

Nathan Schilaty, DC, PhD – Curriculum Vitae

University of South Florida – Tampa, FL
Department of Neurosurgery & Brain Repair
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nschilaty@usf.edu



EDUCATION

- 2019** **Mayo Clinic – School of Medicine**
Postdoc Certificate, *Clinical & Translational Science, cum Laude*
Mentor: Timothy E. Hewett
Sex Disparities in Arthrogenic Muscle Inhibition Following ACL Injury
GPA: 3.61
- 2011 – 2014** **Brigham Young University**
PhD, *Neuroscience, Summa cum Laude*
Mentor: Scott C. Steffensen
Hodology and Therapeutics for Addiction Recovery
GPA: 3.96
- 2004 – 2007** **Parker University**
BS, *Anatomy, Magna cum Laude*
BS, *Health and Wellness, Magna cum Laude*
DC, *Doctor of Chiropractic, Magna cum Laude*
GPA: 3.87
- 1999 – 2003** **Salt Lake Community College**
AS, *Chemistry, Summa cum Laude*
GPA: 4.00

CAREER

- 2022 – Present** **Assistant Professor, Medical Engineering – University of South Florida**
- 2021 – Present** **Lincoln Endowed Chair of Biomechanics & Chiropractic Research**
Neuromusculoskeletal Biomechanics & Chiropractic (NeuBAC) Laboratory
- 2021 – Present** **Director, Center for Neuromusculoskeletal Research**
- 2021 – Present** **Assistant Professor, Neurosurgery & Brain Repair – University of South Florida**
- 2020 – Present** **Consultant, Neuro-Based Research – Parker University, Dallas, TX**
- 2020 – 2021** **Assistant Professor, Orthopedics – Mayo Clinic**
- 2019 – 2021** **Assistant Professor, Physical Medicine & Rehabilitation – Mayo Clinic**
- 2017 – 2020** **BIRCWH K12 Scholar (*Engineering appointment*) – Mayo Clinic**
Biodynamics Laboratory
Sports Biodynamics / Neuromechanics
Sex Differences of ACL Injury and Rehabilitation
- 2017 – 2021** **Associate Consultant I (*Engineering appointment*) – Mayo Clinic**
Sport Biodynamics / Neuromechanics
Modeling of ACL injury
Concussion Injury Prevention
Neuromechanics of ACL Injury Prevention and Rehabilitation
- 2016 – 2021** **Assistant Professor, Physiology – Mayo Clinic**
- 2016 – 2017** **Research Associate (*Engineering appointment*) – Mayo Clinic**
Laboratory of Timothy E. Hewett

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- Sport Biodynamics / Neuromechanics*
Modeling of ACL injury
Proprioception of ACL for Injury Prevention and Rehabilitation
- 2015 – 2017** **NRSA T32 Musculoskeletal Research Fellow (*Engineering appointment*) – Mayo Clinic**
Laboratory of Timothy E. Hewett
Sport Biodynamics / Neuromechanics
Modeling of ACL injury
Proprioception of ACL for Injury Prevention and Rehabilitation
- 2014 – 2015** **Postdoctoral Researcher – Ohio State University**
Laboratory of Timothy E. Hewett
Sport Biodynamics
Modeling of ACL injury
Proprioception of ACL for Injury Prevention and Rehabilitation
- 2011 – 2014** **Research Assistant – Brigham Young University**
Laboratory of Scott C. Steffensen
Addiction Hodology
Ex Vivo / In Vivo / Neurobiochemical research of the nucleus accumbens and neuromelanin
- 2011 – 2019** **Manager – Circadian Wellness, LLC**
Health and Wellness Education
- 2011 – 2014** **Teaching Assistant – Brigham Young University**
Advanced Neuroscience Laboratory – Instructed use of trifocal camera microscopes, neuroanatomy histology, behavior, and electrophysiology research analysis
Neurobiology – Instructed entry-level course of neuroscience for majors and non-majors, held bi-weekly review sessions, grading, teaching practicum at university level
Neuromechanics – Instructed graduate-level course for mechanical engineers, exercise science, and neuroscience majors. Emphasis of instruction was on neuroscience of mechanics, spinal cord, and central nervous system.
- 2009 – 2011** **Online Instructor – Everest College Online**
Medical Department
Human Pathology
Human Anatomy & Physiology
Medical Terminology
Medical Law & Ethics
- 2009 – 2016** **Online Instructor – Missouri College Online**
Medical Department
Anatomy & Physiology
Basic Anatomy & Physiology
- 2007 – 2011** **President – Centra Chiropractic, Inc.**
Chiropractic Physician
Business management, marketing, record keeping, accounting, patient recruitment, hiring, and clinical expertise
- 2007 – 2011** **Adjunct Instructor – Front Range Community College**
Department of Natural Applied and Environmental Sciences
Basic Human Anatomy & Physiology
Human Anatomy & Physiology I
Human Anatomy & Physiology II
Human Anatomy & Physiology Laboratory
Human Cadaver Dissection

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2006 **Bilingual (Spanish) High School Teacher – Princeton Review**
PSAT Preparation

FUNDING

2012 – 2013 **BYU Graduate Fellowship Award**
Brigham Young University Graduate Studies – \$15,000

2015 – 2017 **NIH T32 NRSA Postdoctoral Fellowship (T32 AR056950)**
NIAMS – Mayo Clinic Musculoskeletal Group

2016 – 2017 **Endowed Kelly Research Fellow**
Mayo Clinic Orthopedic Research Group – \$30,000
Muscle Spindle Perturbation Induces Loss of Muscle Stiffness

2016 – 2022 **NIH Loan Repayment Program (L30 AR070273)**
NIAMS – Extramural Clinical Research – \$161,890
Multimodal Mechanisms of ACL Rehabilitation
(2 renewals)

2017 – 2018 **Ultrasound Research Center Pilot Grant**
Mayo Clinic Ultrasound Research Center – \$30,000
Sex Differences in Arthrogenic Muscle Inhibition Following ACL Injury

2017 – 2020 **NIH Clinical Scientist Career Development Award (K12 HD065987)**
NICHD – Mayo Clinic K12 BIRCWH Scholar
Sex Differences of Neuromechanical Components of ACL Injury

2017 – 2020 **Transform the Practice Grant**
Mayo Clinic Children’s Research Center – \$150,000
Biofeedback Sleeve for Prevention and Rehabilitation of Knee Injury

2019 – 2020 **Ultrasound Research Center Pilot Grant**
Mayo Clinic Ultrasound Research Center – \$30,000
Ultrasound-Based Neck Muscle Size, Mechanical Properties, and Sensorimotor Characteristics in Athletes with and without History of Sport-Related Concussion

2020 – 2021 **Women’s Health Research Enhancement Grant**
Mayo Clinic Center for Women’s Health – \$50,000
Mayo Posture Positivity Power Program (MayoP4) for Active and Aging Women in Communities: Multimodal Intervention to Prevent Frailty in 15 minutes a day

2020 – 2021 **Orthopedic Surgery Department Research Grant**
Mayo Clinic Department of Orthopedic Surgery – 0.25 FTE
Quattrone-Foderaro AI Innovation in Orthopedics

2020 – 2022 **Foundation Grant**
NCMIC Foundation – \$177,600
Great Posture, Great Health

2020 – 2022 **Industry Grant**
Tonal Inc. – \$272,000
Utilization of Tonal Exercise System to Improve Short- and Long-term Low Back Pain (LBP) Outcomes

2020 – 2021 **Orthopedic Research Review Committee**
Mayo Clinic Department of Orthopedic Surgery – \$10,000
Glymphatic and Sensorimotor Systems in Low Back Pain Patients with Potential Central Sensitization Syndrome

2021 – 2022 **Ultrasound Research Center Pilot Grant**
Mayo Clinic Ultrasound Research Center – \$25,000

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Validation of Shear Wave Elastography and 3D Ultrasound as Surrogate Measurement of Tissue Properties and Injury Diagnostic Tool for the ACL

2022 – 2023

Florida High Tech Corridor Matching Grant

Excite Medical of Tampa Bay LLC (FHT 23-01) – \$242,000

Retrospective Review of Non-Surgical Spinal Decompression as a Therapeutic for Low Back Pain

