 Mobil / USA Track and Field National Championships Cerritos, California; July 1990 Women's International Ekiden Yokahama, Japan; February 1990 Los Angeles Times Indoor Track Meet Los Angeles, California; 1985 - 1990 Games of the XXIII Olympiad Los Angeles, California; July / August 1984

#### **Professional Presentations – National / International**

2<sup>nd</sup> Conference on ACL Injury in Female Football Players, Barcelona, Spain

October 2023

Expert Panel: ACL Injury Prevention and Rehabilitation

Orthopaedic Research Society Annual Meeting, Dallas, TX

February 2023

Leveraging qMRI to Assess ACL Structural Integrity and Injury Risk

National Athletic Trainers Association 72<sup>nd</sup> Annual Meeting and Clinical Symposium, Philadelphia PA ACL Injury in the Pediatric Athlete: A Review of the Journal of Athletic Training Special Issue

June 2022

National Academy of Kinesiology, Bellevue, WA

September 2019

"Recent Advances in Primary and Secondary ACL Injury Prevention: What Does the Future Hold?"

Eastern Athletic Trainers Association Annual Meeting and Clinical Symposium, Philadelphia, PA Marjorie King Research to Reality Lecture - "The Role of Knee Laxity in ACL Injury Risk: Implications Jan 2017

for Clinical Practice"

American Orthopaedic Society of Sports Medicine Annual Meeting, Orlando, FL

July 2015

NATA Exchange Lecture "The Role of Knee Joint Laxity in the ACL Injury Risk Equation"

National Athletic Trainers Association 66th Annual Meeting and Clinical Symposium

June 2015

"Clinical Management of Gender and Hormone Issues in Lower Extremity Injury"

American College of Sports Medicine Annual Meeting, San Diego, CA

May 2015

NATA Exchange Lecture "The Role of Sex Hormones and Knee Joint Laxity in the ACL Injury Risk Equation"

FA Masterclass: Women's Sport and Exercise in Football Conference, St George Park, Great Britain

Nov 2014

"Genetics and Hormonal Influences on Knee Joint Laxity and ACL Injury Risk"

Sept 2014

National Academy of Kinesiology Annual Meeting; Austin, TX "ACL Injury Risk in the Physically Active: Why Are Females More Susceptible?"

National Athletic Trainers Association 65th Annual Meeting and Clinical Symposium, Indianapolis June 2014 Featured Presentation: "Predisposition to Musculoskeletal Injury: Can We Blame our Parents - Genetic Associations with Joint Laxity and ACL Injury"

Distinguished Scholars Presentation: "Understanding the Role of Joint Laxity in the ACL Injury Risk Equation"

National Athletic Trainers Association – Athletic Training Educators Conference; Dallas, TX

