

CURRICULUM VITAE

Andrew L. Sprague, PT, PhD, DPT, MS

Department of Physical Therapy
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EDUCATION

University of Delaware, Newark, Delaware

Doctor of Philosophy, Biomechanics and Movement Science
Doctor of Physical Therapy
Masters of Science, Anatomy and Clinical Health Science

Graduated: May 2020
Graduated: Dec 2015
Graduated: Feb 2015

James Madison University, Harrisonburg, Virginia

Bachelor of Science, Exercise Science

Graduated: Dec 2012

APPOINTMENTS AND POSITIONS

University of Pittsburgh, Department of Physical Therapy

Jun 2020 – Present

Position: Assistant Professor

University of Delaware, Biomechanics and Movement Science Program

Jan 2016 – June 2020

Positions: Physical Therapist, Research Assistant, Teaching Assistant

Dissertation Title: *Optimizing Patellar Tendinopathy Outcomes with a Comprehensive Approach to Tendon Health*

PhD Advisor: Karin Grävare Silbernagel, PT, ATC, PhD

Dissertation Committee: Thomas S Buchanan, PhD; Christian Couppé, PhD, MSc.PT; Lynn

Snyder-Mackler, PT, ATC, Sc.D, SCS, FAPTA

University of Delaware, Sports and Orthopedics Clinic

Feb 2016 – June 2020

Position: Per-Diem and Consulting Physical Therapist

University of Delaware, Department of Physical Therapy

Oct 2014 – Dec 2015

Position: Student Research Assistant

Mentor: Karin Grävare Silbernagel, PT, ATC, PhD

University of Delaware, Doctorate of Physical Therapy Program

Jul 2013 – Dec 2015

Newark, DE

Position: Physical Therapy Student

Mentor: Lynn Snyder-Mackler, PT, ATC, Sc.D, SCS, FAPTA

LICENSURE AND CERTIFICATIONS

Physical Therapy Licensure

Pennsylvania State Board of Physical Therapy (#PT029148)

2021 – Present

Delaware State Board of Physical Therapy (#J1-0003502)

2016 – 2021

APTA Credentialed Clinical Instructor

2016 – Present

American Safety and Health Institute Emergency First Responder

2007 – Present

American Red Cross CPR and AED for the Professional Rescuer

American Red Cross Oxygen Administration

PROFESSIONAL AFFILIATIONS

International Society of Biomechanics, Member	2016 – Present
American Physical Therapy Association, Member	2012 – Present
Orthopaedic Section Member	
Foot and Ankle Special Interest Group Member	
Imaging Special Interest Group Member	
Sports Section Member	
Running Special Interest Group Member	
Physically Challenged Athlete Special Interest Group Member	
Research Section Member	
Biomechanics Special Interest Group Member	
Early Career Investigator Special Interest Group Member	
Delaware Physical Therapy Association, Member	2012 – Present

HONORS AND AWARDS

Training in Grantsmanship for Rehabilitation Research (TIGRR) trainee	2021
University of Delaware Physical Therapy Endowment Funding Award	2019
University of Delaware Summer Graduate Funding Award	2019
University of Delaware Graduate Student Professional Development Award	2018, 2020
APTA Imaging Special Interest Group Scholarship Award	2018
Foundation for Physical Therapy Promotion of Doctoral Studies I Award	2017
Florence P. Kendall Post-Professional Doctoral Award	2016
James Madison Kinesiology Scholar Award	2012

PEER-REVIEWED PUBLICATIONS AND PRESENTATIONS

Book Chapters:

2020: **Sprague A**, O'Rourke P, Silbernagel KG. Rehabilitation of tendinopathies. *Basketball sports medicine and science*. Luxembourg, European society of sports traumatology, knee surgery & arthroscopy.

Publications:

2022: **Sprague AL**, Couppé C, Pohlig RT, Cortes DC, Silbernagel KG. Relationships between tendon structure and clinical impairments in patients with patellar tendinopathy. *Journal of Orthopaedic Research*. January 2022.