HONORS / AWARDS

2021 – present

Lincoln Endowed Chair of Chiropractic & Biomechanics Research

University of South Florida

2016

Endowed Kelly Research Fellow

Mayo Clinic Department of Orthopedic Surgery

2016

Finalist - Mayo Orthopedic Patrick J. Kelly Research Fellow Award

Jay R. Lieberman, MD – Honorary Patrick J. Kelly, Visiting Professor Orthopedic Research

2013 – 2014

Research Society on Alcoholism (2x recipient)

Graduate Travel Award

2013

1st Place BYU Grad Talk

Double elimination process for finalist

Presentation peer-voted for quality of research and presentation

2012 – 2014

Research Presentation Award

Travel award to present original research of graduate student

2011 – 2014

Research Assistant / Tuition Award

Brigham Young University – Neuroscience

2006

Outstanding Dallas Clinic Intern – Parker University; Dallas, TX

Honor for demonstration of high clinical knowledge and performance

2006

Clinical Assistant – Parker University; Dallas, TX

Honorary program for high academic aptitude and clinical performance

2005

Erchonia Scholarship – Erchonia, Inc.; McKinney, TX

2004 – 2006

Presidential Scholarship (3x recipient) – Parker University; Dallas, TX

2000 – 2003

Tuition Waiver Award – Salt Lake Community College; Taylorsville, UT

LICENSES

2021 – present

Florida Chiropractic Physician (#CH13717)

Granted by the Florida Board of Chiropractic Examiners

2017 – 2020

Minnesota Chiropractic Physician (#6289)

Granted by the Minnesota Board of Chiropractic Examiners

2011 – 2017

Utah Chiropractic Physician (#8079968-1202)

Granted by the Utah Department of Professional Licensing

2007 – 2011

Colorado Chiropractic Physician (#6020)

Granted by the Colorado Board of Chiropractic Examiners

CLINICAL CERTIFICATIONS

2020

Electromyostimulation (EMS) Certification, GluckerKolleg

Whole body vs local EMS, EMG training, spotting techniques, strength, and endurance

2007

Applied Kinesiology, 120-Hour Certified

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Neuromuscular biofeedback for diagnosis of neurovascular, neurolymphatic, acupuncture meridians, cranial faults, proprioceptive rehabilitation, neurology, and endocrinology

2006

Physiotherapy

National Board of Chiropractic Examiners

INTERNSHIPS

2005 – 2006

Clinic Intern – Parker University

PEER-REVIEWED PUBLICATIONS

Journal Articles

- 1) Chaney GK, Krause DA, Hollman JH, Anderson VA, Heider SE, Thomez S, Vaughn SN, **Schilaty ND**. Recurrence Quantification Analysis of Isokinetic Strength Tests: A Comparison of the Anterior Cruciate Ligament Reconstructed and Uninjured Limb. *Clin Biomech.* (2023) Accepted.
- 2) **Schilaty ND**, McPherson AL, Anderson S, Nagai T, Bates NA. Arthrogenic Muscle Inhibition After Anterior Cruciate Ligament Injury: Injured and Uninjured Limb Recovery Over Time. *Frontiers in Sports and Healthy Living* (2023). Accepted.
- 3) Bates NA, Goodyear E, Huffman A, Nagai T, Rigamonti L, Breuer L, Holmes BD, **Schilaty ND**. Physical Clinical Care and Artificial-Intelligence-Guided Core Resistance Training Improve Functional Performance, Power, and Lumbar Isokinetics in Lower Back Pain Patients. *Clin Biomech.* (2023) Accepted.
- 4) Cummings P, **Schilaty ND**, Nagai T, Rigamonti L, Ueno R, Bates NA. Application of Shear-Wave Elastography in the Evaluation of Hamstring Stiffness in Young Basketball Athletes. *Int J Sport Phys Ther* (2022). Published online Dec. 1, 2022.
- 5) Hollman JH, Buenger NG, DeSautel SG, Chen VC, Koehler LR, **Schilaty ND**. Altered neuromuscular control in the vastus medialis following anterior cruciate ligament injury: A recurrence quantification analysis of electromyogram recruitment. *Clin Biomech.* (2022) 100:105798.
- 6) Cooney NJ, Sowman P, **Schilaty ND**, Bates NA, Hewett TE, Doyle TLA. Head and Neck Characteristics as Risk and Protective Factors Against Mild Traumatic Brain Injury in Military and Sporting Populations: A Systematic Review. *Sports Med.* (2022) Epub ahead of print.
- 7) **Schilaty ND**, McPherson AL, Nagai T, Bates NA. Arthrogenic Muscle Inhibition Manifests in Thigh Musculature Motor Unit Characteristics After Anterior Cruciate Ligament Injury. *Eur J Sport Sci* (2022) May 2:1-11.
- 8) **Schilaty ND**, Hedges DM. Redirect Indirects: A Phased Approach to Decentralized Research Funding. *Academia Letters* (2022). Article 4481. DOI: 10.20935/al4881
- 9) **Schilaty ND**, Savoldi F, Nasr Z, Weinshenker BG. Neuromotor Control Associates with Muscle Weakness Observed with McArdle Sign of Multiple Sclerosis. *Ann Clin Transl Neurol.* (2022) 9(4):515-528.
- 10) Nagai T, **Schilaty ND**, Chang RW, Keller V, Stiennon ST, Wong H, Stuart MJ, Krause DA. Reliability and Sex Differences of Choice Visual-Motor Reaction Time and Force Characteristics of Neck Muscles Using a Novel Test. *Journal of Sports Vision and Performance* (2022). 4(1):e1-e13.
- 11) Yorgason JY, Wadsworth HA, Anderson EJ, Brundage JN, Hedges DM, Stockard AL, Hansen DM, **Schilaty ND**, Murdock E, Jang EY, Williams BM, Lee AM, Wallner M, Steffensen SC. Modulation of dopamine release by ethanol is mediated by atypical GABA_A receptors on cholinergic interneurons in the nucleus accumbens. *Addict Biol.* (2022) 27(1):e13108.
- 12) Hollman JH, Nagai T, Bates NA, McPherson AL, **Schilaty ND**. Diminished neuromuscular system adaptability following anterior cruciate ligament injury: Examination of knee muscle force variability and complexity. *Clin Biomech.* (2021) 90:105513.
- 13) Nagai T, Bates NA, McPherson AL, Hale R, Hewett TE, **Schilaty ND**. Effects of Sex and Age on Quadriceps and Hamstrings Strength and Flexibility in High School Basketball Athletes. *Int J of Sport Phys Ther.* (2021) 16(5):1302-1312.