Jan 2013

Robert S. Behnke Keynote Address

National Athletic Trainers Association 63<sup>rd</sup> Annual Meeting and Clinical Symposium; St Louis, MO June 2012 Symposium: "ACL Prevention Strategies: Efficacy of Current Prevention Strategies in Decreasing Injury Vulnerability" Sandra J. Shultz PhD, ATC, FNATA, FACSM, FNAK **Updated October 2023** National Athletic Trainers Association 63<sup>rd</sup> Annual Meeting and Clinical Symposium; St Louis, MO June 2012 Special Topics: "NIH NRSA Fellowship Grants: Keys to Submitting a Competitive Application" 27th Annual Hawkeye Sports Medicine Symposium; Coralville, IA Dec 2011 ACL Injury Prevention Strategies: How Effective Are They? Update on ACL Injury Risk Factors Enhancing Hamstrings Co-Activity Through Functional Training Special Operations Optimal Warfighter Performance Workshop; Kannapolis, NC August 2011 Symposium: "Can You Hear Me Now? Technical Writing for the Researcher". National Athletic Trainers Association 62<sup>nd</sup> Annual Meeting and Clinical Symposium; New Orleans, LA June 2011 Symposium: "Can You Hear Me Now? Technical Writing for the Researcher". National Athletic Trainers Association 61st Annual Meeting and Clinical Symposium; Philadelphia, PA June 2010 Symposium: "PRISMA Statement" in "Guidelines for Reporting Research". American Physical Therapy Association, Combined Sections Meeting; San Diego, CA February 2010 Symposium: "ACL Injury Prevention Strategies" in "ACL Injury: A Multidisciplinary Approach to Prevention, Treatment and Assessment of Outcomes in 2010". 2009 Sport Injury, Prevention and Rehabilitation International Seminar; Beijing Sport University, China July 2009 "Theories and Findings of Hormonal Risk Factors for ACL Injury" "Enhancing Hamstring Co-Activation through Functional Training" 2<sup>nd</sup> World Congress of Sport Injury Prevention; Tromso, Norway June 2008 "Anatomical and Postural Contributions to Knee Injury Risk – A Relationship That Remains Poorly Understood" National Athletic Trainers Association 59th Annual Meeting and Clinical Symposium; St Louis, MO June 2008 Research Forum Symposium; Effective Strategies for Grant Writing Research Retreat IV: ACL Injuries – The Gender Bias: Greensboro, NC *April* 2008 Keynote Address: "Current Theory and Findings Related to Anatomical and Hormonal Risk Factors" International Olympic Committee Medical Commission Consensus Statement on ACL Injury in Female February 2008 Athletes; Lausanne, Switzerland "ACL Biology and Physiology" "Thigh Muscle Function and ACL Injury" National Athletic Trainers Association 58th Annual Meeting and Clinical Symposium; Anaheim, CA June 2007 Symposium; Cycling Sex Hormones: Is There a Connection with ACL Injury? "Defining Menstrual Cycle Phase: The Ultimate Challenge" and "Cyclic Changes in Knee Laxity and Stiffness" Knee Special Interest Group: "Role of Thigh Muscles in Knee Stability" with T. Blackburn, PhD, ATC Oslo Sports Trauma and Research Center, Norwegian School of Sports Sciences; Oslo Norway May 2007 "Sex Differences in Lower Extremity Anatomy and Posture, Implications for ACL Injury" University of Michigan Sports Injury Prevention Center; Ann Arbor Michigan May 2007 "ACL Injuries: What do We Still Need to Know in Order to Prevent Them?" International Sports Medicine Conference; University of Vermont October 2006

"Sex Hormones, Knee Laxity and ACL Injury Risks"

"Sex Differences in Posture: Implications for Injury"

"Management of Lower Extremity Postural Malalignment"

"Role of Proprioception in Injury and Rehabilitation"

"Enhancing Hamstring Co-Activation through Functional Training"

American College of Sports Medicine Annual Meeting; Denver, CO

June 2006

Clinical Colloquium: "Sex Hormones and Anterior Cruciate Ligament Injury and Biology"

National Athletic Trainers' Association 55th Annual Meeting and Clinical Symposium; Baltimore, MD June 2004 Symposium; "Advances in ACL Management; Influence of Sex Hormones on Knee Joint Function"

American Medical Society of Sports Medicine; Vancouver, British Columbia

April 2004

NATA Research Lecture Exchange; "ACL Injury in the Female Athlete: Assessment of Neuromuscular Risk Factors"

