

# CURRICULUM VITAE

Susan Sigward, PhD, PT

## EDUCATION

### Postgraduate

Department of Orthopaedic Surgery, University of California  
Los Angeles, CA  
Postdoctoral Fellow, Biomechanics, 2004-2005

### Graduate

Department of Biokinesiology and Physical Therapy  
University of Southern California  
Los Angeles, CA,  
Ph.D., Biokinesiology, 2004

Department of Anatomy  
Wright State University  
Dayton, Ohio  
M.S., Anatomy, 1999

### Undergraduate

Department of Physical Therapy  
Saint Louis University  
Saint Louis, MO  
B.S., Physical Therapy, 1990

## CERTIFICATIONS/SPECIALTIES:

Licensed Physical Therapist, California: PT 25563 (Current)  
American Red Cross, CPR AED for the Professional Rescuer  
National Athletic Trainers Association Certified Athletic Trainer: 1996-2020

## PROFESSIONAL EXPERIENCE

### Primary positions

2017-present	Associate Professor of Clinical Physical Therapy, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA
2017-present	Director, MS Sports Science Emphasis, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, CA
2009-present	Director, Human Performance Laboratory in the Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA
2009-2016	Assistant Professor of Clinical Physical Therapy, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA
2005-2009	Assistant Professor of Research Physical Therapy, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA
2004-2005	Post-doctoral Fellow, Department of Orthopaedic Surgery, University of California, Los Angeles
2002-2004	Research Assistant, Department of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA

1999-2002	Teaching Assistant, Gross Anatomy and Analytical Anatomy, Department of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA
1996-2000	Adjunct Faculty in Orthopedics and Gross Anatomy, Andrews University School of Physical Therapy, Dayton, OH.
1995- 1999	Staff Physical Therapist and Athletic Trainer, Miami Valley Hospital, Dayton, OH
1992- 1995	Staff Physical Therapist and Athletic Trainer, Queen City Sports Medicine, Cincinnati, OH
1991-1992	Staff Physical Therapist, Westside Physical Therapy, Cincinnati, OH
1990-1991	Staff Physical Therapist, Bethesda Hospital, Cincinnati, OH

### Teaching Experience

#### ***Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles CA***

2004-present	Co-Director, Human Musculoskeletal Anatomy
2020-present	Director, Movement Analysis for Sport
2021-2022	Co-Director, Technology in Sport: Field Assessment of Athlete Performance
2018-2020, 23-25	Director, Technology in Sport: Field Assessment of Athlete Performance
2015-2017	Director, Disorders of the Musculoskeletal System
2009-2011	Co-Director, Disorders of the Musculoskeletal System
2008-2011	Director, Therapeutic Exercise II
2005-2020	Lab Lecturer, Pathophysiology of Cardiopulmonary Disease
2005-2007	Lab Lecturer, Differential Diagnosis in Physical Therapy

#### ***Keck School of Medicine, University of Southern California, Los Angeles CA***

2003-2022	Lecturer, Human Anatomy, Department of Family Medicine Keck School of Medicine, Department of Anesthesiology
2003-2021	Lecturer, Human Anatomy, Department of Family Medicine Keck School of Medicine, Physician Assistant Program

#### ***Ostrow School of Dentistry, University of Southern California, Los Angeles CA***

1999-2006	Adjunct Instructor, Head and Neck Anatomy
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### AWARDS & HONORS

2025	Irma Ruebling Distinguished Speaker, Saint Louis University's Program in Physical Therapy
2023	Mid-Career Award, Biomechanics Special Interest Group, American College of Sports Medicine
2018	Outstanding Teacher Award, University of Southern California, Division of Biokinesiology and Physical Therapy, Los Angeles, CA
2017	Commendation for Excellence in Teaching, University of Southern California, Division of Biokinesiology and Physical Therapy, Los Angeles, CA
2016	Mentoring Award-Faculty Mentoring Graduate Students, University of Southern California, Los Angeles, CA
2013	California Physical Therapy Association's 2013 Publication Award for "The influence of Sex and Maturation on Knee Mechanics During Side-step Cutting. <i>Medicine &amp; Science in Sports &amp; Exercise</i> . 44(8):1497-503, 2012."
2013	Commendation for Excellence in Teaching, University of Southern California, Division of Biokinesiology and Physical Therapy, Los Angeles, CA
2006	California Physical Therapy Association's 2006 Publication Award for "The

2003	Influence of Gender on Knee Kinematics, Kinetics and Muscle Activation Patterns During Side-step Cutting. <i>Clinical Biomechanics</i> , 21:41-48, 2006” Excellence in Teaching Award Nominee, University of Southern California, Los Angeles, CA
2003	Outstanding Mentorship Award, University of Southern California, Department of Biokinesiology and Physical Therapy, Los Angeles, CA
2002	IV World Congress Biomechanics, Calgary Award Finalist, Category: Muscle & Musculoskeletal category
2001	Promotion of Doctoral Studies Scholarship, Foundation for Physical Therapy
1999	Galen Award, Award granted for Highest GPA in Masters of Anatomy Program, Wright State University, Dayton, OH
1990	<i>Magna Cum Laude</i> , Award granted with Bachelor of Science, Saint Louis University, Saint Louis, MO

### GRANT SUPPORT

2011 – 2016	Scholar, NIH, National Center for Medical Rehabilitation Research (NICHD), National Institutes of Health Rehabilitation Research Career Development Program, K12-HD055929 (Ottenbacher, PI)
2014-2016	PI, Boston Rehabilitation Outcomes Measurement Pilot Project (NIH R24 HD05688). “ <i>Tools to quantify gait behaviors in individuals recovering from anterior cruciate ligament reconstruction</i> ”. Award amount \$30,000
2014-2015	PI, SC CTSI (NIH/NCATS; UL1TR000130), “ <i>Effects of Gait Training on Knee Loading Following Anterior Cruciate Ligament Reconstruction</i> ”. Award amount \$27,525
2014-2015	PI, California Physical Therapy Fund, “ <i>Does Early Gait Training Improve Lower Extremity Sagittal Plane Loading Following Anterior Cruciate Ligament Reconstruction?</i> ”. Award amount \$9,095
2012-2013	PI, Zumberge Fund Individual Grant, “ <i>The Development of Postural Strategies in Children</i> ”. Award amount: \$27,000
2008-2010	Recipient, NIH Clinical Loan Repayment Program for Clinical Researchers
2006-2008	Recipient, NIH Clinical Loan Repayment Program for Clinical Researchers
2005-2009	Project Manager (70% effort), “ <i>Mechanics of non-contact ACL injuries in female athletes</i> ”, NIH, R01 AR053073-01A1 Powers (PI)
2002-2003	Project Manager (50% effort), “ <i>Biomechanical and Neuromuscular aspects of non-contact ACL injuries: The influence of gender, experience and training</i> ”, National Athletic Trainer’s Foundation Grant (Powers, PI)
2000-2001	Promotion of Doctoral Studies (PODS) scholarship from American Physical Therapy Association

## PUBLICATIONS

## Publications in Refereed Journals

1. Almansouri SYM, **Sigward SM**. Increased Gait Speed Changes Knee Mechanics Following Anterior Cruciate Ligament Reconstruction: Implications and Caution for Treadmill Training in Early Rehabilitation. *International Journal of Sports Physical Therapy*, *Accepted*
2. **Sigward SM**, Ma W. Variation in Response to Limb Loading Instruction on Knee Mechanics during Squatting in Early Recovery Following ACLr. *Journal of Athletic Training*, *Accepted*
3. Baur, H., Pairot De Fontenay, B., **Sigward, S**. Neuromuscular diagnostics and sensorimotor performance in training and therapy-beyond the pure biomechanical approach. *Frontiers in Sports and Active Living*, 5, 2023:1296276.
4. Chan MS, **Sigward SM**. Prioritizing limb loading improves symmetry during dual-tasking in individuals following anterior cruciate ligament reconstruction. *Frontiers in Sports and Active Living*, 5, 2023: 1090694.
5. Chan MS, **Sigward SM**. Individuals following anterior cruciate ligament reconstruction practice underloading strategies during daily activity. *Journal of Orthopaedic Research®*, 40(3) 565-572, 2022
6. Chan MS, **Sigward SM**. Center of pressure predicts Intra-limb compensatory patterns that shift demands away from knee extensors during squatting. *Journal of Biomechanics*, 111, p.110008, 2020.
7. Jarvis DN, **Sigward SM**, Lerch K, Kulig, K. What goes up must come down, part II: Consequences of jump strategy modification on dance leap landing biomechanics. *Journal of sports sciences*, 1-7, 2020
8. Lin PE, **Sigward SM**. Influence of hamstrings on knee moments during loading response of gait in individuals following ACL reconstruction. *Journal of Orthopaedic Research*, 38(2) 378-386, 2020
9. Chan M-S, **Sigward SM**. Loading Behaviors Do Not Match Abilities Post Anterior Cruciate Ligament Reconstruction. *Medicine & Science in Sports & Exercise*, 51(8)1626-1634, 2019
10. Lin PE, **Sigward SM**. Subtle Alterations in Whole Body Mechanics During Gait Following Anterior Cruciate Ligament Reconstruction. *Gait & Posture*, 68:494-499, 2019
11. Allah Neamat N, **Sigward SM**, Mohamed GA, Elhafez SM, Emran IM. Effect of Repeated Application of Rigid Tape on Pain and Mobility Deficits Associated with Sacroiliac Joint Dysfunction. *Journal of Back and Musculoskeletal Rehabilitation*, 32(3) 487-496, 2019
12. Pratt KA, **Sigward SM**. Inertial Sensor Angular Velocities Reflect Dynamic Knee Loading during Single Limb Loading in Individuals following Anterior Cruciate Ligament Reconstruction. *Sensors*, 18 (10), 3460, 2018.
13. Lin PE, **Sigward SM**. Contributors to Knee Loading Deficits During Gait in Individuals Following Anterior Cruciate Ligament Reconstruction. *Gait & Posture*, 66:83-87, 2018
14. Havens K, Ebner S, Prat KM, **Sigward SM**. Accelerations from Wearable Accelerometers Reflect Knee Loading During Running after Anterior Cruciate Ligament Reconstruction, *Clinical Biomechanics*, 58:57-61, 2018