2021: **Sprague AL**, Pohlig RT, Couppé C, Snyder-Mackler L, Silbernagel KG. Pain-guided activity modification during rehabilitation of patellar tendinopathy: a pilot and feasibility study. *Pilot and Feasibility Studies*. February 2021.

2020: Silbernagel KG, Hanlon S, **Sprague AL**. Conservative management of Achilles tendinopathy in athletes. *Journal of Athletic Training*. May 2020.

Sprague AL, Awokuse D, Pohlig RT, Cortes DH, Silbernagel KG. Relationship between Mechanical properties (shear modulus and viscosity), age and sex in uninjured Achilles tendons. *Translational Sports Medicine*. February 2020.

2019: **Sprague A**, Epsley S, Silbernagel KG. Distinguishing quadriceps and patellar tendinopathy: semantics or significant? *Journal of Orthopedic and Sports Physical Therapy*. September 2019.

2018: **Sprague A**, Smith AH, Knox P, Pohlig RT, Silbernagel KG. Modifiable risk factors for patellar tendinopathy in athletes: a systematic review and meta-analysis. *British Journal of Sports Medicine*. July 2018.

Manuscripts in Preparation or Review:

2022: Corrigan P, **Sprague A**, Silbernagel KG. Validity of asymmetric gait detection using an inertial measurement unit. In review.

Sprague A, Ball K, Cortes DH, Silbernagel KG. Reliability and stability of continuous shear wave elastography (CSWE) at the patellar tendon. In review.

Abstracts:

2021: **Sprague AL**, Silbernagel KG. Relationships between changes in injury severity and associated impairments in patellar tendinopathy. Poster to be presented at: ESSKA Congress 2021.

Sprague AL, Coupe C, Pohlig RT, Snyder-Mackler L, Silbernagel KG. Pain-guided activity modification during treatment for patellar tendinopathy: a feasibility and pilot randomized clinical trial. Platform presented at APTA Combined Sections Meeting 2021.

2020: **Sprague AL**, Silbernagel KG. Alterations in tendon structure may relate to symptom severity and functional deficits in patellar tendinopathy. Platform presented at: APTA Combined Sections Meeting; Denver, CO.

Sprague AL, Awokuse D, Pohlig RT, Cortes DH, Silbernagel KG. Relationship between viscoelastic properties, age and sex in asymptomatic Achilles tendons. Poster presented at: Orthopedic Research Society; Phoenix, AZ.

2019: **Sprague A**, Silbernagel KG. Almost half of jumper's knee cases have high kinesiophobia. Poster presented at: 15th Scandinavian Congress of Medicine & Science in Sports; Copenhagen, DK.

Sprague A, Zellers J, Alghamdi N, Corrigan P, Pohlig RT, Silbernagel KG. Insertional Achilles tendinopathy has a higher prevalence of ultrasound abnormalities than midportion. Poster presented at: 15th Scandinavian Congress of Medicine & Science in Sports; Copenhagen, DK.

Sprague A, Silbernagel KG. High prevalence of Kinesiophobia in patellar and quadriceps tendinopathies. Poster presented at: APTA Combined Sections Meeting 2019; Washington, DC.

Sprague A, Silbernagel KG. Patients with patellar tendinopathy compensate with the plantar flexors to maintain jump performance. Poster presented at: APTA Combined Sections Meeting 2019; Washington, DC.

Ball K, Hanlon S, Silbernagel KG, **Sprague A**. Lower extremity function may be used as a surrogate measure of tendon mechanical properties in patients with unilateral patellar tendinopathy. Platform presented at: Eastern Athletic Training Association Annual Meeting 2019; Valley Forge, PA. *Best Undergraduate Free Communications Award*.