June 2003 National Athletic Trainers' Association 54th Annual Meeting and Clinical Symposium; St Louis, MO Distinguished Scholars Session; Freddie H. Fu, MD New Investigator Award Presentation, "ACL Injury in the Female Athlete: Assessment of Neuromuscular Risk Factors" National Athletic Trainers' Association 53rd Annual Meeting and Clinical Symposium; Dallas, TX June 2002 Researcher's Forum: "Quantification of Muscle Function - Electromyography" May 2002 American College of Sports Medicine Annual Meeting; St. Louis, MO Mini-Symposium: "Update on ACL Injuries in the Female Athlete: Anatomical Risk Factors in ACL Injury" American College of Sports Medicine Annual Meeting; St. Louis, MO May 2002 Mini-Symposium: "Proprioception: Mechanisms and Measurement" "Factors Influencing Reactive Neuromuscular Responses Following Lower Extremity Perturbation" 16th Annual Hawkeye Sports Medicine Symposium and University of Iowa Inaugural Orthopaedic December 2000 Sports Medicine Society Meeting for Orthopaedic Surgeons; Iowa City, IA "ACL Injuries in Female Athletes: Assessment of Risk Factors" & "Role of Hamstring Co-Activation in Preventing and Rehabilitating ACL Injuries. National Athletic Trainers' Association 51st Annual Meeting and Clinical Symposium; Nashville, TN June 2000 "Enhancing Hamstring Co-Activity and Functional Knee Stability Through Training" (Workshop) National Athletic Trainers' Association 51st Annual Meeting and Clinical Symposium; Nashville, TN June 2000 Specialty Day Symposium sponsored by the College and University Athletic Trainers Committee: "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics" American College of Sports Medicine Annual Meeting; Indianapolis, IN May 2000 "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics" American Medical Society for Sports Medicine Annual Meeting; San Diego, CA April 2000 "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics" National Association of Intercollegiate Athletics Annual Meeting October 1999 "Appropriate Medical Coverage in Intercollegiate Athletics" National Athletic Trainers' Association 50th Annual Meeting & Clinical Symposium; Kansas City, MO June 1999 "Enhancing Hamstring Co-Activity and Functional Knee Stability Through Training" (Workshop) American College of Sports Medicine 46th Annual Meeting; Seattle, WA June 1999 Symposium on Anterior Cruciate Ligament Injury in the Female Athlete: "Gender Differences in Neuromuscular Response Characteristics Following Knee Perturbation in a Functional Weight Bearing Stance" NATA Annual Meeting and Clinical Symposia; Baltimore, MD June 1998 "The Role of Dynamic Stability in Preventing Knee Ligament Injury: A Comparison of Neuromuscular Response Characteristics in Males and Females" June 1996 NATA Annual Meeting and Clinical Symposia; Orlando, FL "Use of Sport Cord in Exercise and Rehabilitation"

#### Professional Presentations - Regional / State / Local

Sex Differences in Anterior Cruciate Ligament (ACL) Morphology and Knee Joint Laxity: February 2022 Implications for ACL Injury Risk and Prevention NC State - UNC CH Joint Department of Biomedical Engineering Coulter Seminar Series Hidden Threats to Women in the Academy: Barriers to Well-being and Promotion December 2021 ACE Leadership for Women; University of North Carolina, Greensboro, Greensboro NC Scholarly Entrepreneurship – UNCG Department of Kinesiology Graduate Colloquium November 2021 University of North Carolina, Greensboro, Greensboro NC Athletic Training Student Association – The Intersection of my Faith and Career in Athletic Training October 2020 Liberty University, Lynchburg, VA (Virtual)

Robert Kersey Distinguished Scholars Presentation - "The Role of Knee Laxity in ACL Injury Risk: Implications for Clinical Practice" - California State University Fullerton March 2018

United States Military Academy – West Point, NY

October 2017

"The Role of Knee Joint Laxity in ACL Injury Risk: Implications for Future Research and Clinical Practice