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- 14) Ueno R, Navacchia A, Bates NA, **Schilaty ND**, Myer G, Hewett TE. Hamstrings Contraction Regulates the Magnitude and Timing of the Peak Anterior Cruciate Ligament Loading during Drop Vertical Jump in Female Athletes. *Orthop J Sports Med.* (2021) 9(9):23259671211034487.
- 15) **Schilaty ND**, Martin RK, Ueno R, Bates NA. Mechanics of cadaveric anterior cruciate ligament reconstructions during simulated jump landing tasks: Lessons learned from a pilot investigation. *Clin Biomech* (2021) 86:105372.
- 16) **Schilaty ND**, Savoldi F, Nasr Z, Delgado AM, Berglund LJ, Weinschenker BG. Biomechanical muscle stiffness measures of extensor digitorum explain potential mechanism of McArdle sign. *Clin Biomech* (2021) 23(82):105277.
- 17) Nagai T, **Schilaty ND**, Bates NA, Bies NJ, McPherson AL, Hewett TE. High School Female Basketball Athletes Exhibit Decreased Knee-Specific Choice Visual-Motor Reaction Time. *Scand J Med Sci Sports* (2021). Epub ahead of print.
- 18) **Schilaty ND**, Bates NA, Ueno R, Hewett TE. Filtration Selection and Data Consilience: Distinguishing Signal from Artefact with Mechanical Impact Simulator Data. *Ann Biomed Eng* (2021) 49:334-344.
- 19) Hedges DM, Yorgason JT, Perez AW, **Schilaty ND**, Williams BM, Watt RK, Steffensen SC. Spontaneous formation of melanin from dopamine in the presence of iron. *Antioxidants* (2020) 9(12):1285.
- 20) Nagai T, Ueno R, Rigamonti L, Bates NA, Krause DA, Crowley EM, Stuart MJ, **Schilaty ND**. Multidirectional Neck Strength Characteristics in High School Football Athletes with and without History of Sports-Related Concussion. *Ann Sports Med Res* (2020) 7(6):1167.
- 21) Nagai T, Crowley EM, Manuell ED, Bates NA, Stuart MJ, **Schilaty ND**. Sex Differences in Multidirectional Neck Strength Characteristics in High School Football Athletes with and without History of Sports-Related Concussion. *Arch Sports Med* (2020) 4(2):224-232.
- 22) McPherson AL, Bates NA, Haider CR, Nagai T, Hewett TE, **Schilaty ND**. Thigh Musculature Stiffness During Active Muscle Contraction After Anterior Cruciate Ligament Injury. *BMC Musculoskelet Disord* (2020) 21:320.
- 23) Ueno R, Navacchia A, Bates NA, **Schilaty ND**, Myer G, Hewett TE. Anterior Cruciate Ligament Loading Increases with Pivot Shift Mechanism during Asymmetrical Drop Vertical Jump in Female Athletes. *Orthop J Sport Med* (2020) 9(3):2325967121989095.
- 24) Ueno R, Nagai T, Bates NA, Hewett TE, **Schilaty ND**. Sex Differences in Passive and Active Stiffness of the Knee Flexor Muscles During Dynamic Perturbation Test: Principal Component Analysis. *Somatosensory & Motor Research* (2020) 37(4):293-299.
- 25) Bates NA, **Schilaty ND**, Krych AJ, Hewett TE. Letter to Editor: In Vivo Attachment Site to Attachment Site Length and Strain of the ACL and its Bundles During the Full Gait Cycle Measure by MRI and high-speed biplanar radiography. *J Biomech* (2020) 109:109922.
- 26) **Schilaty ND**, Bates NA, Kruisselbrink S, Krych AJ, Hewett TE. Linear Discriminant Analysis Successfully Predicts Knee Injury Outcome from Biomechanical Variables. *Am J Sports Med* (2020) 48(10):2447–2455.
- 27) Bates NA, Myer GD, Hale RF, **Schilaty ND**, Hewett TE. Prospective frontal plane angles used to predict ACL strain and identify those at high risk for sports-related ACL injury. *Orthop J Sport Med* (2020) 8(10):2325967120957646.
- 28) Mumbleau AL, **Schilaty ND**, Hewett TE. Gluteal Inhibition After Hip Arthroscopy. *Int J Sport Phys Ther* (2020) 15(6):1222-1228.
- 29) Bates NA, **Schilaty ND**, Ueno R, Hewett TE. Timing of Strain Response of the ACL and MCL Relative to Impulse Delivery During Simulated Landings Leading up to ACL Failure. *J Appl Biomech* (2020). [Epub ahead of print]
- 30) Beyer EB, Hale RF, Hellem AR, Mumbleau AM, **Schilaty ND**, Hewett TE. Inter and Intra-rate Reliability of the Drop Vertical Jump Assessment. *Int J Sport Phys Ther* (2020) 15(5):770-775.
- 31) McMurray NS, Bates NA, Fischer S, **Schilaty ND**. Investigation of Primary and Second Anterior Cruciate Ligament Tears Using a Geographic Database. *Int J Sport Phys Ther* (2020) 15(4):579. DOI: 10.26603/ijsp20200579.
- 32) Nagai T, Crowley EM, Manuell ED, Bates NA, Stuart MJ, **Schilaty ND**. Sex Differences in Multidirectional Neck Muscle Strength Characteristics in High School Soccer Athletes. *Archives of Sports Medicine* (2020) 4(2):224-232.
- 33) Zhou J, **Schilaty ND**, Hewett TE, Bates NA. Analysis of Timing of Secondary ACL Injury in Professional Athletes does not Support Game Timing or Season Timing as a Contributor to Injury Risk. *Int J Sports Phys Ther* (2020) 15(2):254-262.

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- 34) **Schilaty ND**, Bates NA, Smith AM, Stuart MJ. Potentially Biased Results on Mouthguard Use and Reduction of Concussion Risk. *Br J Sports Med* (2020). [<https://bjsm.bmj.com/content/early/2020/01/14/bjsports-2019-101011.responses>].
- 35) McPherson AL, Nagai T, **Schilaty ND**, Hale RF, Hewett TE, Bates NA. High school male basketball athletes exhibit greater hamstring muscle stiffness than females as assessed with shear wave elastography. *Skeletal Radiol* (2020) 49(8):1231-1237.
- 36) McPherson AL, Shirley MBD, **Schilaty ND**, Hewett TE. Effect of a Concussion on Anterior Cruciate Ligament Injury Risk in a General Population. *Sport Med* (2020) 50(6):1203-1210.
- 37) Ueno R, Navacchia A, Bates NA, **Schilaty ND**, Krych AJ, Hewett TE. Analysis of Internal Knee Forces Allows for the Prediction of Rupture Events in a Clinically Relevant Model of Anterior Cruciate Ligament Injuries. *Orthop J Sport Med* (2020) 8(1):1-13.
- 38) Nagai T, **Schilaty ND**, Laskowski ER, Hewett TE. Hop Tests Can Result in Higher Limb Symmetry Index Values than Isokinetic Strength and Leg-Press Tests in Patients Following ACLR. *Knee Surg Sports Traumatol Arthrosc* (2020) 28(3): 816-822.
- 39) McPherson AL, Felton CL, Hale RF, Gilbert BK, **Schilaty ND**, Hewett TE, Holmes DR, Haider CR. Towards Estimation of Three-Dimensional Knee Rotations. *IEEE* (2019) 53rd Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, 2019, pp. 1359-1363.
- 40) Nagai T, **Schilaty ND**, Krause DA, Crowley EM, Hewett TE. Sex Differences in Ultrasound-Based Muscle Size and Mechanical Properties of the Cervical Flexor and Extensor Musculature. *J Athl Training* (2020) 55(3):282-288.
- 41) **Schilaty ND**, Bates NA, Krych AJ, Hewett TE. Variation in ACL and MCL Strain Before Initial Contact is Dependent on Injury Risk Level During Simulated Landings. *Orthop J Sports Med* (2019) 7(11): 2325967119884906.
- 42) Hellem AR, Shirley MBD, **Schilaty ND**, Dahm DL. Review of Shoulder Range of Motion in Throwers: Normal Adaptations vs. Pathologic Deficits? *Curr Reviews Musculo Med* (2019) Jul:346-355.
- 43) Doyle TLA, **Schilaty ND**, Webster KE, Hewett TE. Time of Season and Game Time is not Related to Likelihood of Lower Limb Injuries: A Meta-Analysis. *Clin J Sports Med* (2019). DOI: 10.1097/JSM.0000000000000752. [Epub ahead of print].
- 44) **Schilaty ND**, Bates NA, Krych AJ, Hewett TE. Frontal Plane Characteristics of Medial Collateral Ligament Strain Concurrent with Anterior Cruciate Ligament Rupture. *Am J Sports Med* (2019) 47(9):2143-2150.
- 45) **Schilaty ND**, Bates NA, Krych AJ, Hewett TE. Influence of Relative Injury Risk Profiles on Anterior Cruciate Ligament and Medial Collateral Ligament Strain During Simulated Landing Leading to a Noncontact Injury Event. *Clin Biomech* (2019) 69:44-51.
- 46) Nagai T, Bates NA, Hewett TE, **Schilaty ND**. Paradoxical Relationship in Sensorimotor System: Knee Joint Position Sense Absolute Error and Stiffness Measures. *Clin Biomech* (2019) 67:34-37.
- 47) Navacchia A, Bates NA, **Schilaty ND**, Hewett TE. Knee abduction and internal rotation moments increase ACL force during landing through the posterior slope of the tibia. *J Ortho Res* (2019) 37(8):1730-1742.
- 48) **Schilaty ND**, Bates NA, Nagelli CV, Krych AJ, Hewett TE. Multiplanar Loading of the Knee and its Influence on ACL and MCL Strain during Simulated Landings and Noncontact Tears. *Am J Sports Med* (2019) 47(8):1844-1853.
- 49) Savoldi F, Nasr Z, Hu W, **Schilaty ND**, Delgado AM, Mandrekar J, Kaufman KR, Berglund LJ, Weinschenker BG. McArdle Sign: A Specific Sign of Multiple Sclerosis. *Mayo Clin Proc* (2019) 94(8):1427-1435.
- 50) Bates NA, Mejia Jaramillo MC, Vargas M, McPherson AL, **Schilaty ND**, Nagelli CV, Krych AJ, Hewett TE. External loads associated with anterior cruciate ligament injuries increase the correlation between tibial slope and ligament strain during *in vitro* simulations of *in vivo* landings. *Clin Biomech* (2018) 61:84-94.
- 51) Hewett TE, **Schilaty ND**. Determination of the Position of the Knee at the Time of an Anterior Cruciate Ligament Rupture for Male versus Female Patients by an Analysis of Bone Bruises: Letter to the Editor. *Am J Sports Med* (2018) 46(11):NP47-NP48.
- 52) Nagai T, Bates NA, Hewett TE, **Schilaty ND**. Effects of Localized Vibration on Knee Joint Position Sense in Individuals with ACL-Reconstruction. *Clin Biomech* (2018) 55:40-44.
- 53) **Schilaty ND**, Bates NA, Nagelli CV, Krych AJ, Hewett TE. Validation of Non-Contact Anterior Cruciate Ligament Tears Produced by a Mechanical Impact Simulator against the Clinical Presentation of Injury. *Am J Sport Med* (2018) 46(9):2113-2121.