15. Pratt KA, **Sigward SM**. Detection of Knee Power Deficits Following ACL Reconstruction Using Wearable Sensors, *Journal of Orthopedic and Sports Physical Therapy*, 48(11), 895-902, 2018
16. **Sigward SM**, Chan MS, Lin P, Almonsouri SY, Pratt KA. Compensatory Strategies that Reduce Knee Extensor Demands During a Bilateral Squat Change from 3 to 5 Months Following Anterior Cruciate Ligament Reconstruction. *Journal of Orthopedic and Sports Physical Therapy*, 48(9), 2018
17. Padua D, DiStefano L, Hewett T, Garrett W, Marshall S, Gilchrist J, Golden G, Shultz S, and **Sigward S**. National Athletic Trainers' Association Position Statement: Prevention of Anterior Cruciate Ligament (ACL) Injury. *Journal of Athletic Training*, 53(1):5-19, 2018
18. Hashish R, Samarawickrame S, **Sigward S**, Azen S, Salem G. Lower-Limb Dynamics and Clinical Outcomes for Habitually Shod Runners who Transition to Barefoot Running. *Physical Therapy in Sport*, 29: 93-100, 2018
19. Cesar GM, Lewthwaite R, Sigward SM. Effect of Practice on the Control of Whole-Body Momentum in Active Children and Adults. *Journal of Motor Learning and Development*. 6 (1) 185-196: 2018
20. Pollard CD, **Sigward SM**, Powers CM. ACL Injury Prevention Training Results in Modification of Hip and Knee Mechanics During a Drop-landing Task. *Orthopaedic Journal of Sports Medicine*, 5:2325967117726267: 7/9/2017
21. Pratt KA and **Sigward SM**. Knee Loading Deficits during Dynamic Tasks in Individuals following ACL Surgery. *Journal of Orthopedic and Sports Physical Therapy*. 47 (6):411-419, 2017
22. **Sigward SM**, Chan M-S and Lin PE. Characterizing Knee Loading Asymmetry in Individuals Following Anterior Cruciate Ligament Reconstruction Using Inertial Sensors. *Gait & Posture*, 49: 114-119, 2016
23. Cesar GM and **Sigward SM**. Predictors for Dynamic Stability during Running Gait Termination: A comparison between adults and children. *Human Movement Science*, 48:37-43, 2016
24. **Sigward SM**, Lin PE, Pratt KA. Knee loading asymmetries during gait in early recovery are related to asymmetries in late recovery and during running following ACL reconstruction. *Clinical Biomechanics*, 32:249-54; Feb 2016.
25. Lawrence EL, Cesar GM, Bromfield M, Peterson R, Valero-Cuevas FJ, **Sigward SM**. Strength, multi-joint coordination, and sensorimotor processing are independent contributors to overall balance ability. *BioMed Research International*, Nov19; 2015
26. Cesar GM, **Sigward SM**. Dynamic stability during running gait termination: Differences in strategies between children and adults to control forward momentum. *Human Movement Science*, 43:138-145, 2015
27. Havens KL and **Sigward SM**. Whole Body Postural Mechanics of Running Turn Maneuvers. *Gait & Posture*, 42(3):240-245, 2015
28. Havens KL and **Sigward SM**. Joint and Segmental Mechanics of Running Turn Maneuvers. *Gait & Posture*, 41(1):33-38, 2015
29. Havens KL and **Sigward SM**. Cutting Mechanics: Relationship to Performance and ACL Injury Risk. *Medicine & Science in Sports & Exercise*, 47(4): 818-824, 2015.

30. **Sigward SM**, Guilherme GM, Havens KL. Predictors of Frontal Plane Moments During Side-step Cutting to 45<sup>0</sup> and 110<sup>0</sup> in Men and Women: Implications for ACL Injury. *Clinical Journal of Sports Medicine*, 25(6):529-534, 2015.
31. Roll SC, Rana M, **Sigward SM**, Yani MS, Kirages DJ, Kutch JJ. Reliability of superficial male pelvic floor structural measurements using linear-array transperineal sonography. *Ultrasound in Medicine and Biology*, 41:610-617, 2015
32. Ota S, Ueda M, Aimoto K, Suzuki Y, **Sigward SM**. Influence of restricted ankle dorsiflexion angle on knee joint mechanics during gait. *The Knee*, 21(3): 669-675, 2014
33. Diaz A and **Sigward SM**. Commentary on Performance of Functional Gait and Balance Measures in High School Adolescents. *Pediatric Physical Therapy*, 26(2):200-01, 2014
34. **Sigward SM**, Pollard CD, Havens KL, Powers CM. The influence of Sex and Maturation on Knee Mechanics During Side-step Cutting. *Medicine & Science in Sports & Exercise*, 44(8):1497-503, 2012
35. Song J, **Sigward S**, Fisher B, Salem G. Altered dynamic Postural Control During Step Turning in Persons with Early Stage Parkinson's Disease. *Parkinson's Disease*, vol. 2012, Article ID 386962, 2012. doi:10.1155/2012/386962
36. **Sigward SM**, Pollard CD, Powers CM. The Influence of Sex and Maturation on Landing Biomechanics: Implications for ACL Injury. *Scandinavian Journal of Medicine & Science in Sports*, 22(4):502-9, 2012
37. Lyle MA, **Sigward SM**, Tsai L-C, Pollard CD, Powers CM. The influence of Maturation and Lower Extremity Biomechanics on Peak Foot Velocity in Young Females During a Soccer Kick. *Medicine & Science in Sports & Exercise*, 43(10):1948-1954, 2011.
38. **Sigward SM**, Havens KH, Powers CM. The relation between knee separation distance and lower extremity kinematics during a drop land: Implications for clinical screening. *Journal of Athletic Training*, 46(5): 471-75, 2011
39. Shultz SJ, Schmitz RJ, Nguyen A-D, Chaundhari AM, Padua DA, McLean SG, **Sigward SM**. ACL Research Retreat V: An Update on ACL Injury Risk and Prevention, March 25-27, 2010, Greensboro, NC. *Journal of Athletic Training*, 45(5):499-508, 2010.
40. Pollard CD, **Sigward SM**, Powers CM. Limited Hip and Knee Flexion During Landing is Associated with Increased Frontal Plane Knee Motion and Moments. *Clinical Biomechanics*, 25(3):142-46, 2010.
41. Tsai L-C, **Sigward SM**, Pollard CD, Fletcher MJ, Powers CM. The Effects of Fatigue and Recovery on Knee Mechanics During Side-Step Cutting. *Medicine & Science in Sports & Exercise*, 41(10):1952-1957,2009
42. **Sigward SM**, Ota S, Powers CM. Predictors of Frontal Plane Knee Excursion During a Drop Land in Young Female Athletes. *Journal of Orthopedic and Sports Physical Therapy*, 38(11):661-667, 2008
43. **Sigward SM**, Markolf K, Graves B, Jackson S, McAllister D. Femoral Locations for Isometric Placement of Posterolateral Graft Reconstructions: Where Should Posterolateral Grafts be Fixed on the Femur for Optimum Graft Isometry? *Journal of Bone and Joint Surgery Am*, 89(11):2359-68, 2007.