Marquette University – Clinical Translational Research Program "The Role of Knee Joint Laxity in the ACL Injury Risk Equation"	April 2015
Girls and Women in Sports Conference, Greensboro, NC Female Athletes and Injury: Prevention, Treatment and Recovery "An Update on ACL Injury Risk Factors: Implications for Prevention."	October 2013
40 <sup>th</sup> Annual Arts and Sciences of Sports Medicine; University of Virginia, Charlottesville, VA "Understanding the Role of Joint Laxity in the ACL Injury Risk Equation"	June 2012
University of Vermont "Implications of Hormone Mediated Knee Laxity on Knee Joint Neuromechanics"	May 2009
Mid-Atlantic Athletic Trainers Association Annual Meeting, Virginia Beach, VA Keynote Address: Hormonal Influences in ACL Injury – From Research to Reality	May 2009
University of Michigan Bone and Joint Injury Prevention Center "ACL Injury Risk in Female Athletes: Role of Anatomy and Hormones"	November 2008
35 <sup>th</sup> Annual Art and Science of Sports Medicine Symposium; University of Virginia, Charlottesville "The Gender Bias in ACL Injuries: Current Concepts" and "Enhancing Hamstring Co-Activation Through Functional Training"	June 2008
UNC/UNCG/Duke Universities Human Movement Science Research Symposium, Chapel Hill, NC Keynote Address: "Shaping a Career Path: What I have Learned Through My Experiences"	February 2008
United States Army Research Internal and Environmental Medicine Center, Nantucket, MA "Risk Factors for ACL Injury: What Do We Still Need to Know in Order to Prevent Them"	January 2008
2002 University of Virginia General Clinical Research Center Scientific Symposium; Charlottesville "Gender, Hormones and Anterior Cruciate Ligament Compliance"	Oct 2002
The Distinguished Lecture Series in Sports Medicine; Hope College, Holland MI "Strategies for Preventing Knee Injuries in Female Athletes"	November 2002
29 <sup>th</sup> Annual Art and Science of Sports Medicine Symposium; University of Virginia, Charlottesville "Current Trends and the Gender Bias of ACL Injury"	June 2002
Mid-Atlantic Athletic Trainers Association Annual Meeting; Virginia Beach, VA "Implementation Strategies for Containing the Cost of Appropriate Medical Coverage"	May 2002
Sports Medicine Expo; "Intra-Articular Tibio-Femoral Injuries in the Athlete" Middle Tennessee State University; Murfreesboro, TN "Current Status of ACL Injuries in Female Athletes"	April 2002
South Eastern Athletic Trainers Association Annual Meeting; Atlanta, GA "Implementation Strategies for Containing the Cost of Appropriate Medical Coverage"	March 2002
Virginia Horne Henry Lecture Series; University of Wisconsin, Madison WI "Ánterior Cruciate Ligament Injury in the Female Athlete: Assessment of Neuromuscular Risk Factors"	March 2002
Southwest Athletic Trainers' Association Annual Meeting – Arlington, TX "Update on Implementation of NATA Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	July 2001
Missouri Valley Conference Athletic Directors Educational Forum - Bronson, MO "Review and Implementation Strategies of NATA Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	May 2001
Mid Atlantic Athletic Trainers' Association Annual Meeting - Greenville, SC "Update on Implementation of NATA Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	May 2001
Pennsylvania State University Department of Kinesiology's Colloquium Series - State College, PA "Neuromuscular Contributions to ACL Injury in the Female Athlete"	March 2001
Pennsylvania State University Dept of Kinesiology's Student Athletic Training Club - State College, PA "Professional Issues in Athletic Training"	March 2001
South Eastern Athletic Trainers' Association Annual Meeting - Atlanta, GA,	March 2000