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- 54) **Schilaty ND**, Nagai T, Strauss JD, Crowley EM, Hewett TE. Analysis of Lower Extremity Proprioception for Anterior Cruciate Ligament Injury Prevention: Current Opinion. *Sports Med* (2018) 48(6):1303-1309.
- 55) **Schilaty ND**, Bates NA, Nagelli CV, Krych AJ, Hewett TE. Sex-Based Differences of Medial Collateral and Anterior Cruciate Ligament Strains with Cadaveric Impact Simulations. *Orthop J Sports Med* (2018) 6(4):1-8.
- 56) McPherson AL, Bates NA, **Schilaty ND**, Nagelli CV, Hewett TE. Ligament Strain Response between Contralateral Pairs during In Vivo Landing Simulation. *Orthop J Sports Med* (2018) 6(4):1-7.
- 57) **Schilaty ND**, Bates NA, Nagelli CV, Krych AJ, Hewett TE. Sex-Based Differences of Knee Kinetics that Occur with Anterior Cruciate Ligament Strain on Cadaveric Impact Simulations. *Orthop J Sports Med* (2018) 6(3):1-7.
- 58) **Schilaty ND**, Bates NA, Hewett TE. Relative Dearth of ‘Sex Differences’ Research in Sports Medicine. *J Sci Med Sports* (2017) 21(5):440-441.
- 59) **Schilaty ND**, Nagelli CV, Bates NA, Sanders TL, Krych AJ, Stuart MJ, Hewett TE. Incidence of Second Anterior Cruciate Ligament Tears and Identification of Associated Risk Factors from 2001-2010 Using a Geographic Database. *Orthop J Sports Med* (2017) 5(8):1-8.
- 60) **Schilaty ND**, Bates NA, Krych AJ, Hewett TE. How Anterior Cruciate Ligament Injury was Averted during Knee Collapse in a NBA Point Guard. *Ann Musculoskelet Med* (2017) 1(1):008-012.
- 61) Bates NA, **Schilaty ND**, Nagelli CV, Krych AJ, Hewett TE. Novel Mechanical Impact Simulator Designed to Generate Clinically Relevant Anterior Cruciate Ligament Ruptures. *Clin Biomech* (2017) 44:36-44.
- 62) **Schilaty ND**, Bates NA, Hewett TE. Letter to the Editor: Effect of Sagittal Plane Mechanics on ACL Strain during Jump Landing. *J Ortho Res* (2017) 35(6):1171-1172.
- 63) **Schilaty ND**, Bates NA, Sanders TL, Krych AJ, Stuart MJ, Hewett TE. Incidence of Second Anterior Cruciate Ligament Tears (1990 - 2000) and Associated Factors in a Specific Geographic Locale. *Am J Sports Med* (2017) 45(7):1567-1573.
- 64) **Schilaty ND**, Nagelli CV, Hewett TE. Use of objective neurocognitive measures to assess the psychological states that influence return to sport following injury. *Sports Med* (2016) 46(3):299-303.
- 65) Jang EY, Ryu YH, Lee BH, Chang SC, Yeo MJ, Kim SH, Folsom RJ, **Schilaty ND**, Kim KJ, Yang CH, Steffensen SC, Kim HY. Involvement of reactive oxygen species in cocaine-taking behaviors in rats. *Addict Biol* (2015) 20(4):663-675.
- 66) Wu Y, Zhao Z, Yang Y, Yang X, Jang EY, **Schilaty ND**, Hedges DM, Kim SC, Cho IJ, Zhao R. Effects of the aqueous extract of Schizandra chinensis fruit on ethanol withdrawal-induced anxiety in rats. *Chin Med J* (2014) 127:1935-1940.
- 67) **Schilaty ND**, Hedges DM, Jang EY, Folsom RJ, Yorgason JT, McIntosh JM, Steffensen SC. Acute ethanol inhibits dopamine release in the nucleus accumbens via $\alpha 6$ nicotinic acetylcholine receptors. *J Pharmacol Exp Ther* (2014) 349(3):559-67.
- 68) Shin SI, Andersen DJ, Hansen DM, Yorgason JT, **Schilaty ND**, Busath DD, Steffensen SC. Connexin-36 Knock-Out Mice Have Increased Threshold for Kindled Seizures: Role of GABA Inhibition. *Biochem & Pharmacol* (2013) S1:006.

Book Chapters

- 1) Steffensen SC, **Schilaty ND**, Hedges DM, Jang EY. Addiction. *SAGE Encyclopedia of Theory in Psychology* (2016) 2:5-10.

Under Review / Revision

- 1) **Schilaty ND**, Bates NA, Holmes BD, Nagai T. Central Sensitization, Kinesiophobia, Gait, Balance, and Trunk Sensorimotor Characteristics in Chronic Low Back Pain Patients and Healthy Controls. *Clinical Biomechanics* (2023). Under Revision.
- 2) Nagai T, **Schilaty ND**, Chang RW, Tveiten V, Stiennon ST, Wong H, Stuart MJ, Krause DA. Acute Effects of Maximum Voluntary Isometric Contractions-Based Warm-Up on Neck Performance and Morphology. *J Strength and Conditioning Research*. (2022) In Review.
- 3) Nagai T, Bates NA, Rigamonti L, Hollman JH, Laskowski ER, **Schilaty ND**. Effects of Neuromuscular and Proprioceptive Training on Self-Reported Wellness and Health Scores and Knee Sensorimotor Characteristics in Active Seniors. *Journal of Bodywork & Movement Therapies*. (2022) In Review.

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- 4) Nagai T, **Schilaty ND**, Bates NA, McPherson AL, Hale RF, Hewett TE. Effects of Sex and Age on Quadriceps and Hamstrings Strength and Flexibility in High School Basketball Players. *Clinical Journal of Sport Medicine*. (2022) In Review.
- 5) **Schilaty ND**, McPherson AL, Nagai T, Bates NA. Psychological Readiness to Return to Sport after Anterior Cruciate Ligament Injury is Evident in Motor Unit Characteristics. *Sports Health*. (2023) In Review.
- 6) Bates NA, Goodyear E, Huffman A, Nagai T, Rigamonti L, Breuer L, Holmes BD, **Schilaty ND**. Physical Clinical Care and Artificial-Intelligence-Guided Core Resistance Training Improve Endurance and Patient-Reported Outcomes in Subjects with Lower Back Pain. *Clin Biomech*. (2022) In Review.
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- 8) Hedges DM, **Schilaty ND**, Mullan A, Camerucci E, Bower JH, Grossardt BR, Savica R. Machine Learning Driven Parkinson's Disease Subtype Classification. *J Parkin Dis*. (2022) Revision.