44. Markolf K, Graves B, **Sigward SM**, Jackson S, McAllister D. Effects of posterolateral reconstructions on external tibial rotation and forces in a posterior cruciate ligament graft. *Journal of Bone and Joint Surgery Am*,89(11):2351-8, 2007.
45. **Sigward SM**, Powers CM. Loading Characteristics of Females Who Exhibit Excessive Valgus Moments During Cutting. *Clinical Biomechanics*, 22(7):827-33, 2007.
46. Markolf K, Graves B, **Sigward SM**, Jackson S, McAllister D. How Well do Reconstructions of the Posterolateral Corner Restore Varus Stability of the PCL Reconstructed Knee? *American Journal of Sports Medicine*, 35(7):1117-22, 2007.
47. Markolf K, Graves B, **Sigward SM**, Jackson S, McAllister D. Popliteus bypass and popliteofibular ligament reconstructions reduce posterior tibial translations and forces in a posterior cruciate ligament graft. *Arthroscopy*, 23(5): 482-7, 2007.
48. Pollard CD, **Sigward SM**, Powers CM. Gender Differences in Hip Joint Kinematics and Kinetics During a Side-step Cutting Maneuver. *Clinical Journal of Sports Medicine*, 17: 38-42, 2007.
49. **Sigward S**, Powers C. The Influence of Gender on Knee Kinematics, Kinetics and Muscle Activation Patterns During Side-step Cutting. *Clinical Biomechanics*, 21(1):41-8, 2006.
50. **Sigward SM**, Powers CM. The Influence of Experience on Knee Mechanics During Side-step Cutting. *Clinical Biomechanics*, 21(7):740-7, 2006.
51. Pollard CD, **Sigward SM**, Ota S, Langford K, Powers CM. The Influence of In-season Injury Prevention Training on Lower Extremity Kinematics During Landing in Female Soccer Players. *Clinical Journal of Sports Medicine*, 16(3):223-7, 2006.
52. Salem G.J., Wang M-Y, and **Sigward S**. Recommendations for Measuring Lower-extremity Strength in Older Adults: The Stability of Isokinetic vs 1RM Measures. *Journal of Aging and Physical Activity*, 10: 480-503, 2002.

#### **Non-Peer Reviewed Manuscripts/ Book Chapters**

1. **Sigward SM** (2019) Complexity of Human Joint Design. In Levangie, K, Norkin C, Lewek M (eds). *Joint structure and function: A comprehensive analysis (pp45-79)*. Philadelphia, PA: F.A. Davis Co.
2. **Sigward SM**, Pollard CD (2018) Proximal risk factors for ACL injury: Role of the hip. In Noyes FR, Barber-Westin SD (eds) *ACL Injuries in the Female Athlete: Causes, Impacts, and Conditioning Programs (pp 185-201)*. Springer-Verlag, Berlin Heidelberg.
3. **Sigward SM**, Pollard CD (2012) Proximal risk factors for ACL injury: Role of the hip. In Noyes FR, Barber-Westin SD (eds) *ACL Injuries in the Female Athlete: Causes, Impacts, and Conditioning Programs*. Springer-Verlag, Berlin Heidelberg.
4. **Sigward SM** and Golden GM. (2010) *Preventing Noncontact ACL Injuries*. Champaign, IL: Human Kinetics, Adobe Digital Editions e-book.

5. **Sigward SM.** (2010) Update on Anterior Cruciate Ligament Injuries: Designing an Anterior Cruciate Ligament Injury Prevention Training Program. Educational Monograph, *Orthopaedic Section of the American Physical Therapy Association*.
6. Pollard CD, **Sigward SM**, Shultz SJ. (2010) Update on Anterior Cruciate Ligament Injuries: Risk Factors for Anterior Cruciate Ligament Injury. Educational Monograph, *Orthopaedic Section of the American Physical Therapy Association*.
7. Powers CM, Pollard CD, **Sigward SM.** (2007) Effect of Prevention Programs on Performance. In: Hewett TE, Griffin LY, Mandelbaum BR, Schultz SJ eds. *Understanding and Preventing Non-Contact ACL Injury*. Champaign, IL: Human Kinetics.

### Manuscripts submitted and pending

1. **Sigward SM**, Neamat Allah NH. Segment angular velocities predict lower extremity joint power during a triple hop task: Implications for clinical tests. In progress

### Abstracts

1. Ma, W., Wang, J., Cherin, J., Finley, J., **Sigward, S.** *Validity of between-limb symmetry for insole sensors during daily activities*. American College of Sports Medicine, Atlanta, GA, May 2025. Poster Presentation.
2. Wang, J., Michener, L., **Sigward, S.** *Can data from force plate technologies identify knee loading deficits during squats post-ACLR?* American College of Sports Medicine, Atlanta, GA, May 2025. Rapid Fire Poster Presentation.
3. Farrokhi, S., Beisheim-Ryan, E., Sanchez, N., Jeffcoat, S., Ferreira, N., **Sigward, S.**, Armour Smith, J. *The association between pain sensitivity, fear avoidance, and pain catastrophizing in runners*. APTA Combined Sections Meeting, Houston, TX, February 2025. Poster Presentation.
4. Whitelaw, C., Ma, W., Wang, J., **Sigward, S.** *Comparison of lower limb sagittal plane kinematics and kinetics between Thera markerless and conventional marker-based double limb squat analysis in patients post-ACLR*. *International Journal of Exercise Science: Conference Proceedings*, 14(4), 173. Southwest ACSM Chapter, Costa Mesa, CA, 2024. Poster Presentation.
5. Ma, W., **Sigward, S.** *Daily limb loading during weight-bearing activities following ACL reconstruction does not reflect laboratory gait*. American College of Sports Medicine, Boston, MA, June 2024. Poster Presentation.
6. Ma, W., **Sigward, S.** *Limb loading instruction does not restore knee extensor loading during squatting following ACL reconstruction*. APTA Combined Sections Meeting, Boston, MA, February 2024. Platform Presentation.
7. Wang, J., **Sigward, S.** *Development of clinical methods to identify knee loading deficits during squats post-ACLR*. APTA Combined Sections Meeting, Boston, MA, February 2024. Podium Presentation.
8. Cho, A., Cagle, E., Lipior, S., **Sigward, S.** *Validation of vertical force measures during hop tasks using pressure insoles*. *International Journal of Exercise Science: Conference Proceedings*, 12(3), 117. Southwest ACSM Chapter, Costa Mesa, CA, 2023. Poster Presentation
9. Wang, J., **Sigward, S.M.** *Strategies used to reduce knee loading in single-limb squat 3–4 months post-ACLR*. American Society of Biomechanics Annual Meeting, Knoxville, TN, USA, August 2023. Podium Presentation.
10. Ma, W., **Sigward, S.M.** *Individuals following anterior cruciate ligament reconstruction respond differently to limb loading instruction: A clustering analysis*. American College of Sports Medicine Annual Meeting, Denver, CO, USA, May 2023. Poster Presentation.



11. Wang, J., Marsh, W., **Sigward, S.M.** Relationship between ground reaction force and knee axis of rotation reflects knee loading deficits post-ACLR. American College of Sports Medicine Annual Meeting, Denver, CO, USA, May 2023. Thematic Poster.
12. Ma, W., **Sigward, S.M.** Using data-driven approaches to identify individuals post-ACL reconstruction who need continued gait retraining. APTA Combined Sections Meeting, San Diego, CA, February 2023. Poster Presentation.
13. Wang, J., **Sigward, S.M.** Does the GRF vector and knee joint center relationship reflect intralimb compensation during squatting post-ACLR? APTA Combined Sections Meeting, San Diego, CA, February 2023. Poster Presentation.
14. Wang, J., **Sigward, S.M.** The two-dimensional relationship between ground reaction force vector and knee axis of rotation reflects knee loading deficits during squatting post-ACLR. Southwest ACSM Chapter, Costa Mesa, CA, 2022. Oral Presentation.
15. Ma, W., **Sigward, S.M.** Individuals following anterior cruciate ligament reconstruction respond differently to limb loading instruction: A clustering analysis. Southwest Regional Chapter American College of Sports Medicine Annual Meeting, Costa Mesa, CA, October 2022. Poster Presentation.
16. Ma, W., Chan, M.S., **Sigward, S.M.** Instruction restores limb loading symmetry but not knee loading symmetry or intralimb loading distribution during squatting in individuals in early recovery following ACL reconstruction. 9th World Congress of Biomechanics, Taipei, Taiwan, July 2022. Podium Presentation (Virtual, COVID).
17. Wang, J., Marsh, W.A., Taylor, K., Montgomery, T., **Sigward, S.M.** Does the hip compensate for reduced shock attenuation at the knee during gait following anterior cruciate ligament reconstruction? 9th World Congress of Biomechanics, Taipei, Taiwan, 2022. Podium Presentation (Virtual, COVID).
18. Valencia, M.P., Chan, M.S., **Sigward, S.M.** Instructed squat improves limb but not knee extensor moment symmetry in individuals following ACLR. American College of Sports Medicine Annual Meeting, Virtual (COVID), 2021. Poster Presentation.
19. Almansouri, S., **Sigward, S.** Does increased knee extensor moment loading post-ACLR during fast gait come at a cost? APTA Combined Sections Meeting, Virtual (COVID), 2021. Podium Presentation.
20. Almansouri, S., Barclay, W., Dighe, A., Gong, C., Chow, M., **Sigward, S.** Can increased gait speed improve knee loading mechanics following anterior cruciate ligament reconstruction? American College of Sports Medicine Annual Meeting, San Francisco, CA, Virtual (COVID), 2020. Poster Presentation.
21. Almansouri, S., Gong, C., Chow, M., **Sigward, S.** Can increased gait demands improve knee loading during early and late recovery following ACL reconstruction? APTA Combined Sections Meeting, Denver, CO, USA, 2020. Poster Presentation.
22. Almansouri, S., Chan, M.S., **Sigward, S.M.** Center of pressure and vertical ground reaction force predict knee extensor moment deficits following anterior cruciate ligament reconstruction: Implications for clinical assessments. APTA Combined Sections Meeting, Washington, DC, 2019. Podium Presentation.
23. Schwery, N., Allah Neamat, N., Almansouri, S., **Sigward, S.M.** Characterization of sagittal plane joint demands during a triple hop task: Implications for clinical interpretation. APTA Combined Sections Meeting, Washington, DC, 2019. Podium Presentation.
24. Ciccodicola, E., Chan, M.S., **Sigward, S.M.** Can between-limb center of pressure position measured with commercial insoles during squatting provide information regarding knee loading deficits following ACLR? A preliminary investigation. APTA Combined Sections Meeting, Washington, DC, 2019. Poster Presentation.
25. Burke, E., Jarvis, D., Lerch, K., **Sigward, S.M.**, Kulig, K. Modification of sagittal plane loading during Saut de Chat landing in dancers. Performing Arts Medical Association International Symposium, Los Angeles, CA, 2019. Podium Presentation.

