

# Sanghee Moon

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 Research Gate |  Google Scholar |  Twitter

## EDUCATION

**PH.D. IN REHABILITATION SCIENCE** | **University of Kansas Medical Center**  
Aug 2013–Jul 2019 (expected) | Kansas City, KS

**B.S. IN BIOLOGY** | **Minnesota State University**  
Aug 2010–May 2013 | Mankato, MN  
Magna Cum Laude  
US-Korea Dual Degree

**B.S. IN PHYSICAL THERAPY** | **Daegu Catholic University**  
Mar 2006–May 2013 | South Korea  
US-Korea Dual Degree

## RESEARCH EXPERIENCE

### UNIVERSITY OF KANSAS MEDICAL CENTER

**GRADUATE RESEARCH ASSISTANT (PI: WEN LIU)** | **Neuromuscular Research Laboratory**  
Aug 2013–Present

- Effects of a mind-body exercise on non-motor symptoms and inflammatory status in patient with Parkinson's disease (Ph.D. dissertation – NIH-funded (R21))
- Effects of an aerobic exercise on cardiovascular and bone health in non-ambulatory stroke survivors
- Benefits of an aerobic exercise in people with spinal cord injury
- Benefits of a mild exercise on gait, cognition, and sleep in Parkinson's disease
- Altered immune response to exercise in patient with fibromyalgia after a mind-body exercise

**GRADUATE RESEARCH ASSISTANT (PI: HANNES DEVOS)** | **Laboratory for Advanced Rehabilitation Research in Simulation**  
Aug 2016–Present

- Developing a balance assessment system using virtual reality technology
- Artificial neural network in rehabilitation research
- Classification of Parkinsonian syndromes using artificial neural network
- Population-based assessment of fitness to drive in medical conditions
- Pupillary response to cognitive workload and distraction during driving in breast cancer survivors
- Pupillary response to cognitive workload in Parkinson's disease

### STOWER'S INSTITUTE FOR MEDICAL RESEARCH

**GRADUATE RESEARCHER (PI: LINGHEN LI)** | **Linghen Li Laboratory**  
Apr–Aug 2014

- Hematopoietic stem cell niche and leukemia

### MINNESOTA STATE UNIVERSITY

**UNDERGRADUATE RESEARCHER (PI: NAMYONG LEE)** | **Mathematics and Statistics Laboratory**  
Aug 2012–May 2013

- Mathematical models for fatigue muscle fiber mechanism

**UNDERGRADUATE RESEARCHER (PI: DOROTHY WIGLEY)** | **Microbiology Laboratory**  
Aug 2012–May 2013

- Effects of amputation on Verminephrobacter in Eisenia fetida

# ACADEMIC PUBLICATIONS

## PUBLISHED ARTICLES (PEER-REVIEWED)

1. **S Moon**, CVM Sarmiento, IV Smirnova, Y Colgrove, K Lyons, SM Lai, W Liu. (2019) "Effects of Qigong exercise on non-motor symptoms in Parkinson's disease: A protocol for a randomized controlled trial". *Medicines*. 6(1), 13.  
[doi: 10.3390/medicines6010013](https://doi.org/10.3390/medicines6010013)
2. JS Myers, M Kahya, M Mitchell, J He, J Dai, **S Moon**, K Hamilton, M Valla, A O'Dea, J Klemp, M Kurylo, AE Akinwuntan, H Devos. (2018) "Pupillary response: cognitive effort for breast cancer survivors". *Supportive Care in Cancer*.  
[doi: 10.1007/s00520-018-4401-0](https://doi.org/10.1007/s00520-018-4401-0)
3. M Kahya, **S Moon**, K Lyons, R Pahwa, AE Akinwuntan, H Devos. (2018) "Pupillary response to cognitive demand in Parkinson's disease: A pilot study". *Frontiers in Aging Neuroscience*. 10, 90.  
[doi: 10.3389/fnagi.2018.00090](https://doi.org/10.3389/fnagi.2018.00090)
4. **S Moon**, M Ranchet, AE Akinwuntan, M Tant, DB Carr, MA Raji, H Devos. (2018) "The impact of advanced age on driving safety in adults with medical conditions". *Gerontology*.  
[doi: 10.1159/000486511](https://doi.org/10.1159/000486511)
5. **S Moon**, M Ranchet, M Tant, AE Akinwuntan, H Devos. (2017) "Comparison of unsafe driving across medical conditions". *Mayo Clinic Proceedings*. 92(9), 1341-1350.  
[doi: 10.1016/j.mayocp.2017.06.003](https://doi.org/10.1016/j.mayocp.2017.06.003)  [Youtube: /AH1rSI-op0](https://www.youtube.com/watch?v=AH1rSI-op0)
6. **S Moon**, M Schmidt, IV Smirnova, Y Colgrove, W Liu. (2017) "Qigong may alter TNF-alpha in serum and improve sleep in patients with Parkinson's disease". *Medicines*. 4(2), 23.  
[doi: 10.3390/medicines4020023](https://doi.org/10.3390/medicines4020023)