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- 1) **Schilaty ND**, Sara J, Nagai T, Breuer L, Lerman A. Effects of Whole-body Electromyostimulation Training on Knee Sensorimotor Characteristics. 2023 ACSM Annual Meeting, World Congress on Exercise is Medicine and World Congress on the Basic Science of Physical Activity and Aging Biology, Denver, CO, USA. May 30 – June 2, 2023.
- 2) Refowich AJ, Ferguson IC, Moran BK, Coris EE, Narducci DM, Hertweck KJ, McCarthy MR, Graulich I, **Schilaty ND**. Predicting Delayed Concussion Recovery Using measurements of Active Cervical Range of Motion. 2023 ACSM Annual Meeting, World Congress on Exercise is Medicine and World Congress on the Basic Science of Physical Activity and Aging Biology, Denver, CO, USA. May 30 - June 2, 2023.
- 3) Bates NA, Wei Y, **Schilaty ND**, Sellon JL. Viability of ultrasound SWE as a surrogate for ultimate failure in the anterolateral and medial collateral ligaments of the knee. 6th Annual Mayo Clinic Ultrasound Research Center Symposium. Rochester, MN, USA. Nov 19, 2022.
- 4) Bates NA, Nagai T, McPherson AL, Felton CL, Haider CR, **Schilaty ND**. Biofeedback Sleeve Estimates Three-Dimensional Knee Positions and Rotations to Reduce Knee Injury Incidence. *Military Health System Research Symposium*; Sep 16-19, 2022; Kissimmee, FL.
- 5) Bates NA, Huffman A, Goodyear E, Nagai N, Rigamonti L, Breuer L, Holmes B, **Schilaty ND**. Clinical Care and Artificial-intelligence-guided Resistance Training Improve Functionality in Lower Back Pain. *ACSM Annual Meeting, World Congress on Exercise is Medicine*. San Diego, California, June 4, 2022.
- 6) **Schilaty ND**, Bates NA, Nagai T. Therapeutic Intervention Improves Lower Back Isometric Extension Force Steadiness and Reveals Potential Biomarker. *USF Research Day 2022*. Tampa, Florida, Feb. 25, 2022.
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- 11) Ueno R, Navacchia A, **Schilaty ND**, Myer GD, Hewett TE, Bates NA. Hamstrings Contraction Regulates Magnitude and Timing of Peak Anterior Cruciate Ligament Loading during Drop Vertical Jump in Female Athletes. *XXVIII Congress of the International Society of Biomechanics*. Stockholm, Sweden, July 25-29, 2021.
- 12) Ueno R, Heinrich D, Schindelwig K, Bates NA, **Schilaty ND**, Nachbauer W. Lateral Heel Release Reduces ACL Strain in Simulated Backward Twisting Falls. *XXVIII Congress of the International Society of Biomechanics*. Stockholm, Sweden, July 25-29, 2021.

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- 13) Cummings P, Bates NA, **Schilaty ND**. Application of Ultrasound Shearwave Elastography (SWE) to Measure Hamstring Stiffness in Basketball Athletes. *Mayo Clinic Graduate School Research Conference*, April 2021.
- 14) Krause DA, Hollman JH, Anderson VA, Heider SE, Thomez S, Vaughn S, **Schilaty ND**. Recurrence Analysis of Post Operative Anterior Cruciate Ligament Isokinetic Strength Testing. *Minnesota Physical Therapy Association Conference*, April 24, 2021.
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- 16) Mumbleau AM, Hale RF, **Schilaty ND**. Lower Extremity Asymmetry is Observed Twelve Weeks After Hip Arthroscopy. *APTA Combined Sections Meeting*, 2021.
- 17) Rigamonti L, Bates NA, **Schilaty ND**, Stuart MJ, Milbrandt TA, Krych AK. Skeletal Immaturity and Graft Type as Predictors of Reinjury after Transphyseal Anterior Cruciate Ligament Reconstruction in Pediatric and Adolescent patients. *American Academy of Orthopaedic Surgeons 2021 Annual Meeting*, March 9 – 13; San Diego, CA.
- 18) **Schilaty ND**, Savoldi F, Nasr Z, Weinshenker BG. Biomechanical Muscle Stiffness Measures of Extensor Digitorum Explain Potential Mechanism of McArdle Sign. *Annual BIRCWH Meeting*, Bethesda, Maryland, 2020.
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- 110) Hedges DM, **Schilaty ND**, Perez AW, Watt RK, Steffensen SC. Physiologically relevant oxy-radical formation of neuromelanin by photostimulation: Effects of iron and calcium. *Soc. Neurosci Absts* 39 (2014) 144.05.
- 111) Chang S, Jang E, Ryu Y-H, Lee B, Folsom RJ, **Schilaty ND**, Kim K, Yang C, Steffensen SC, Kim H. Involvement of reactive oxygen species in cocaine taking-behaviors in rats. *Soc. Neurosci Absts* 39 (2014) 616.01.
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- 115) **Schilaty ND**, Folsom RJ, Hanson S, Jang EY, Lee JY, Yang CH, Steffensen SC. Ethanol inhibits dopamine release at GABA terminals in the nucleus accumbens via alpha-6 nicotinic acetylcholine receptors. *Alcoholism: Clin. Exp. Res.* (2014) 38(S1): 9A(31).
- 116) Jang EY, **Schilaty ND**, Folsom RJ, Hedges DM, Shin SI, Mabey JK, Yang CH, Kim HY, Steffensen SC. Role of reactive oxygen species in ethanol effects on dopamine release. *Alcoholism: Clin. Exp. Res.* (2014) 38(S1): 83A(329).
- 117) Mabey JK, Shin SI, White DN, Nielson CA, **Schilaty ND**, Ting-A-Kee R, Vargas-Perez H, van der Kooy D, Steffensen SC. Functional switch in GABA(A) receptors on VTA GABA neurons by chronic ethanol. *Alcoholism: Clin. Exp. Res.* (2013) 37(2): 238A(908).
- 118) Shin SI, Mabey JK, White DN, Nielson CA, **Schilaty ND**, Taylor DH, Wu J, McIntosh JM, Steffensen SC. Ethanol inhibits GABA neurons in the VTA and dopamine release in the nucleus accumbens via alpha-6 nicotinic receptors on GABA terminals. *Alcoholism: Clin. Exp. Res.* (2013) 37(2): 238A(909).
- 119) Jang EY, **Schilaty ND**, Hanson S, Folsom RJ, Steffensen SC. Rapid adaptation of D2 dopamine receptor following acute ethanol. *Alcoholism: Clin. Exp. Res.* (2013) 37(2): 239A(915).
- 120) Yorgason JT, **Schilaty ND**, Hedges DM, Jang EY, Jones SR, Steffensen SC. Ethanol inhibits dopamine release at terminals in the nucleus accumbens via GABA(B) receptors. *Alcoholism: Clin. Exp. Res.* (2013) 37(2): 240A(916).
- 121) **Schilaty ND**, Folsom RJ, Hanson S, Jang EY, Lee JY, Yang CH, Steffensen SC. Baicalein reduces ethanol inhibition of mesolimbic dopamine transmission and ethanol self-administration. *Alcoholism: Clin. Exp. Res.* (2013) 37(2): 20A(038).
- 122) **Schilaty ND**, Yorgason JT, Hedges DM, Jang EY, Folsom RJ, Nelson A, Vera A, Hanson S, Wallner M, Jones SR, Steffensen SC. Ethanol inhibits dopamine release at terminals in the nucleus accumbens via GABA receptors. *Soc. Neurosci Absts* 38 (2013) 349.10.
- 123) Mabey JK, Shin SI, White DN, Nielson CA, **Schilaty ND**, Ting-a-Kee R, Vargas-Perez H, Van der Kooy D, Steffensen SC. Functional switch in GABA(A) receptors on VTA GABA neurons by chronic ethanol. *Soc. Neurosci Absts* 38 (2013) 349.12.
- 124) Hedges DM, **Schilaty ND**, Badal W, Morrison CE, Watt RK, Steffensen SC. Physiologically relevant oxy-radical formation of neuromelanin by photostimulation: Effects of iron and calcium. *Soc. Neurosci Absts* 38 (2013) 432.23.
- 125) Steffensen SC, **Schilaty ND**, Jones SR, Yorgason JT. Role for GABA(A) receptors in ethanol inhibition of evoked dopamine release in the nucleus accumbens. *Proceedings of the 10th International Catecholamine Symposium* 10 (2012) 92.