2018: Ball K, **Sprague A**, Silbernagel KG. Reliability of continuous shear wave elastography (cSWE) at the patellar tendon. Poster presented at: Summer Scholar Research Symposium 2018; Newark, DE.

Sprague A, Hutchinson Smith A, Silbernagel KG. Impaired quadriceps function may not be captured by standard clinical measures in patellar tendinopathy. Poster presented at: 18th ESSKA Congress; Glasgow, UK.

Sprague A, Ahmad R, Cortes D, Silbernagel KG. Continuous shear wave elastography quantifies patellar tendon pathology. Platform presented at: APTA Combined Sections Meeting 2018; New Orleans, LA.

2017: **Sprague A**, Hutchinson Smith A, Knox P, Silbernagel, KG. Modifiable risk factors for patellar tendinopathy: a systematic review and meta-analysis. Poster presented at: 14th Scandinavian Congress of Medicine & Science in Sports; Copenhagen, DK.

Sprague A, Hutchinson Smith A, Silbernagel KG. Bilateral quadriceps deficits are present in patients with unilateral patellar tendinopathy. Poster presented at: 14th Scandinavian Congress of Medicine & Science in Sports; Copenhagen, DK.

Ahmad R, **Sprague A**, Cortes D, Silbernagel KG. Quantification of viscoelastic properties in unilateral patellar tendinopathy. Platform presented at: Biomedical Engineering Society, Annual Meeting 2017; Phoenix, AZ.

Sprague A, Silbernagel KG. Central activation deficits of the quadriceps muscle in patellar tendinopathy. Poster present at: American Society of Biomechanics, Annual Meeting 2017; Boulder, CO.

Corrigan P, Cortes D, Zellers J, **Sprague A**, Silbernagel KG. Effects of photobiomodulation therapy on Achilles tendon structure. Poster presented at: American Society of Biomechanics, Annual Meeting 2017; Boulder, CO.

Hanchett K, **Sprague A**, Silbernagel KG. Region-specific viscoelastic properties of the patellar tendon. Poster present at: Summer Scholar Research Symposium 2017; Newark, DE.

Sprague A, Cox C, Cortes D, Silbernagel KG. Influence of knee flexion angle on patellar tendon structure and mechanical properties. Poster presented at: Orthopaedic Research Society, Annual Meeting 2017; San Diego, CA.

Sprague A, Pontiggia L, Cortes D, Silbernagel KG. Achilles tendinopathy occurs across the age span and affects quality of life. Poster presented at: APTA Combined Sections Meeting 2017; San Antonio, TX.

2016: Corrigan P, **Sprague A**, Zellers JA, Cortes DH, Silbernagel KG. Mechanical properties and clinical outcomes in Achilles tendinopathy. Poster presented at: American Society of Biomechanics, Annual Meeting 2016; Raleigh, NC.

2015: **Sprague A**, Blem T, Wood M, Stewart E, Wruble Hakim E. Marking mobility across disciplines: a quality improvement project. The John Hopkins Physical Medicine and Rehabilitation 5th Annual Clinical Showcase; Baltimore, MD.

Seminars, Invited Lectureships, and Continuing Education Materials:

2022: Zellers JA, Bove AM, Kobal KL, Minick K, Sage-King FM, **Sprague AL**, Zarzycki R. Engaging in Research and Teaching after the DPT: A Conversation About Career Paths. Educational session presented at: APTA Combined Sections Meeting 2022; San Antonio, TX

Sprague AL, Ebaugh D, Epsley SA, Silbernagel KG. Distinguishing quadriceps tendinopathy from patellar tendinopathy: semantics or significant? Educational session presented at: APTA Combined Sections Meeting 2022; San Antonio, TX

Sprague AL. The Fear Factor in Tendon Injuries. ISAKOS Global Congress 2022, Virtual

Sprague AL. Lower Extremity Tendinopathy: Contemporary Evidence in Clinical Practice. APTA Centennial Lecture Series. July 2022. Alexandria, VA.