"Update on Implementation of NATA Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	
Southwest Athletic Trainers' Association; Arlington, TX "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	July 2000
Mid Atlantic Athletic Trainers' Association Annual Meeting; Greenville, SC "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	May 2000
Mid Atlantic Athletic Trainers' Association Annual Meeting; Greenville, SC "Anterior Cruciate Ligament Injury in the Female Athlete: Assessment of Risk Factors"	May 2000
South Eastern Athletic Trainers' Association Annual Meeting "Recommendations and Guidelines for Appropriate Medical Coverage in Intercollegiate Athletics"	March 2000
University of Virginia 26th Annual Arts and Science of Sports Medicine Conference "Anterior Cruciate Ligament Injury in the Female Athlete: Assessment of Risk Factors"	June 1999
Joint Gait Lab / Sports Medicine Research Laboratories Neuromechanics Seminar; Univ. of Virginia "Assessing Neuromuscular Response Characteristics at the Knee Following Perturbation in a Weight Bearing Stance"	December 1998
FWATA Annual Meeting and Clinical Symposia; Honolulu, HI "Neuromuscular Response Characteristics Following Knee Perturbation"	July 1998
The Art and Science of Sports Medicine Post Graduate Course; University of Virginia "Overtraining in Athletics: Recognition and Prevention"	June 1997
UCLA Extension: Japanese Sport Institute and Apple Sport College - Summer Intensive Program for Fitness Instructors; Los Angeles, CA "Prevention and Care of Athletic Related Injuries" "Reconditioning of Athletic Related Injuries" "Supportive Taping and Bracing Workshop"	ner 1994 & 1995
UCLA Extension: ACSM Review Course; Los Angeles, CA "Emergency Procedures, Prevention & Recognition of Injuries and Low Back Care"	March 1994
UCLA 8th Annual Sports Medicine Symposium; Los Angeles, CA "Functional Training of the Shoulder Complex"	May 1993
AAF / CIF Coaches Educational Program; Los Angeles, CA "Care and Prevention of Track and Field Injuries"	August 1991
TRACC Sport Medicine 7th Anniversary Seminar on Women in Sport; Los Angeles, CA "Strength Training: Developing a Program to Fit Your Needs"	October 1989
AFAA Specialty Workshop on Low Weight / Low Impact Aerobics; Los Angeles, CA "Principles of Strength Training"	September 1986
Judi Garman's Softball Clinic for Coaches; Fullerton, CA "Problems Particular to the Female Athlete"	January 1985
California State University, Fullerton: Upper Division Athletic Training Courses "Anorexia and Bulimia in Athletics"	Fall 1983
Conference / Symposium / Workshop Participant	
Panelist, Adapt's Academic Integrity for Online Learning UNCG Teaching and Learning Commons	June 2020
Moderator, Free Communications Session National Athletic Trainers' Association Annual Meeting and Clinical Symposium, New Orleans, LA	June 2018
Moderator, Free Communications Session National Athletic Trainers' Association Annual Meeting and Clinical Symposium, Houston, TX	June 2017
Moderator, Free Communications Session National Athletic Trainers' Association Annual Meeting and Clinical Symposium, San Antonio, TX	June 2009
Moderator, Free Communications Session 2nd World Congress of Sport Injury Prevention, Tromso, Norway	July 2008

Moderator, Free Communications Session "ACL Injury Risk Factors" June 2008 National Athletic Trainers' Association Annual Meeting and Clinical Symposium, St Louis, MO Participant, Site Visitor Workshop June 2004 Joint Review Committee for Athletic Training Programs; Baltimore, MD Moderator & Lead Discussant, ACL Injuries – The Gender Bias Research Retreat II. April 2003 Moderated the session on Hormonal Factors, Assisted with writing of the consensus statement for Neuromuscular Factors, Lexington, KY Participant, Faculty Grant Writing Workshop *September 2002 – June 2003* University of North Carolina at Greensboro, Greensboro, NC Moderator, "Advance Track: Management of Acute Illness in the Athletic Training Room" June 2002 National Athletic Trainers' Association Annual Meeting and Clinical Symposium, Dallas, TX Moderator, "Update on ACL Injury Risk Factors and Prevention Strategies in the Female Athlete" June 2001 National Athletic Trainers' Association Annual Meeting and Clinical Symposium, Los Angeles, CA Moderator, J&J Symposium: "Valgus Overload Injury Continuum of the Elbow" June 2001 National Athletic Trainers' Association Annual Meeting and Clinical Symposium, Los Angeles, CA **Media Interviews & Publications** UNCG News "How Puberty can Impact Teen's Knees" April 2022 https://news.uncg.edu/how-puberty-can-impact-teens-knees/ WXII Channel 9 "Who Wants to Know" July 2008 **ACL Injury Prevention in Females** WFMY Channel 2 "Who Wants to Know" July 2008 **ACL Injury Prevention in Females** NY Times Magazine May 11, 2008 "Uneven Playing Field" by Mike Sokolov Wake Forrest University (WFDD) Voices and Viewpoints with Denise Franklin October 2006 Radio interview highlighting recent NIH Grant award. UNCG Research Magazine; University of North Carolina Greensboro May 2004 "Staying in the Game"; An article highlighting the research of Drs. Shultz and Perrin on ACL Injuries in Females With Good Reason; Virginia Radio Broadcast - Charlottesville, VA February 2002 "Shaky Knees and Pain"; Discussing risk factors and care of knee injuries in females Training and Conditioning Journal October 2001 "Unreasonable Expectations" Article addressing Appropriate Medical Coverage in Intercollegiate Athletics Virginia Radio Network; Charlottesville VA December 2000 Radio Interview Discussing Current Research in Assessment of ACL Injury Risk in Females December 1, 2000 Interview for feature article "When Women Get Physical, Knees Take the Brunt of It", highlighting Perrin DH and Shultz SJ research and funding of ACL injury risk factors in the female athlete Daily Progress; Regional and State Section December 1, 2000 Interview for feature article "UVa Receives \$275,000 grant to study knee injuries in women" WWKY.790 Radio Talk Show; Louisville, KY December 1996