26. Lin, P.E., Allah Neamat, N., Chan, C., Bogie, G.J., Gately, L.P., **Sigward, S.M.** Influence of hamstring activity on knee moments during loading response of gait in individuals following ACL reconstruction. Osteoarthritis Research Society International, Liverpool, UK, 2018. Podium Presentation.
27. Lin, P.E., Allah Neamat, N., Yano, S.M., Alsalahat, A.L., **Sigward, S.M.** Quantifying whole-body compensations in ground reaction forces during gait in individuals post-ACLR. American College of Sports Medicine Annual Meeting, Minneapolis, MN, 2018. Thematic Poster and President's Award-Poster Presentation.
28. Lee, Y., Chan, M.S., **Sigward, S.M.** L5-S1 excursion reflects knee flexion angle during a drop landing task. American College of Sports Medicine Annual Meeting, Minneapolis, MN, 2018. Poster Presentation.
29. Lin, P.E., **Sigward, S.M.** Effects of an 8-week cadence training program on knee kinematics in individuals post-ACL reconstruction. APTA Combined Sections Meeting, New Orleans, LA, 2018. Podium Presentation.
30. Almansouri, S., Kulig, K., Enfinger, D., Gahan, A., **Sigward, S.M.** Patellar tendon macro- and micro-morphology following partial resection for anterior cruciate ligament reconstruction. APTA Combined Sections Meeting, New Orleans, LA, 2018. Podium Presentation.
31. Chan, M.S., Lin, P., Ciccodicola, E.M., **Sigward, S.M.** How do individuals following anterior cruciate ligament reconstruction load their limbs outside the laboratory? APTA Combined Sections Meeting, New Orleans, LA, 2018. Podium Presentation.
32. Nwigwe C, **Sigward SM.** Do Clinicians Prescribe Open Kinetic Chain Exercises During Rehabilitation Following Anterior Cruciate Ligament Reconstruction? Proceedings of the Combined Sections Meeting, APTA, New Orleans, LA. 2018-Poster Presentation.
33. Pratt KA, Lin PE, Miller L, **Sigward SM.** Can Angular Velocity Asymmetries Predict Knee Power Asymmetries in Individuals status post-ACLR Performing a Drop Jump Task? Proceedings of the Combined Sections Meeting, APTA, New Orleans, LA. 2018-Podium Presentation.
34. Kretch K, **Sigward SM.** Use of video in clinical movement analysis: Current practices and perspectives of physical therapists. Proceedings of the Combined Sections Meeting, APTA, New Orleans, LA. 2018-Poster Presentation.
35. Chan M., Chen A., Eng T., Haskey E., & **Sigward SM.** Individuals following anterior cruciate ligament reconstruction adjust center of pressure location to redistribute loading from the knee to the hip. Southwest Chapter of American College of Sports Medicine Annual Meeting, Long Beach, CA, 2017. -Poster Presentation.
36. Lin PE, Neamat Allah NH, Yano SM, Alsalahat AL, **Sigward SM.** Quantifying Compensations at the Whole Body Level During Gait in Individuals Post-ACLR. Southwest Chapter of American College of Sports Medicine Annual Meeting, Long Beach, CA, 2017. -Podium Presentation.
37. Lin PE, Chan MSM, **Sigward SM.** Inter-joint compensations during early gait in individuals following ACL reconstruction. Proceedings for the American Society of Biomechanics Conference, Boulder, CO, 2017. -Poster Presentation.
38. Chan MS, Lin PE, **Sigward SM.** Individuals following anterior cruciate ligament reconstruction adjust center of pressure location to redistribute loading from the knee to the hip. Proceedings for the American Society of Biomechanics Annual Conference, Boulder CO, 2017. -Poster Presentation.
39. Lin PE, Glasser GM, Chan MSM, **Sigward SM.** Characterizing shank angular velocity during gait in individuals post-ACLR using IMUs in ecological settings. Medicine and Science in Sports and Exercise, Volume 49:5S. American College of Sports Medicine, Denver, CO, 2017-Podium Presentation.
40. Chan, M-S, Hernandez E, **Sigward SM.** Validation of limb loading symmetry using wearable plantar pressure inserts: application for monitoring of daily loading. Proceedings of the Combined Sections Meeting, APTA, San Antonio TX, February, 2017-Poster Presentation.

41. Panchal O, Detrick N, Pavlov A, Wong J, Pratt KA, **Sigward** SM. Knee and Hip Mechanics During Single Limb Squat in Individuals Status Post ACL Reconstruction. Proceedings of the Combined Sections Meeting, APTA, San Antonio TX, February, 2017-Poster Presentation.
42. Chan MS, Lin PE, & **Sigward** SM. Limb loading ability during bilateral tasks in individuals following anterior cruciate ligament reconstruction. Proceeding for the Congress of the International Society of Biomechanics, Brisbane, Australia, 2017. -Podium Presentation.
43. Chan MS, Lin PE, Hernandez EL, Fisher BE & **Sigward** SM. The effect of attentional focus on limb loading in individuals post anterior cruciate ligament reconstruction. Proceedings of the North American Society for the Psychology of Sport and Physical Activity Annual Conference, San Diego, CA, 2017. -Podium Presentation.
44. Lin PE, Pratt KA, Cronenweth CL, Ebner SC, Chan MSM, Nascimento DP, **Sigward** SM. Effects of an 8-week Cadence Gait Training Program on Knee Loading in Individuals Following ACL Reconstruction. American Society of Biomechanics, Raleigh, NC, 2016 – Poster Presentation.
45. Ebner SC, **Sigward** SM, Pratt KA, Chan MSM, Lin PE, Havens KL. Identifying Predictors of Thigh Axial Acceleration During Running After ACL Reconstruction. American Society of Biomechanics, Raleigh, NC, 2016 – Poster Presentation.
46. Pratt KA, Panchal O, Kirlin LE, Christensen RS, **Sigward** SM. Wearable Sensors can Detect Knee Loading Asymmetries: Applications for Clinical Use. American College of Sports Medicine, Boston, MA. 2016- Thematic Poster Presentation.
47. Ebner SC, Havens KL, Pratt KA, Chan MM, Lin PE, Nascimento DP, **Sigward** SM. Can Thigh and Shank Accelerations Detect Between Limb Deficits during Running after ACL Reconstruction? American College of Sports Medicine, Boston, MA. 2016.- Thematic Poster Presentation.
48. Chan MM, Lin PE, Pratt KA, Ebner SC, **Sigward** SM. Does Vertical GRF Asymmetry Reflect Knee Extensor Moment Asymmetry in Squat in Individuals following ACLr? American College of Sports Medicine, Boston, MA. 2016.- Poster Presentation.
49. Lin PE, Pratt KA, Ebner SC, **Sigward** SM. Longitudinal Knee Loading Asymmetries During Mid to Terminal Stance of Gait Post-ACL Reconstruction. American College of Sports Medicine, Boston, MA. 2016.- Poster Presentation.
50. Kelly DK, Lin P, Pratt K, **Sigward** S, Hamill J. Inter-Segment Coordination Variability post ACL Reconstruction. American College of Sports Medicine, Boston, MA. 2016.- Poster Presentation.
51. Lin PE, Pratt KA, Ebner SC, **Sigward** SM. Longitudinal Knee Loading Deficits in Running in Individuals Status Post ACL Reconstruction. Proceedings of the Combined Sections Meeting, APTA, Anaheim CA. 2016-Podium Presentation.
52. Pratt KA, Sigward SM. Segment Kinematics Relate to Knee Loading Deficits in Individuals status post-ACLR: Implications for Clinical use of Wearable Sensors. Proceedings of the Combined Sections Meeting, APTA, Anaheim CA, February, 2016-Poster Presentation.
53. Wade E, Lin P, Hennati S, Sigward S. Predicting Daily Gait Behaviors after Anterior Ligament Surgery: A Case Study. IEEE Engineering in Medicine and Biology Society of the IEEE Engineering in Medicine and Biology Society Milano, Italy during August 25-29, 2015.-Podium Presentation.
54. Lin PE, Pratt KA, Sigward SM. Heel Rocker Mechanics in Gait are Different between Limb and Compared to Controls Following ACL Reconstruction. Proceedings of the 39th American Society of Biomechanics, Columbus OH, 2015- Poster Presentation.
55. Havens KL, Sigward SM. Performance Biomechanics of Running and Cutting. Proceedings of the 39th American Society of Biomechanics, Columbus OH, 2015- Poster Presentation.
56. Lawrence EL, Dayanidhi S, Cesar GM, Sigward SM, Valero-Cuevas FJ. Outcome Measures for hand and leg function naturally reveal latent domains of strength, limb coordination, and sensorimotor processing. Proceedings of the 39th Annual Meeting of the American Society of Biomechanics, Columbus, OH, August 5-8, 2015. - Poster Presentation.
57. Chan M-S, Lin PE, Pratt KA, Sigward SM. Characterizing Knee Loading Asymmetry In Individuals Following Anterior Cruciate Ligament Reconstruction Using Inertial Measurement