Nathan Schilaty, DC, PhD – Curriculum Vitae

Dissertation

Schilaty ND (2014, Dec). *Alcohol Modulation of Dopamine Release*. A dissertation submitted to the faculty of Brigham Young University, College of Life Sciences. Provo, UT.

SERVICE TO PROFESSION

Grant Review Panel

2023 DoD – Military Operational Medicine Research Program (MOMRP)
2021 University of Nebraska Collaboration Initiative
2020 FIN-RER – Health Research Programme of Emilia-Romagna Region
2019 DoD – Defense Medical Research and Development Program (DMRDP)
2017 – 2021 Mayo Clinic Women’s Health Grant Review Committee

Conference

2019 Session Co-chair; Quadriceps Function After ACL Rupture. *2019 International Society of Biomechanics*, Calgary, AB, Canada
2019 – present *American Society of Biomechanics* Mentor Match Program
2018 Webinar Moderator; Leveraging the BIRCWH Experience in Advancing One’s Academic Career. *BIRCWH Leadership Webinar Series*, Emory University
2017 Session Co-chair; Anterior Cruciate Ligament. *2017 American Soc. Biomechanics*, Boulder, CO

Leadership

2022 – present *Advisory Panel Expert*; Data Aggregation System for Healthcare (DASH), Chiropractic Future
2018 – 2021 *Tech Officer*; Associate Consultant Council, Mayo Clinic
2018 – present *Ambassador*; NIH Loan Repayment Program
2018 – 2021 *Co-chair*; T32 Alumni Advisory Council, Mayo Clinic

Committees

2020 ASB 2020 Awards Committee
2019 – 2020 OSSD 2020 Scientific Program Committee
2019 – 2020 OSSD 2020 Awards Committee
2017 – 2021 Collaborative T32 Musculoskeletal Symposium Organizing Committee

Conference Abstract Review / Judge

2022 – present USF Graduate Student Research Symposium
2022 – present USF Research Day
2018 – 2021 Mayo Clinic Women’s Health Research Symposium
2017 – 2020 Design of Medical Devices Conference, Neuroengineering Track
2017 – present American Society of Biomechanics

Editor (# of articles managed)

2018 – present Academic Editor: PLOS One – *Sports Injury* (11)
2018 – present Academic Editor: Frontiers in Sports and Active Living – *Sports Science, Technology and Engineering*

Ad Hoc Journal Review (# of articles reviewed)

- 1) Addiction Biology (1)
- 2) American Journal of Sports Medicine (18)
- 3) Archives of Rehabilitation Research and Clinical Translation (2)
- 4) Biomaterials Science (1)

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- 5) Biomed Research International (1)
- 6) BMC Musculoskeletal Disorders (3)
- 7) BMC Sport Science, Medicine, & Rehabilitation (1)
- 8) BMJ Case Reports (6)
- 9) Clinical Anatomy (1)
- 10) Clinical Journal of Sports Medicine (1)
- 11) Current Sports Medicine Reports (1)
- 12) Electronics (1)
- 13) European Journal of Sports Science (4)
- 14) Frontiers in Neuroscience (1)
- 15) Frontiers in Integrative Neuroscience (1)
- 16) Frontiers in Sports and Active Living (14)
- 17) IEEE Transactions on Medical Imaging (1)
- 18) Injury Prevention (1)
- 19) International Journal of Developmental Neuroscience (2)
- 20) International Journal of Environmental Research and Public Health (1)
- 21) International Journal of Sports Medicine (1)
- 22) Journal of Medical Internet Research (2)
- 23) JMIR Rehabilitation & Assistive Technologies (1)
- 24) Journal of Athletic Training (2)
- 25) Journal of Applied Biomechanics (1)
- 26) Journal of Electromyography and Kinesiology (1)
- 27) Journal of Orthopaedic Research (4)
- 28) Journal of Orthopaedic & Sports Physical Therapy (2)
- 29) Journal of Osteoporosis (1)
- 30) Journal of Pain Research (1)
- 31) Journal of Physical Therapy (1)
- 32) Journal of Science and Medicine in Sport (5)
- 33) Journal of Sport and Health Science (1)
- 34) Journal of Sports Sciences: Science and Medicine in Football (1)
- 35) Medicine & Science in Sports & Exercise (1)
- 36) NeuroImage (2)
- 37) Neuroscience (1)
- 38) Neuroscience Letters (1)
- 39) Open Access Journal of Sports Medicine (1)
- 40) Orthopaedic Journal of Sports Medicine (4)
- 41) Physical Medicine & Rehabilitation (2)
- 42) PLoS ONE (11)
- 43) SAGE Open Medicine (1)
- 44) Scandinavian Journal of Medicine and Science in Sports (1)
- 45) Scientific Reports (1)
- 46) Sports Biomechanics (1)
- 47) Sports Health (1)
- 48) Sports Medicine (6)
- 49) Sports Medicine – Open (1)
- 50) Transactions on Biomedical Engineering (1)