2021: **Sprague A**, McHugh T, Joreitz R. Patellar Tendinopathy. *APTA Orthopedic Section Independent Study Course*. Alexandria, VA

“Patellar Tendinopathy: Current Evidence Through the Lens of Challenging Case Presentations”, Select Medical Master Class Series, Virtual

2019: “Role of Imaging in Tendinopathy Treatment” NovaCare Annual Sports Medicine Symposium, Philadelphia, PA

TEACHING AND MENTORSHIP

Teaching:

University of Pittsburgh, Doctor of Physical Therapy Program

PT 2029: Kinesiology & Introduction to Therapeutic Exercise (4 cr) 2020 – Present
Role: Course coordinator, Co-Instructor; 56-62 students

PT 2031: Musculoskeletal PT 1 (6 cr) 2021 – Present
Role: Lab Instructor, Lecturer (Tendinopathy, Gait, Knee), 56 – 62 students

PT 2194: Evidence Based Practice 4 (2 cr) 2022 - Present
Role: Faculty Advisor – Knee Group, 6 – 10 students

PT 2191: Evidence Based Practice 1 (2 cr) 2021
Role: Journal Club Facilitator, 8-12 students

PT 2032: Musculoskeletal PT 2 (5 cr) 2021 – 2022
Role: Lab Instructor, 56 – 62 students

PT 2033 – Musculoskeletal PT 3 (3 cr) 2021 – 2022
Role: Lab Instructor, 56 – 62 students

University of Delaware, Doctor of Physical Therapy Program

PHYT 622: Clinical Gross Anatomy (6 cr) 2016 - 2020
Role: Lab Assistant, 56 – 62 students

PHYT 624: Basic Evaluation Techniques (3 cr) 2016 - 2019
Role: Teaching and Lab Assistant, Lecturer (Upper and Lower Quarter Screening), 56 – 62 students

PHYT 802: Medical Science II: Orthopedics and Musculoskeletal Imaging (4 cr) Role: Teaching and Lab Assistant, 56 – 62 students	2017 - 2019
PHYT 626: Advanced Regional Anatomy (3 cr) Role: Lab Assistant, 40 – 50 students	2017 - 2020
PHYT 808: Spine Management (4 cr) Role: Practical Proctor, 56 – 62 students	2016 - 2020
PHYT 608: Musculoskeletal Evaluation and Treatment Role: Practical Proctor, 56 – 62 students	2016 - 2019

Mentorship:

Physical Therapy Student Faculty Mentor Role: Faculty mentors; Provide support and mentorship to three physical therapy students from each class throughout their Doctor of Physical Therapy training.	2020 - Present
Undergraduate Summer Scholars Program Role: Co-mentor; Guided one undergraduate student per year through a summer research experience, culminating with a local conference presentation	2016 - 2019
Undergraduate Senior Thesis Role: Co-mentor; Provided oversight of research project and preparation of senior thesis for one undergraduate student per year. Research presented at regional or national conference	2017 - 2019
Graduate Physical Therapy Research Experiences Role: Co-mentor; Provided oversight and mentorship to 1 – 3 physical therapy students per year completing volunteer research experiences	2017 - 2020

SERVICE

Manuscript Reviewer:

Journal of Orthopedic and Sports Physical Therapy	2019 - Present
International Journal of Sports Physical Therapy	2020 - Present
Journal of Athletic Training	2020 - Present
Journal of ISAKOS	2021 – Present
Medicine and Science in Sports and Exercise	2022 - Present
Journal of Science and Medicine in Sport	2021 - Present

Scholarship Reviewer:

Dr. Timothy C. and Mrs. Cynthia B. Sell Student Award	2020
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Conference Abstract Reviewer:

APTA Combined Sections Meeting – Sports Section	2020 - Present
University of Pittsburgh Rehabilitation Institute Research Day	2021 – Present

Committee Memberships:

Delaware Physical Therapy Association, Nominating Committee Chair	2017 – 2018 2018
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Other Service Activities:

Birmingham Free Clinic, Clinical Instructor/Faculty Supervisor	2021 - Present
University of Pittsburgh Institutional Review Board, Departmental Reviewer	2021 - Present
National Biomechanics Day Provided lab demonstrations and educational sessions to high school students to promote interest in biomechanics.	2017 - 2020
University of Delaware Physical Therapy Clinic	2017 – 2020

Provided pro-bono physical therapy services to patients with gap between insurance coverage and treatment needs.