- Units. *Medicine and Science in Sports and Exercise*, Volume 47-Supplement 15.s. American College of Sports Medicine, San Diego, CA. 2015.-Thematic Poster Presentation.
58. Pratt KA, Lin PE, Sigward SM. Inter-joint Coordination In Individuals Following Anterior Cruciate Ligament Reconstruction During Single Limb Loading. *Medicine and Science in Sports and Exercise*, Volume 47-Supplement 15.s. American College of Sports Medicine, San Diego, CA. 2015.-Poster Presentation.
  59. Lin PE, Pratt KA, Sigward SM. Knee Extensor Moment Asymmetry is Related to Modulation of GRFs During Gait Post-ACL Reconstruction. *Medicine and Science in Sports and Exercise*, Volume 47-Supplement 15.s. American College of Sports Medicine, San Diego, CA. 2015.-Poster Presentation.
  60. Lawrence EL, Cesar GM, Bromfield M, Peterson R, Sigward SM, Valero-Cuevas FJ. Sex differences in control strategies for both static and dynamic balance in young adults. Proceedings of the 25th Annual meeting of the Society for the Neural Control of Movement, Charleston, SC, April 20-25, 2015.
  61. Lawrence EL, Werner I, Sigward SM, Valero-Cuevas FJ. Sex differences in sensorimotor mechanisms for dynamic function of the upper and lower extremities. Proceedings from the Annual Meeting of the Organization for the Study of Sex Differences (OSSD), Stanford University, Palo Alto, CA, April 21-23 2015.-Poster Presentation.
  62. Roll SC, Rana M, Sigward S, Yani M, Kirages D, Kutch J. Cadaveric validation and in-vivo measurement reliability of a novel linear-array transperineal sonographic evaluation of male pelvic floor structures. *Ultrasound in Medicine and Biology*, 2015, 41(4):S103.-Poster Presentation.
  63. Chan M-S, Mansoori S, Barroso M, Sigward SM. Detection of Spatiotemporal Gait Asymmetries Using Gyroscopes in Individuals Following Anterior Cruciate Ligament Reconstruction. Proceedings of the Combined Sections Meeting, APTA, Indianapolis, IN. 2015-Poster Presentation.
  64. Sigward SM, Lin PE, Pratt KA. Knee loading asymmetries in running are related to early gait asymmetries in individuals following anterior cruciate ligament reconstruction. Proceedings of the Combined Sections Meeting, APTA, Indianapolis, IN. 2015-Podium Presentation.
  65. Pratt KA, Lin PE, Pucciarelli M, Sigward SM. Knee Loading Deficits in a Single Limb Loading Task and Running During Early Initiation of Running in Individuals Status Post Anterior Cruciate Ligament Reconstruction. Proceedings of the Combined Sections Meeting, APTA, Indianapolis, IN. 2015-Podium Presentation.
  66. Lin PE, Pratt KA, Pucciarelli MLR, Sigward SM. Acute Effects of Cadence Manipulation on Knee Loading During Gait Following ACL Reconstruction. Proceedings of the World Congress of Biomechanics. Boston, MA. 2014-Poster Presentation.
  67. Haven KL, Sigward SM. Whole body Posture Depends on Velocity for Cutting Tasks. Proceedings of the World Congress of Biomechanics. Boston, MA. 2014-Poster Presentation.
  68. Pratt KA, Sigward SM. Reliability and Validity of Inertial Sensors for Movement Analysis during a Single Limb Loading Task. Proceedings of the World Congress of Biomechanics. Boston, MA. 2014-Poster Presentation.
  69. Sigward SM, Lin PE, Pratt KM, Pucciarelli LR. Gait Mechanics During Early Phases Of Anterior Cruciate Ligament Reconstruction Rehabilitation. *Medicine and Science in Sports and Exercise*, Volume 46:5S. American College of Sports Medicine, Orlando, FL. 2014- Poster Presentation.
  70. Cesar GM, Joutras DM, Parvez AH, Sigward SM. Children and Adults Employ Different Strategies to Terminate Running Gait. *Medicine and Science in Sports and Exercise*, Volume 46:5. American College of Sports Medicine, Orlando, FL. 2014- Poster Presentation.
  71. Lin PE, Pratt KA, Pucciarelli MLR, Sigward SM. Knee Loading Asymmetries During Early Phases Of Anterior Cruciate Ligament Reconstruction Rehabilitation. *Medicine and Science in Sports and Exercise*, Volume 46:5. American College of Sports Medicine, Orlando, FL. 2014- Poster Presentation.
  72. Cesar GM, Lewthwaite R, Joutras DM, Parvez AH, Gow I, Sigward SM. Child-Adult Differences in the Control of the Body Forward Momentum with Practice. Proceedings of the North American

- Society for Psychology of Sport and Physical Activity, Minneapolis, MN. 2014-Podium Presentation.
73. Havens KH and Sigward SM. Biomechanics Associated with Excessive Ankle Inversion During a Cutting Maneuver. *Medicine and Science in Sports and Exercise*, Volume 46:5S. American College of Sports Medicine, Indianapolis, IN, 2013- Poster Presentation.
  74. Cesar GM, Parvez AH, Sigward SM. Postural Strategies for Running Gait Termination: Comparison Between Children and Adults. *Proceedings for the International Society of Biomechanics Annual Conference*. Natal, Brazil 2013-Poster Presentation.
  75. Pratt KA, Leung K, Sigward SM. Criteria Physical Therapists Consider Critical for Return to Sport Status Post-ACL Reconstruction. *Proceedings of the Combined Sections Meeting, APTA*, San Diego CA, 2013-Podium Presentation.
  76. Cesar GM, Havens KH, Bogdanoff SM, Powers CM, Pollard CD, Sigward SM. Effect of Cutting Angle and Sex on Knee Valgus Moment. *Proceedings of the Combined Sections Meeting, APTA*, San Diego CA, 2013-Poster Presentation in the Sports Section.
  77. Havens K, Cesar G, **Sigward S**. Center of Mass Position-Velocity Relationship for the Control of Running Gait Termination. *Proceedings for the Gait and Clinical Movement Analysis Society Conference*. Grand Rapids, MI. May, 2012- Podium Presentation
  78. Havens KL, **Sigward SM**. Deceleration: Relationship Between Body Posture and Velocity. *Proceedings for the American Society of Biomechanics Annual Conference*. Gainesville, FL. August, 2012- Poster Presentation
  79. Pratt K, **Sigward S**. The Different Task Demands of a Drop Land and Side-Step Cut. *Proceedings for the American Society of Biomechanics Annual Conference*. Long Beach, CA. August, 2011- Poster Presentation
  80. Cesar GM, Havens KL, Chang YJ, **Sigward SM**. Effects of cut angle and online processing on cutting maneuvers. *Proceedings for the American Society of Biomechanics Annual Conference*. Long Beach, CA. August, 2011- Poster Presentation
  81. Havens KL, **Sigward SM**. Deceleration and Redirection Mechanics During a Cutting Maneuver. *Proceedings for the American Society of Biomechanics Conference*. Long Beach, CA. August, 2011- Poster Presentation
  82. Powers C, Pollard C, Lee S, Cesar G, **Sigward S**. The Influences of Sex and Maturation on Knee valgus Moments During Cutting: Implications for ACL Injury. *Proceedings for the American Society of Biomechanics Annual Conference*. Providence, RI. August, 2010- Poster Presentation
  83. Blanchette M, **Sigward S**, Powers C. Friction Demands During Running and Cutting. *Proceedings for the American Society of Biomechanics Annual Conference*. Providence, RI. August, 2010- Poster Presentation
  84. **Sigward SM**, Pollard CD, Cheng W-C, Lee S-P, Powers CM. The Influence of Sex and Maturation on Landing Strategies: Implications for ACL Injury. *Journal of Athletic Training*, 45(5):537, 2010- Podium Presentation at ACL Retreat V
  85. **Sigward SM**, Cheng W-C, Souza RB, Farrokhi S, Pollard CD, Powers CM. The relationship between dynamic knee valgus and hip structure, range of motion and strength during landing and cutting. *Proceedings of the Combined Sections Meeting, APTA*, San Diego CA, 2010-Podium Presentation
  86. Havens KH, **Sigward SM**, Pollard CD, Cheng W-C, Powers CM. The Relationship between Frontal Plane Knee Separation Distance and Lower Extremity Joint Angles During Drop Land: Implications for Clinical Screening. *Journal of Athletic Training*, 45(5):540, 2010- Podium Presentation at ACL Retreat V
  87. **Sigward SM**, Pollard CD, Cheng W-C, Lee S-P, Powers CM. The Influence of Gender and Maturation on Landing Strategies: Implications for ACL Injury. *Proceedings for the American Society of Biomechanics Annual Conference*. State College, PA. August, 2009 - Poster Presentation
  88. Pollard CD, **Sigward SM**, Powers CM. Injury Prevention Training Results in Biomechanical Changes Consistent with Decreased Knee Loading in Female Athletes during Landing.