## SUBMITTED MANUSCRIPTS

1. M Kahya, **S Moon**, M Ranchet, R Vukas, KE Lyons, R Pahwa, AE Akinwuntan, H Devos. "Neurophysiology of cognitive-motor interference in aging and age-related neurodegenerative conditions". *Experimental Neurology* (Submitted; Under Review)
2. **S Moon**, P Ahmadnezhad, HJ Song, J Thompson, K Kipp, AE Akinwuntan, H Devos. "Artificial neural networks in neurorehabilitation: A scoping review". *Annals of Physical and Rehabilitation Medicine* (Submitted; Under Review)
3. **S Moon**, M Kahya, K Lyons, R Pahwa, AE Akinwuntan, H Devos. "Cognitive workload during verbal abstract reasoning in Parkinson's disease: A pilot study". *BMJ Innovations* (Submitted; Under Review)
4. CVM Sarmiento, **S Moon**, T Pfeifer, W Liu. "The altered immune response to exercise in patients with fibromyalgia before and after a mind-body intervention: A study protocol for a double-blinded randomized clinical trial". *BMC Complementary and Alternative Medicine* (Submitted; Under Review)
5. JS Myers, N Alissa, M Mitchell, J Dai, J He, **S Moon**, A O'Dea, J Klemp, M Kurylo, AE Akinwuntan, H Devos. (2018) "Pupillary response, driving simulation, and increased cognitive load: Assessment of cognitive effort for breast cancer survivors". *Supportive Care in Cancer* (Submitted; Under Review)
6. **S Moon**, CVM Sarmiento, Y Colgrove, W Liu. "Complementary and alternative medicine for people with Parkinson's disease". *Archives of Physical Medicine and Rehabilitation* (Submitted; Under Review)
7. AS Alqahtani, R Alajam, **S Moon**, CVM Sarmiento, SM Eickmeyer, S Jernigan, IV Smirnova, W Liu. "Reduction of risk for cardiovascular disease in non-ambulatory stroke survivors using an assisted-walking aerobic exercise: A pilot study". *Clinical Rehabilitation* (Submitted)
8. AS Alqahtani, R Alajam, **S Moon**, CVM Sarmiento, IV Smirnova, M Pang, M Phadnis, W Liu. "Changes in bone biomarkers after an 8-week walking exercise in non-ambulatory stroke survivors - A pilot study". (In submission)

## MANUSCRIPTS IN PREPARATION

1. **S Moon**, CVM Sarmiento, M Steinbacher, IV Smirnova, K Lyons, Y Colgrove, SM Lai, W Liu. "Can Qigong exercise improve non-motor symptoms in people with Parkinson's disease?". (In preparation)
2. **S Moon**, CVM Sarmiento, IV Smirnova, K Lyons, Y Colgrove, SM Lai, W Liu. "Effects of Qigong exercise on inflammatory status in people with Parkinson's disease". (In preparation)
3. **S Moon**, HJ Song, K Kipp, VD Sharma, K Lyons, AE Akinwuntan, H Devos. "Classification of Parkinsonism using artificial neural networks: A retrospective database study". (In preparation)
4. VD Sharma, **S Moon**, H Devos, K Lyons, R Pahwa. "Quantitative gait assessment of patients with essential tremor using wireless sensors". (In preparation)

## RESEARCH GRANTS

1. **S Moon (PI)** , H Devos. (2018) “Artificial Brain Mapping”, The NSF 2026 Idea Machine, National Science Foundation, \$26,000 (Not funded).
2. W Liu, IV Smirnova, SM Lai, K Lyons, J Qiu, **S Moon (RA)** , CVM Sarmento, V Gangeddula. (2018) “Assessment of mind-body intervention in patients with Parkinson’s disease”, R21HD094003, National Institutes of Health, \$191,250 (Funded).
3. H Devos, D Carr, R Mukaila, AE Akinwuntan, **S Moon (RA)** . (2017) “Driving safety in the oldest-old”, Evidence for Action: Investigator-Initiated Research to Build a Culture of Health, Robert Wood Johnson Foundation, \$119,159 (Not funded).
4. H Devos, **S Moon (Co-I)** , R Mukaila, AE Akinwuntan. (2017) “Driving safety in the oldest-old”, Center for Large Data Research and Data Sharing in Rehabilitation, \$25,000 (Not funded).