Guest on "Active Lifestyles", Hosted by David Conrad

#### **HONORS** and AWARDS

#### **National**

2020 Stanford University List of World's Top 2% Scientists

November 2020-Present

https://ecebm.com/2023/10/04/stanford-university-names-worlds-top-2-scientists-2023/

2020 NATA Foundation Free Communication Award for Established Career: Schmitz RJ, Park-Braswell K, Raisbeck LD, Grooms DR, Shultz SJ, Rhea CK,: Wilkins RW. Neural Correlates of Knee Extension Exercise and Single Leg Hop following 8 Weeks of Attentionally Focused Neuromuscular Training. National Athletic Training Association Annual Meeting 2020

2015 Hall of Fame; National Athletic Trainers' Association (Inducted June 2015)

2014 Medal for Distinguished Athletic Training Research; National Athletic Trainers' Association

2013 Fellow, National Academy of Kinesiology #530

2012 Sayer "Bud" Miller Distinguished Educator Award; National Athletic Trainers' Association

2008 Fellow (FACSM); American College of Sports Medicine

2008 Fellow (FNATA); National Athletic Trainers' Association

2005 Most Distinguished Athletic Trainer Award; National Athletic Trainers' Association

2003 Freddie H. Fu, MD New Investigator Award; National Athletic Trainers' Association Research & Education Foundation

2001 Journal of Athletic Training Kenneth L. Knight Award for the Outstanding Research Manuscript: "Neuromuscular Response Characteristics in Men and Women after Knee Perturbation in a Single-leg, Weight-bearing Stance"

## Regional

2018 Hall of Fame; Mid Atlantic Athletic Trainers Association

National Athletic Trainers' Association Special Recognition Award, April 2001; For service to the profession of athletic training and the Far West Athletic Trainers' Association

#### Local

2022 HHS Excellence in Research; School of Health and Human Sciences, Univ. of North Carolina at Greensboro 2014 HHS Excellence in Research; School of Health and Human Sciences, Univ. of North Carolina at Greensboro 2008 HHP Excellence in Research; School of Health and Human Performance, Univ. North Carolina at Greensboro 2005 Gail A. Hennis Graduate Teaching Award; School of Health and Human Performance, University of North Carolina at Greensboro.

2005 University Research Excellence Award; University of North Carolina at Greensboro

2005 Summer Excellence Award; University of North Carolina at Greensboro

2001 Summer Teaching Enhancement Award; University of Virginia

1999 Mosaic Technologies Doctoral Student Award; University of Virginia