- Proceedings for the American Society of Biomechanics Annual Conference*. State College, PA. August, 2009 - Poster Presentation
89. Havens KL, **Sigward SM**, Cheng W-C, Pollard CD, Powers CM. The Relation Between Knee Separation Distance and Lower Extremity Kinematics during a Drop Land: Implications for Clinical Screening. *Proceedings for the American Society of Biomechanics Annual Conference*. State College, PA. August, 2009 - Poster Presentation
  90. Song J, Ferris A, **Sigward S**, Fisher B, Petzinger G, Parent M, Salem G. The Influence of Turning Strategy on Dynamic Postural Stability in Persons with Early Stage Parkinson's Disease. *Proceedings for the American Society of Biomechanics Annual Conference*. State College, PA. August, 2009 - Poster Presentation
  91. **Sigward SM**, Pollard CD, Powers CM. The Influence of an ACL Injury Prevention Program on Knee Valgus Moments During Cutting: An Evaluation of Pre-pubertal, Pubertal and Post-pubertal Athletes. *Journal of Athletic Training*, 43(5):559, 2008-Podium Presentation at ACL Retreat IV
  92. Tsai LC, **Sigward SM**, Pollard CD, Fletcher MJ, Powers CM. The Effects of Fatigue and Recovery on Knee Kinetics and Kinematics During Side-Step Cutting. *Journal of Athletic Training*, 43(5):552, 2008-Podium Presentation at ACL Retreat IV
  93. Pollard CD, **Sigward SM**, Powers CM. Stiff Landing Increases Frontal Plane Loading of the Knee. *Journal of Athletic Training*, 43(5):544, 2008-Podium Presentation at ACL Retreat IV
  94. Song J, **Sigward S**, Fisher B, Petzinger G, Salem G. Dynamic postural stability in persons with early stage Parkinson's disease during turning activities. *Proceedings of the California Physical Therapy Association Annual Conference*, Oakland, CA. 2008- Poster Presentation
  95. Song J, Fisher B, **Sigward S**, Petzinger G, Salem G. The effect of early stage Parkinson's on dynamic postural stability during turning activities. *Proceedings of the Society for Neuroscience Conference*, Washington DC, 2008- Poster Presentation
  96. **Sigward SM**, Morcos AS, Myers G, Nelson AN. Lower Extremity Demands During Star Excursion Balance Tests. *Proceedings of the Combined Sections Meeting, APTA*, Nashville, TN, 2008- Poster Presentation
  97. Yamaguchi N, Morcos AS, Thomann L, **Sigward SM**. Distribution of scores on clinical movement screen examinations in a population of high school female volleyball players. *Proceedings of the Combined Sections Meeting, APTA*, Nashville, TN, 2008- Poster Presentation
  98. Morcos AS, Myers G, Nelson A, **Sigward SM**. Clinical Predictors of Knee Flexion Angle During a Single Leg Squat. *Proceedings of the Combined Sections Meeting, APTA*, Nashville, TN, 2008- Podium Presentation
  99. Pollard CD, Powers CM, **Sigward SM**. Decreased Knee Flexion Angles During Landing Increases Frontal Plane Loading of the Knee. *Proceedings for the American Society of Biomechanics Annual Conference*. Palo Alto, CA. August, 2007- Poster Presentation
  100. Lyle M, Pollard CD, Powers CM, **Sigward SM**. The Influence of Maturation and Lower extremity Kinetics on Swing Limb Foot Velocity in Young Females During a Soccer Kick. *Proceedings for the American Society of Biomechanics annual Conference*. Palo Alto, CA. August, 2007- Podium Presentation
  101. Powers CM, Fisher BE, Lin J, Katak S, Tan C, Pollard C, **Sigward SM**. Changes in lower extremity movement patterns are accompanied by motor cortex neuroplasticity: A case report. *Proceedings of the World Confederation of Physical Therapy*, 2007- Podium Presentation
  102. **Sigward SM**, Pollard CD, Klenow MM, Montague SM, Power CM. The Influence of Maturation on Knee Mechanics During an Unanticipated Side-step Cutting Task. *Journal of Biomechanics*, 40(Supplement 2):171, 2007-Podium Presentation at International Society of Biomechanics
  103. Tsai L-C, **Sigward SM**, Pollard CD, Fletcher MJ, Power CM. The Effects of Fatigue and Recovery on Knee Kinetics and Kinematics During Side-step Cutting. *Journal of Biomechanics*, 40(Supplement 2):102, 2007-Poster Presentation at International Society of Biomechanics

104. Pollard CD, **Sigward SM**, Powers CM. Mechanisms of ACL Injury: Current Perspectives. *Journal of Biomechanics*, 40(Supplement 2):254, 2007-Podium Presentation at International Society of Biomechanics annual meeting
105. Kessans KM, **Sigward SM**, Salem, GJ. Mechanics of a Unilateral Squat Exercise to Different Depths: Implications for Rehabilitation. *Medicine and Science in Sports and Exercise*, 39(5): Supplement:S256, 2007- American College of Sports Medicine, New Orleans, LA. 2006- Poster Presentation
106. **Sigward SM**, Pollard CD, Powers CM. The Influence of an ACL Injury Prevention Program on Hip and Knee Kinematics and Kinetics During an Unanticipated Side-step Cutting Maneuver in Young Female Athletes. *American Orthopaedic Society for Sports Medicine (AOSSM) 2006 Annual Meeting*, Hershey, PA, 2006- Podium Presentation.
107. **Sigward SM**, Powers CM. Loading Characteristics of Females Who Exhibit Excessive Valgus Moments During Side-step Cutting. *ACL Retreat 3: ACL Injuries: The Gender Bias*. Lexington, KY, 2006-Podium Presentation
108. **Sigward SM**, Markolf KL, Graves B, Chacko J, Jackson S and McAllister D. Where Should Posterolateral Corner Reconstructions be Placed for Optimum Graft Isometry? *52<sup>nd</sup> Annual Meeting of the Orthopaedic Research Society*. Chicago, IL 2006- Poster Presentation
109. Markolf, KL, Graves, B, **Sigward SM**, Jackson, S and McAllister DR. Biomechanical Studies of Popliteus Bypass or PFL Reconstructions in Conjunction With PCL Graft Reconstruction. *52<sup>nd</sup> Annual Meeting of the Orthopaedic Research Society*. Chicago, IL 2006- Poster Presentation
110. Markolf, KL, Graves, B, **Sigward SM**, Jackson, S and McAllister DR. Graft Reconstructions for the Posterolateral Corner Significantly Reduce Posterior Laxity and Forces in a PCL Graft. *52<sup>nd</sup> Annual Meeting of the Orthopaedic Research Society*. Chicago, IL 2006- Poster Presentation
111. Markolf KL, Graves B, **Sigward SM**, Jackson S and McAllister DR. How Well do Posterolateral Reconstructions Restore Varus Stability to the PCL Reconstructed Knee? *52<sup>nd</sup> Annual Meeting of the Orthopaedic Research Society*. Chicago, IL 2006- Poster Presentation
112. Pollard CD, **Sigward SM**, Ota S, Pelley K, Powers CM. Gender Differences in Hip Joint Kinematics and Kinetics During a Side-step Cutting Maneuver. *Proceedings for the American Physical Therapy Association Combined Sections Meeting*. New Orleans, LA, February 2005.
113. **Sigward SM**, Ota S, Pelley K, Powers CM. Predictors of Knee Valgus Moments in Female Athletes During Side-step Cutting. *Proceedings of the Combined Sections Meeting, APTA*, New Orleans, LA, 2005.
114. Powers CM, **Sigward SM**, Ota S, Pelley K. The Influence of Gender on Knee Kinematics, Kinetics and Muscle Activation Patterns During Side-step Cutting. *Journal of Athletic Training* 39(2):S14, 2004- Podium Presentation
115. **Sigward SM**, Ota S, Pelley K, Powers CM. The Influence of Experience on Kinematic, Kinetic and Muscle Activation Patterns During Side-step Cutting in Young Female Athletes. *Journal of Athletic Training* 39(2):S27, 2004- Podium Presentation
116. Powers CM, **Sigward SM**, Ota S, Pelley K: The Influence of an ACL Injury Training Program on Knee Mechanics During a Side-step Cutting Maneuver. *Journal of Athletic Training* 39(2):S27, 2004- Podium Presentation
117. Pollard CD, **Sigward SM**, Ota S, Pelley K, Powers CM: The influence of an ACL Injury Prevention Program on Lower Extremity Mechanics During a Landing Task. *Journal of Athletic Training* 39(2):S27-28, 2004- Podium Presentation
118. **Sigward SM**, Ota S, Powers CP. Predictors of Knee Valgus During a Drop Landing in Young Female Athletes. *Proceedings of the combined Sections Meeting, APTA*, Nashville, TN, 2004- Podium Presentation
119. **Sigward, SM**, Powers, CM. Biomechanical Analysis of Side-step Cutting: Are Females at Greater Risk for ACL Injury? *Proceedings of the IV World Congress Biomechanics*, Calgary, 2002- Poster Presentation