PRESENTATIONS

Podiums

Nathan Schilaty, DC, PhD – Curriculum Vitae

- 1) **Schilaty ND** (2023, Apr). Great Posture, Great Health (Keynote) – *ACA Faculty* – West Palm Beach, FL.
- 2) **Schilaty ND** (2023, Mar). Decompression Mastermind (Keynote) – *Excite Medical of Tampa Bay* – Dallas, TX.
- 3) **Schilaty ND** (2023, Feb). Looking Back While Looking Forward with Chiropractic Medicine – *Palmer College of Chiropractic Florida Homecoming* – Port Orange, FL.
- 4) **Schilaty ND** (2023, Jan). Non-Surgical Spinal Decompression Research at University of South Florida – *Excite Medical of Tampa Bay* – Tampa, FL.
- 5) **Schilaty ND** (2022, Nov). Great Posture, Great Health – Research on the Effects of Posture and Overall Health – *Southwest Regional Conference – Florida Chiropractic Association*, Naples, FL.
- 6) **Schilaty, ND** (2022, Nov). Headaches: To Treat or Not to Treat, that is the question? Medical Errors. *Southwest Regional Conference – Florida Chiropractic Association*, Naples, FL.
- 7) **Schilaty ND** (2022, Oct). Decompression Mastermind (Keynote) – *Excite Medical of Tampa Bay* – Orlando, FL.
- 8) **Schilaty ND, Nagai T** (2022, Aug). Great Posture, Great Health – Research on the Effects of Posture and Overall Health – *Florida Chiropractic Association – The National*, Orlando, FL.
- 9) **Schilaty ND** (2022, Aug). Headaches: To Treat or Not to Treat, that is the question? Medical Errors. *Florida Chiropractic Association – The National*, Orlando, FL.
- 10) **Schilaty ND.** (2022, July). Ethics of Research. *Southeast Regional Conference – Florida Chiropractic Association*, Boca Raton, FL.
- 11) **Schilaty, ND** (2022, May). Headaches: To Treat or Not to Treat, that is the question? Medical Errors. *Northeast Regional Conference – Florida Chiropractic Association*, St. Augustine, FL.
- 12) **Schilaty ND** (2021, Aug). Utilization of Neural and Mechanical Metrics to Identify and Predict Low Back Pain Outcomes. *Palmer College of Chiropractic – Clinical Research Seminar Series*, Davenport, IA.
- 13) **Schilaty ND, Hewett TE** (2019, Oct). Sex Differences of Motor Unit Characteristics Associated with Anterior Cruciate Ligament Injury and Arthrogenic Muscle Inhibition. *3rd Annual Celebration of Women’s Health Research: SeXX as a Biological Variable*, Rochester, MN.
- 14) **Schilaty ND, Hewett TE** (2019, Aug). Analysis of Quadriceps Arthrogenic Muscle Inhibition of ACL Injury with Decomposed Electromyography. *International Society of Biomechanics*; Calgary, AB, Canada.
- 15) **Schilaty ND, Hewett TE** (2019, May). Sex Differences in Anterior Cruciate Ligament Injury. *Organization for the Study of Sex Differences*; Washington, DC.
- 16) **Schilaty ND, Hewett TE** (2018, Sept). Sex Differences in Anterior Cruciate Ligament Injury. *2nd Annual Celebration of Women’s Health Research – Individualizing Medicine Conference*; Rochester, MN.
- 17) **Schilaty ND, Hewett TE** (2018, June). Controversies in Anterior Cruciate Ligament Injury Prevention, Management and Rehabilitation. *American College of Sports Medicine*; Minneapolis, MN.
- 18) **Schilaty ND, Bates NA, Hewett TE** (2018, May). Timothy Hewett – BIG SIG Career Achievement Award. *American College of Sports Medicine – Biomechanics Interest Group*; Minneapolis, MN.
- 19) **Schilaty ND, Bates NA, Hewett TE** (2018, May). Simulation of Anterior Cruciate Ligament Injuries in the In Vitro Environment. *Mayo Clinic 16th Annual ACL Workshop*; Minneapolis, MN.
- 20) **Schilaty ND, Bates NA, Nagelli CV, Krych AJ, Hewett TE** (2018, Mar). Impact Factors: Simulations of Drop Jumps for Determination of Anterior Cruciate Ligament Injury Mechanisms. *Center for Clinical and Translational Science Grand Rounds*; Mayo Clinic, Rochester, MN.
- 21) **Schilaty ND, Bates NA, Nagelli CV, Krych AJ, Hewett TE** (2017, Aug). Sex Differences in Knee Forces & Moments that Occur with ACL Rupture on Cadaveric Impact Simulations. *American Soc. Biomechanics*, Boulder, CO.
- 22) **Schilaty ND, Bates NA, Hewett TE** (2017, May). Simulation of Anterior Cruciate Ligament Injuries in the In Vitro Environment. *Mayo Clinic 15th Annual ACL Workshop*, Minneapolis, MN.
- 23) **Schilaty ND, Hewett TE** (2016, Oct). Novel Mechanical Impact Simulator Designed to Generate Clinically Relevant Anterior Cruciate Ligament Ruptures. *Mayo Clinic Kelly Research Fellow Competition*, Rochester, MN.
- 24) **Schilaty ND, Hewett TE** (2016, Apr). Incidence of Second Anterior Cruciate Ligament Tears and Associated Factors: A Geographic Epidemiological Cohort Study. *Collaborative T32 Musculoskeletal Symposium*, University of Minnesota, Minneapolis, MN.

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- 25) **Schilaty ND**, Steffensen SC (2014, Aug). Ethanol modulation of dopamine release in the striatum involves extrasynaptic GABA(A)Rs on dopamine terminals. *15th International Monitoring Molecules in Neuroscience*, Los Angeles, CA.
- 26) **Schilaty ND**, Steffensen SC (2013, July). Ethanol inhibits dopamine release at terminals in the nucleus accumbens via GABA receptors. *LDS Life Science Research Symposium*, Salt Lake City, UT.

Guest Lecture

- 1) **Schilaty ND** (2023, Jan). Concussion Management in Sports Medicine. *National University of Health Sciences*, Pinellas Park, FL.
- 2) **Schilaty ND** (2021, Mar). Translation of Biomedical Sports Medicine Research into Clinical Practice. *Mayo Clinic Marquette Challenge*, Rochester, MN.
- 3) **Schilaty ND** (2019, Oct). How Studying Neuromechanics of Movement Opens Mayo Clinic's Door for Chiropractic Scientist. *Parker Seminars – Student P.I.E. Science Week*. Parker University, Dallas, TX.
- 4) **Schilaty ND** (2014, Nov). ExSc 501 – Sports Medicine Pathology & Pharmacology. *Addiction & Opioids*. Brigham Young University, Provo, UT.
- 5) **Schilaty ND** (2014, July). StAc 191 – Beginning Weight Training. *Spinal Care and Core Wellness*. Brigham Young University, Provo, UT.
- 6) **Schilaty ND** (2014, Apr). ExSc 501 – Sports Medicine Pathology & Pharmacology. *Addiction & Opioids*. Brigham Young University, Provo, UT.
- 7) **Schilaty ND** (2014, Feb). Biol 100 – Principles of Biology. *Principles of Addiction*. Brigham Young University, Provo, UT.

Course Development

- 1) **ExSc 221** – Science of Wellness – 3 credit hours
Elective in Department of Exercise Sciences, Brigham Young University
Fulfills General Education and Social Sciences requirement.

Media Interviews

- 1) **Schilaty ND** (2022, June). Current Chiropractic Research at USF. *Pinellas County Chiropractic Society*, St. Petersburg, FL.

Institutional Seminar Presentations

- 1) **Schilaty ND** (2023, Feb). Non-surgical Spinal Decompression. *Neurosurgery Grand Rounds*, Tampa, FL.
- 2) **Schilaty ND** (2022, June). Impact Factors: Simulations of Drop Jumps for Determination of Anterior Cruciate Ligament Injury Mechanisms. *Medical Engineering Department Meeting*; University of South Florida, Tampa, FL.
- 3) **Schilaty ND** (2022, Apr). Chiropractic & Biomechanics Research: Current Projects / Upcoming Opportunities. *Neurosurgery Grand Rounds*, Tampa, FL.
- 4) **Schilaty ND** (2021, May). 66-year female with a 1-year post-op Total Knee Arthroplasty Before and After a 12-Week Postural Intervention. *Mayo Clinic Sports Medicine Conference*, Rochester, MN.
- 5) **Schilaty ND** (2021, Mar). Adaptations of Thigh Muscle Motor Control with ACL Injury. *Mayo Clinic Musculoskeletal Research Conference*, Rochester, MN.
- 6) **Schilaty ND** (2020, Aug). Linear Discriminant Analysis Predicts Knee Injury Outcome from Biomechanical Variables. *Mayo Clinic Sports Medicine Seminar*, Rochester, MN.
- 7) **Schilaty ND** (2019, Oct). Neuromechanics of Anterior Cruciate Ligament Injury and Rehabilitation. *Mayo Clinic Biomedical Engineering & Physiology Seminar*, Rochester, MN.
- 8) **Schilaty ND** (2019, Oct). Sex Differences in Anterior Cruciate Ligament Injury. *Mayo Clinic 3rd Annual Women's Health Research Symposium*, Rochester, MN.
- 9) **Schilaty ND**, Hewett TE (2018, Dec). Factors that 'Impact' Knee Ligament Strain. *Mayo Clinic Musculoskeletal Research Conference*, Rochester, MN.