Delaware Anatomical Donor Program, Interim director and assistant 2018 -2019
Managed program and acted as point of contact for potential donors and family members with interest in donation program. Coordinated between funeral directors and health sciences program.

Health Sciences Pipeline Program 2018 - 2019
Shared career path and provided educational sessions to high school students that are traditionally underrepresented in health science professions.

FUNDING

Current:

Grant #: U01AR076144

Dates: 07/2019 – 08/2024

Funding Agency: NIH NIAMS

Total Award Amount (including indirect costs): \$3,240,691

PI: Irrgang; Role: Co-Investigator

Support: 2.4 calendar months

Title: **STABILITY 2: ACL Reconstruction +/- Lateral Tenodesis with Patella vs Quad Tendon**

Brief Description of Project Goals: The goal of this 21-site multicenter, international RCT is to evaluate whether one graft (bone-patellar tendon-bone, quadriceps tendon, or hamstring tendon) is superior at reducing failure rates and minimizing donor site morbidity and to determine whether the addition of an lateral extra-articular tenodesis contributes to reduced failure in young, active, ACL deficient individuals.

Grant #: NA

Dates: 07/2021 – 08/2023

Funding Agency: University of Pittsburgh Competitive Medical Research Fund

Total Award Amount (including indirect costs): \$39,336

PI: Sprague

Support: 4.0 calendar months (cost-shared by department)

Title: **Influence of Graft Site Recovery on Clinical Outcomes Following Anterior Cruciate Ligament Reconstruction with an Extensor Mechanism Autograft**

Brief Description of Project Goals: This mechanistic ancillary grant will leverage the existing infrastructure of the STABILITY 2 Trial to identify changes in graft site structural properties after graft harvest (patellar and quadriceps tendons), and explore the relationships between changes in these properties and clinical outcomes following ACLR.

Grant #: K23AR080741

Dates: 08/01/2022 – 07/31/2027

Funding Agency: NIH NIAMS

Total Award Amount (including indirect costs): \$645,050

PI: Sprague

Support: 9.0 calendar months

Title: **Graft harvest as a model of tendon injury: trajectory of recovery and clinical outcomes**

Brief Description of Project Goals: This mechanistic ancillary grant will leverage the existing infrastructure of the STABILITY 2 Trial to identify changes in graft site structural properties after graft harvest (patellar and quadriceps tendons), and explore the relationships between changes in these properties and clinical outcomes following ACLR.

Completed:

Physical Therapy Endowment Funding University of Delaware	Pain Guided Activity Modification During Treatment for Patellar Tendinopathy Role: PI	06/2019 – 06/2020
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T32-HD007490 NIH NIAMS	Pre-Doctoral Institutional Training Grant PIs: Snyder-Mackler, Reisman Role: Trainee	06/2015 – 04/2019
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University of Delaware Summer Graduate Funding	Pain Guided Activity Modification During Treatment for Patellar Tendinopathy Role: PI	06/2019 – 09/2019
Foundation for Physical Therapy Promotion of Doctoral Studies I Scholarship	Modifiable Risk Factors for Patellar Tendinopathy Role: PI	09/2017 – 08/2018
Foundation for Physical Therapy Florence P. Kendall Scholarship	Modifiable Risk Factors, Tendon Health and Cumulative Load in Patellar Tendinopathy Role: PI	09/2016 – 08/2017