120. **Sigward SM**, Salem GJ, Powers CM. Lower Limb Alignment is Correlated with Frontal and Transverse Plane Moments at the Knee During Side-step Cutting. *Medicine and Science in Sports and Exercise*, 34(5):S173, 2002- Podium Presentation
121. **Sigward SM**, Salem GJ, Powers CM. Kinematic and Kinetic Analysis of Sidestep Cutting: A Comparison Between Males and Females. *Clinical Biomechanics*,16(10):937-59, 2001.
122. **Sigward SM**, Wang M-Y, and Salem GJ. Relative Repeatability of Isokinetic and Isotonic Measures of Knee Strength in Older Adults. *Proceedings of the American College of Sports Medicine*, Indianapolis, IN, 2000- Poster Presentation
123. Wang, M-Y, **Sigward S** and Salem GJ. Multiple-test Repeatability and Correlation of Knee isokinetic and Isotonic Muscle Strength in Older Adults. *Proceedings of the 42nd Annual Conference on Physical Therapy in Taiwan*, 2000- Podium Presentation

### INVITED PRESENTATIONS

1. Invited Speaker, Optimizing Performance and Recovery: Exploring the Power of 3D Motion Capture in the NBA. NBATA Association Annual Meeting, Chicago, IL, May 2024.
2. Invited Speaker, Identification of Impaired Biomechanics: Interpretation of biomechanical test and application to clinical decision making. The Ohio State University Lower Limb Symposium; ACL Masterclass Labs, Columbus, OH, May 2024.
3. Science meets Practice: More than Meets the Eye: Using Precision Rehabilitation Strategies to Address Intra-Limb Compensation after ACL-R. American Physical Therapy Association's Combined Sections Meeting (CSM), San Diego, CA 2023
4. Invited Speaker, Loading Deficits following ACL reconstruction: Expectations versus Reality. Brigham Young University Department of Exercise Sciences. Provo, Utah. December 8-9, 2022
5. Science meets Practice: Qualitative vs Quantitative Movement Analysis of the Lower Extremity. American Physical Therapy Association's Combined Sections Meeting (CSM), San Antonio, TX, 2022
6. Invited Speaker, Technology and Research in the "Clinical" Setting. Azusa Pacific University Kinesiology Honors Society, Azusa, CA, February 16, 2022
7. Invited Speaker, Loading Deficits following ACL reconstruction: Expectations versus Reality. Azusa Pacific University Kinesiology, Biology, Chemistry, Allied Health, Masters in Athletic Training, & Physical Therapy Programs Azusa, CA, February 16, 2022
8. Tutorial Lecture, The Value of Movement Assessment Technology in the Clinic and Real World: Application to Running Injuries and ACL Rehabilitation, American College of Sports Medicine Annual Meeting, Virtual, June 2-5, 2021
9. Invited Speaker, Learned Non-Use: Recovery from Anterior Cruciate Ligament Reconstruction. Pac 12 Student Athlete Health Conference, Virtual, May 20-22, 2021
10. Invited Speaker, Learned Non-Use: Recovery from Anterior Cruciate Ligament Reconstruction, Seijoh University, Tokai, Japan, October 19, 2019
11. Keynote Speaker, Learned Non-Use: Recovery from Anterior Cruciate Ligament Reconstruction. 2018 International Conference of Sports, Taipei, Taiwan, December 7-8, 2018
12. Invited Speaker, Learned Non-Use: Recovery from Anterior Cruciate Ligament Reconstruction.



National Cheng Kung University Department of Physical Therapy, Tainan, Taiwan, December 10, 2018

13. Invited Speaker, Learned Non-Use: Recovery from Anterior Cruciate Ligament Reconstruction. School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan, December 11, 2018
14. ACL Injury Prevention: Past, Present, and Future. Invited Speaker, Combined Sections Meeting Educational Session, Las Vegas, NV, February 2014
15. HOT TOPICS: ACL Injury Prevention. Invited Speaker, California Chapter of the American Physical Therapy Association Meeting, Oakland, CA, October 2010.
16. Developing Successful Prospective Investigations and Randomized Control Trials. Invited Speaker, Researchers' Forum 61st NATA Annual Meeting & Clinical Symposia. Philadelphia, PA, June 2010.
17. ACL Injuries – The Gender Bias, Research Retreat V: Risk Factor Screening. Session Moderator, Greensboro, NC April 3-5, 2010.
18. ACL Injuries – The Gender Bias, Research Retreat V: ACL Injuries in the Prepubescent and Adolescent Athlete: Clinical and Research Considerations. Session Discussant, Greensboro, NC April 3-5, 2010.
19. ACL Injuries – The Gender Bias, Research Retreat IV: Landing and Cutting-Gender Comparison. Session. Moderator, Greensboro, NC April 3-6, 2008.
20. Building Resistance to ACL injury: An evidence based approach. Invited Speaker, Omaha Sports Medicine Alliance: A Clinical Approach to Practical Problems, Omaha, Nebraska. July 26, 2008
21. ACL Injury Prevention: An Evidence Based Model for Clinical Practice. Invited Speaker, California Chapter of the American Physical Therapy Association Meeting, Los Angeles, CA, October, 2007.
22. ACL Injury Prevention: An Evidence Based Model for Clinical Practice. Invited Speaker, Arizona Athletic Trainers Association Annual Meeting, Flagstaff, AZ, July, 2007
23. Evidence Based Approach to the Non-Surgical Painful Knee, Practical Anatomy Workshop, Saint Louis University, St. Louis, MO, April, 2007
24. The contribution of abnormal hip mechanics to knee to knee injury: A top down perspective, Designing a hip intervention program to treat the knee: What is important? Invited Speaker, Combined Sections Meeting of the American Physical Therapy Association, Boston, MA, February, 2007.
25. ACL Injury Prevention: An Evidence Based Model for Clinical Practice. Invited Speaker, Combined Sections Meeting of the American Physical Therapy Association, Boston, MA, February, 2007.
26. ACL Injury Prevention: An Evidence Based Approach. Invited Speaker, American Physical Therapy Association Annual Conference, Orlando, FL, June, 2006.

27. ACL Injuries – The Gender Bias, Research Retreat III: Strength and Injury. Session Moderator, Lexington, KY, April 6-8, 2006.
28. Developments in Clinical Practice Based on Key Principles of Motor Learning. *Arizona Physical Therapy Association Annual Meeting*, Phoenix, AZ. October 6-8, 2005.
29. “Biomechanical and Neuromuscular Aspects of Non-contact ACL Injuries”. Invited Speaker, APTA Combined Sections Meeting, Tampa, FL, Feb, 2004.
30. ACL Injuries – The Gender Bias, Research Retreat II: Intervention Programs. Session Moderator, Lexington, KY, April 4-5, 2003.