Nathan Schilaty, DC, PhD – Curriculum Vitae

- 10) **Schilaty ND**, Weinschenker BG (2018, June). A Biomechanical Investigation of McArdle’s Sign for Multiple Sclerosis. *Biomedical Engineering & Physiology Seminar*. Mayo Clinic, Rochester, MN.
- 11) **Schilaty ND**, Hewett TE (2017, May). Sex Differences of Anterior Cruciate Ligament Injury. *Office of Women’s Health – 3-Minute Thesis Competition*. Mayo Clinic, Rochester, MN.
- 12) **Schilaty ND**, Hewett TE (2016, Sept). 2nd ACL Injury: Risk Factors Demonstrated by 20 Years of Rochester Epidemiology Data. *Mayo Clinic Musculoskeletal Research Conference*, Rochester, MN.
- 13) **Schilaty ND**, Hewett TE (2015, May). Motor inhibition via real-time vibration. *OSU Sports Medicine Research Day*, Columbus, OH.
- 14) **Schilaty ND** (2014, Oct). Ethanol modulation of dopamine release in the striatum involves atypical extrasynaptic GABA(A)Rs. Department of Physiology, Pharmacology, and Neurosciences. University of South Carolina School of Medicine, Columbia, SC.
- 15) **Schilaty ND** (2014, Oct). Ethanol modulation of dopamine release in the striatum involves atypical extrasynaptic GABA(A)Rs. *Post-doctoral Recruitment Event*. Ohio State University, Columbus, OH.
- 16) **Schilaty ND** (2014, Sept). Ethanol and METH: Role of atypical extrasynaptic GABA(A)Rs and reactive oxygen species on dopamine release in the striatum. Department of Physiology & Pharmacology. Wake Forest University, Winston-Salem, NC.
- 17) **Schilaty ND** (2014, Feb). Addiction: Re-wired. *BYU Graduate Studies – 3-Minute Thesis Competition*. Brigham Young University, Provo, UT.
- 18) **Schilaty ND** (2013, Oct). Ethanol inhibits dopamine release at terminals in the nucleus accumbens via $\alpha 6^*$ -nAChRs. *Physiology and Developmental Biology / Neuroscience Seminar Series*. Brigham Young University, Provo, UT.
- 19) **Schilaty ND** (2013, June). Addiction and the Brain. *Graduate Studies – Grad Talk Competition*. Brigham Young University, Provo, UT.
- 20) **Schilaty ND** (2012, Nov). Baicalein attenuates the inhibitory effect of ethanol on dopamine terminals. *Physiology and Developmental Biology / Neuroscience Seminar Series*. Brigham Young University, Provo, UT.

COURSES TAUGHT

Years	Course Number	Course Description	Institute
2022	IDS 4914	Undergraduate Research	University of South Florida
2022 - 2023	BME 4882 / 4883C	Biomedical Engineering Design I / II	University of South Florida
2020 – 2021	CORE 6050	Critical Thinking & Scientific Writing	Mayo Clinic
2020 – 2021	BMEP 6700	Physiology from Cells to Organism	Mayo Clinic
2016 – 2021	BMEP 5452	Biomechanics	Mayo Clinic
2013	NEURO 480	Advanced Neuroscience Laboratory	Brigham Young University
2013	NEURO 205	Neurobiology	Brigham Young University
2011	MEEN 595R	Special Topics in Mechanical Engineering	Brigham Young University
2011	BIOL 2103	Advanced Human Anatomy Dissection	Front Range Community College
2009 – 2011	MED 220	Human Pathology	Corinthian College
2009 – 2011	MED 105	Medical Terminology	Corinthian College
2009 – 2011	MED 255	Medical Law & Ethics	Corinthian College
2009	BIOL 1006	Basic Anatomy & Physiology	Front Range Community College
2007 – 2011	BIOL 2102	Anatomy & Physiology II	Front Range Community College
2007 – 2011	BIOL 2101	Anatomy & Physiology I	Front Range Community College
2006	Princeton Review	PSAT Preparation	Thomas Jefferson High School

MENTORING

Years	Mentee	Current Status
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Nathan Schilaty, DC, PhD – Curriculum Vitae

2022 – present	<i>Katherine Feroben</i> – University of South Florida Graduate	PhD Graduate Student
2022 – present	<i>Luana Niewelt</i> – University of South Florida Undergraduate	Undergraduate
2022 – present	<i>Will Ridley</i> – University of South Florida Undergraduate	Undergraduate
2022 – present	<i>Alex Refowich</i> – University of South Florida Medical Student	Medical School
2022 – present	<i>Isabel ‘Carter’ Ferguson</i> – University of South Florida Undergraduate	Undergraduate
2022 – present	<i>Luke Borders</i> – University of South Florida Research Assistant	Post-Bacc Research Assistant
2022 – present	<i>Möet Bailey</i> – University of South Florida Research Assistant	Post-Bacc Research Assistant
2021 – 2022	<i>Cecelia Mitchell</i> – Mayo Clinic Medical Student	Medical School
2021	<i>Fernanda Campos</i> – Mayo Clinic Summer Undergraduate Research Fellow (SURF)	Undergraduate
2020 – 2022	<i>Sarah Anderson</i> – Mayo Clinic – Physical Therapy Research Fellow	Physical Therapist
2020 – 2022	<i>Andrew J. Johnson</i> – Mayo Clinic – Physical Therapy Research Fellow	Physical Therapist
2020 – present	<i>Grace Chaney</i> – Mayo Clinic – SURF	Post-Bacc Researcher
2019 – present	<i>American Society of Biomechanics</i> – Student Mentorship Program	Various
2019 – 2021	<i>Luca Rigamonti</i> – Mayo Clinic – Research Fellow	Physician Researcher
2018 – 2020	<i>Ryo Ueno</i> – Mayo Clinic – Research Fellow	Research Associate
2019	<i>Bailey Onken</i> – Mayo Clinic – Undergraduate Research Employment Program (UREP)	Medical School
2019	<i>Hannah Wendorff</i> – Mayo Clinic – UREP	Undergraduate
2019	<i>Jack Ommen</i> – Mayo Clinic – SURF	Undergraduate
2019	<i>Sydney Kruisselbrink</i> – Mayo Clinic – SURF	Physician Assistant School
2018 – 2021	<i>Allison Mumbleau, PT, DPT</i> – Mayo Clinic – Clinical Outcome Research Coordinator (CORC)	Physical Therapist
2018 – 2021	<i>Emily Beyer, PT, DPT</i> – Mayo Clinic – CORC	Physical Therapist
2018 – 2021	<i>Aaron Hellem, PT, DPT</i> – Mayo Clinic – CORC	PhD Student
2018	<i>Jenna Port</i> – Mayo Clinic – Career Awareness High School Mentee	Undergraduate
2017	<i>Manuela Vargas Gonzalez</i> – Mayo Clinic – Special Research Student	Graduate
2017	<i>Maria Clara Mejia Jaramillo</i> – Mayo Clinic – Special Research Student	Graduate
2017 – 2020	<i>April McPherson, BS</i> – Mayo Clinic – PhD Graduate Student <u>Thesis</u> : Neuromechanics of Arthrogenic Muscle Inhibition of ACL Injury	Research Scientist
2016 – 2018	<i>Jeffrey Strauss, PT, DPT</i> – Mayo Clinic – CORC	Physician Assistant
2016 – 2018	<i>Eric Crowley, MS, ATC</i> – Mayo Clinic – CORC	Lead Athletic Trainer

MEMBERSHIPS

2022 – Present	American College of Sports Medicine
2021 – Present	Florida Chiropractic Association
2021	Int’l Soc. Arthroscopy, Knee Surgery, & Orthopedic Sport Medicine (ISAKOS)
2018 – 2020	Organization for the Study of Sex Differences
2018 – Present	International Society of Electrophysiology and Kinesiology
2018 – Present	Society for the Neural Control of Movement
2016 – 2018	Orthopedic Research Society
2015 – Present	American Society of Biomechanics
2015	New York Academy of Sciences

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2013 – 2022	Society for Neuroscience
2013 – 2014	Research Society on Alcoholism
2011 – 2014	American Association for the Advancement of Science
2007 – 2008	International College of Applied Kinesiology
2004 – 2006	American Chiropractic Association

VOLUNTEER / OUTREACH

2022	SuperStars Special Needs Activities
2018	Champion Youth Basketball (Coach)
2016 – Present	National Biomechanics Day
2002 – 2019	Boy Scouts of America

PROFESSIONAL DEVELOPMENT

NIH LRP Ambassador

Personalized connection between the Division of Loan Repayment and potential applicants to provide information and personalized assistance for the Loan Repayment Program.

Mendeley Advisor

Volunteer advisor participating in development of Elsevier academic outreach and software features.

LabVIEW Programming – *Advanced*

Generate user-friendly software to interface research hardware for data collection, post-processing, automation, and analysis.

JMP Pro – *Advanced*

Perform appropriate simple and complex statistical models for *in vitro*, *in vivo*, and *clinical trials* research.

FOREIGN LANGUAGE

Spanish	Fluent in written and verbal communication
Arabic	Read/write capability; limited conversation