## **PROFESSIONAL ACTIVITIES**

### **Professional organizations/Positions Held**

Member	National Athletic Trainers Association
Member	American Physical Therapy Association
Member	Research Section Biomechanics Research Special Interest Group: <u>Chair (2008-2011)</u>
Member	Orthopedic Section Research Committee member (2009-2012) Sports Section
Member	California Chapter of the American Physical Therapy Association California Research Special Interest Group: <u>Chair (2008-2012)</u>
Member	American College of Sports Medicine Biomechanics Interest Group: <u>Co-Chair (2015-2019)</u> Interest Group Forums Committee: Member (2023-2026)
Member	American Society of Biomechanics

### **Extramural Service**

2015, 2005-06	Grant reviewer, National Athletic Trainers Association (NATA) Research and Education Foundation
2014	Grant reviewer, Health Research Board, Dublin
2013– present	Member, National Athletic Trainer’s Association; ACL Injury Prevention Consensus Statement Committee
2012 – present	Editorial Board Member, Journal of Athletic Training
2012	Reviewer, National Athletic Trainers Association, 2013 Annual Meeting proposal
2011	Organizing Member of Host Institution, American Society of Biomechanics Annual Meeting
2008 –2009	Grant Review Committee, Orthopedic Section of the American Physical Therapy Association
2008 – 2012	Grant reviewer, California Physical Therapy Fund
2008 – present	Abstract Reviewer, Orthopedic Section of the American Physical Therapy Association

### **Peer review for journals:**

American Journal of Sports Medicine  
 Archives of Physical Medicine and Rehabilitation  
 Clinical Biomechanics  
 Frontiers  
 Gait & Posture  
 Journal of Applied Biomechanics

Journal of Athletic Training-*Editorial Board*  
 Journal of Orthopedic Research  
 Journal of Orthopedic and Sports Physical Therapy  
 Medicine & Science in Sports & Exercise  
 Scandinavian Journal of Medicine & Science in Sports  
 Sports Health  
 Sports Medicine

#### **DIVISION COMMITTEES/UNIVERSITY SERVICE**

##### **University of Southern California Service**

2017-2018 Reviewer, SC CTSI Clinical Grants  
 2017, 2016, 2013 Reviewer, Zumberge Individual Grant Program

##### **Division Service**

2014-2016 Member, Faculty Affairs Committee  
 2012-2021 Member, BKN & PT Division Awards Committee  
 2010- 2012 Chair, BKN & PT Division Awards Committee  
 2009-present Member, Admissions Committee for the DPT Program  
 2009-2011 Member, Data Safety Monitoring Board (DSMB) for *Safe and Effective Yoga for Seniors: Biomechanical Considerations*. NIH R01-AT004869-01A2  
 2005- 2010 Member, BKN & PT Division Awards Committee  
 2006- 2009 Member, Nontenure Track Appointment and Promotions Committee  
 2006- 2009 Member, Entry-Level DPT Strategic Planning Committee Working Group

#### **TEACHING ACTIVITIES**

##### **Courses Taught at University of Southern California (Physical Therapy Program)**

2004-present Co-Director (5 lectures, All labs)  
 PT 514L - *Musculoskeletal Anatomy*  
 2015-2017 Director  
 PT 566- *Disorders of the Musculoskeletal System*  
 2009-2011 Co-Director  
 PT 566- *Disorders of the Musculoskeletal System*  
 2008-2011 Director (All lectures, labs)  
 PT 642a- *Evidence Based Practice/Health and Wellness* now named Therapeutic Exercise II  
 2003 –2018 Lecturer (1 labs)  
 PT 536 - *Pathophysiology of Cardiopulmonary Diseases and General Medical Conditions*  
 2004 – 2007 Lecturer (1 lab)  
 PT 650 - *Differential Diagnosis in Physical Therapy*  
 2000 - 2003 Lecturer (3 lectures, All labs)  
 PT 544L - *Analytical Anatomy*  
 1999 - 2003 Lecturer (2 lectures, All labs)  
 PT 514L - *Musculoskeletal Anatomy*

##### **Courses Taught at University of Southern California (Biokinesiology Program)**

2020 - present Director (80% lectures and labs)  
 BKN560- *Movement Analysis for Sport* (4 units)  
 2018 - present Director (All site agreements and student placements)  
 BKN600- *Sports Science Internship* (2-4 units)  
 2020 - present Director (2 lectures)

- 2018 - 2020      BKN610- *Technology in Sport: Field Assessment of Athlete Performance* (2 units)  
 Director (5 lectures)  
 BKN610- *Technology in Sport: Field Assessment of Athlete Performance* (2 units)  
 2004 - present    Director (Independent Study)  
 BKN573- *Advanced Dissection Anatomy* (2 units)

**Courses Taught at University of Southern California (School of Dentistry)**

- 2000 – 2006      Lecturer (All labs)  
 ANAT521-*Head and Neck Anatomy*  
 2001 – 2005      Lecturer (All labs)  
 DPBL501 - *Dental Problem Based Learning -- Human Structure*

**Courses Taught at University of Southern California (School of Medicine, Physician Assistant Program)**

- 2003 – 2020, 24    Lecturer (8 labs)  
 PCPA530-*Human Anatomy*

**Courses Taught at University of Southern California (School of Medicine, Nurse Anesthesia Program)**

- 2020 - present    Lecturer (1 lecture)  
 ANST500-*Human Anatomy*  
 2004 - 2020      Lecturer (2 labs, 1 lecture)  
 ANST500-*Human Anatomy*

**Courses Taught at University of Southern California (Occupational Therapy Program)**

- 2000-2006      Co-Director/Lecturer (2 lectures, all labs)  
 OT260 - *Human Functional Anatomy for Occupational Therapists*

**Student Mentoring: PhD Committees (USC)**

Dissertation Committee Chair, Primary Advisor

- 2008– 2012      Kathryn Havens: *Whole body mechanics of running turn maneuvers: Relationship to Injury and Performance.*  
 2009– 2014      Guilherme Cesar: *Development of Postural Strategies for the Control of Forward Momentum*  
 2010–2016      Kristamarie Pratt: *Dynamic Knee Loading Asymmetries Following Anterior Cruciate Ligament Reconstruction: Methods for Clinical Detection*  
 2012– 2018      Ming-Sheng Chan: *Limb Loading Asymmetry in Individuals Following Anterior Cruciate Ligament Reconstruction: An Indication of Nonuse Phenomenon*  
 2012– 2018      Paige Lin: *Altered Gait Mechanics Reduce Sagittal Plane Knee Loading Following ACL Reconstruction*  
 2017– 2021      Sara Almansouri: *Gait Flexibility Following Anterior Cruciate Ligament Reconstruction: Implications for Early Gait Retraining*  
 2020- present    Willa Ma: *Building Phenotypes of Gait Recovery Following ACL Reconstruction Using Laboratory and Ecological Gait Data*  
 2020- present    Jiaqi Wang: *Developing Tools to Detect and Address Knee Extensor Loading Deficits Following Anterior Cruciate Ligament Reconstruction*  
 2024- present    Janelle Baker

Dissertation Committee Member

2005–2009	Jooeun Song, Member, Dissertation Committee
2010– 2015	Danielle Jarvis, Member, Dissertation Committee
2011–2014	Rami Hashish, Member, Dissertation Committee
2011– 2015	Jennifer (Petersen) Bagwell, Member, Dissertation Committee
2018-2022	Rachel Straub, Member, Dissertation Committee
2019-2023	Weiyang Deng, Member, Dissertation Committee
2019-2024	Thomas Demirjian, Member, Dissertation Committee
2020-2024	Antonio Squillante, Member, Dissertation Committee
2021- present	Stanley Smith, Member, Dissertation Committee
2022- present	Bailey McLagan, Member, Dissertation Committee

### **Student Mentoring: MS (USC)**

2007-2009	Wei-Cheng Cheng, Primary advisor
2014-2016	Sarah Ebner, Primary advisor
2015-2017	Sara Almansouri, Primary advisor
2016-2018	Yunae Lee, Co-advisor
2016-2018	Katie Lerch, Co-advisor
2017-2019	Nicole Schwery, Primary advisor
2017 -2019	Richard Mercer, Primary advisor
2018 -2022	Aaron Sanchez, Primary advisor
2019 -2021	Taylor Montgomery, Primary advisor
2019 -2021	Matthew Valencia, Primary advisor
2019 -2021	Shameel Safiq, Primary advisor
2019 -2021	Amanda Preciado, Primary advisor
2020 -2022	Jason Cherin, Primary advisor
2020 -2022	Nathan Archer, Primary advisor
2020 -2022	Jasmin Strong, Co-advisor
2020 -2022	Alissa Zeitelhack, Co-advisor
2021 -2023	Julie Sauer, Co-advisor
2021 -2023	Armond Gray, Co-advisor
2021 -2023	Kymani Joachim, Primary advisor
2021 -2023	Jiakai Wang, Primary advisor
2022-2024	Erin Cagle, Primary advisor
2022-2024	Andrew Cho, Primary advisor
2022-2024	Sarah Zhong, Primary advisor
2022-2024	Kaiming Bao, Primary advisor
2022-2024	Breyonne Williams, Primary advisor
2023-	Katie Kim, Primary advisor
2023-	Cole Whitelaw, Primary advisor

### **Student Mentoring: Residency (USC)**

2015	Sophia Gonzalez-Sports
2015	Adrienne Peterson- Orthopedic
2015	Chukwuemeka Nwigwe- Orthopedic
2014	Shireen Mansoori- Orthopedic
2014	Max Barroso-Sports
2014	Martha Broomfield- Orthopedic
2014	Richard Peterson- Orthopedic
2013	Alex Rombough- Orthopedic
2013	Kenneth Leung- Orthopedic

**Student Mentoring: Undergraduate**

2015-2016            Olivia Panchal

*McNair Scholars Program: A Graduate School Preparation and Research Training Program (USC)*

2010                Bryson Gauff

2008                Erin O'Donnell