## AWARDS & ACHIEVEMENTS

- Scientific Inquiry Award for the Best Overall Poster Presentation  
Kansas Physical Therapy Association Research Committee Apr 2019
- PTRS Best Presentation Award (\$200)  
Department of Physical Therapy and Rehabilitation Science, University of Kansas Medical Center Apr 2019
- Student Governing Council Travel Award (\$200)  
Student Governing Council, University of Kansas Medical Center Oct 2018
- Ringle Health Professions Scholarship (\$4,000)  
School of Health Professions, University of Kansas Medical Center Aug 2018
- One University Open Access Fund at KU (\$ 1,250)  
KU Libraries, University of Kansas & University of Kansas Medical Center May 2018
- Graduate Student Professional Development Award (\$250)  
Office of Graduate Studies, University of Kansas Medical Center Apr 2018
- Student Governing Council Travel Award (\$300)  
Student Govenring Council, University of Kansas Medical Center Feb 2018
- Ringle Health Professions Scholarship (\$5,200)  
School of Health Professions, University of Kansas Medical Center Aug 2017
- School of Health Professions Dean’s Diversity Scholarship (\$500)  
School of Health Professions, University of Kansas Medical Center Jul 2017
- Scientific Inquiry Award for the Best Presentation  
Kansas Physical Therapy Association Research Committee Apr 2017
- PTRS Best Presentation Award (\$200)  
Department of Physical Therapy and Rehabilitation Science, University of Kansas Medical Center Apr 2017
- Graduate Student Professional Development Award (\$500)  
Office of Graduate Studies, University of Kansas Medical Center Oct 2016
- Student Governing Council Travel Award (\$400)  
Student Governing Council, University of Kansas Medical Center Oct 2016
- Bittel Family Scholarship (\$300)  
Department of Physical Therapy and Rehabilitation Science, University of Kansas Medical Center Oct 2016
- Ringle Health Professions Scholarship (\$4,400)  
School of Health Professions, University of Kansas Medical Center Aug 2016
- Outstanding Graduate Teaching Assistant Award  
Department of Physical Therapy and Rehabilitation Science, University of Kansas Medical Center Oct 2015
- Ringle Health Professions Scholarship (\$7,000)  
School of Health Professions, University of Kansas Medical Center Aug 2015

- Undergraduate Research Grant (\$100) Oct 2012  
Undergraduate Research Council, Minnesota State University
- Certificate of Appreciation Jan 2012, Aug 2012  
Kearney International Center, Minnesota State University
- Who's Who Among Students May 2012  
Who's Who Among Students in American Universities & Colleges
- Certificate of Recognition Oct 2010  
Department of Ethnic Studies, Minnesota State University
- Dean's List 2010, 2011, 2012, 2013  
College of Science, Engineering & Technology, Minnesota State University
- US-Korea Dual Degree Scholarship (\$100,000) 2006–2007, 2010–2013  
Daegu Catholic University, South Korea

## ACADEMIC MEMBERSHIP

- American Congress of Rehabilitation Medicine (ACRM) Since 2018
- American Association for the Advancement of Science (AAAS) Since 2017
- International Parkinson and Movement Disorder Society Since 2017

## ACADEMIC PRESENTATIONS

### SYMPOSIUM TALK

1. [S Moon](#), J Thompson, K Kipp, AE Akinwuntan, H Devos. (2019) "Artificial Neural Networks: Shaping the future of neurorehabilitation research". American Congress of Rehabilitation Medicine, Chicago, IL. (Scheduled; Nov 5-8th, 2019)

### PLATFORM PRESENTATION

1. [S Moon](#), P Ahmadnezhad, HJ Song, J Thompson, K Kipp, AE Akinwuntan, H Devos. (2019) "Artificial Neural Networks: A Powerful Tool for Neurorehabilitation Research". Student Research Forum at University of Kansas Medical Center, Kansas City, KS.
2. [S Moon](#), M Ranchet, M Tant, A Akinwuntan, D Carr, M Raji, H Devos. (2018) "Driving safety in the oldest-old". Student Research Forum at University of Kansas Medical Center, Kansas City, KS.
3. [S Moon](#), M Schmidt, IV Smirnova, Y Colgrove, W Liu. (2017) "A mind-body exercise for Parkinson's disease: A pilot study". Kansas Physical Therapy Association Conference, Wichita, KS.
4. [S Moon](#), M Ranchet, M Tant, A Akinwuntan, H Devos. (2017) "Impact of medical conditions on driving safety". Student Research Forum at University of Kansas Medical Center, Kansas City, KS.
5. [S Moon](#), M Schmidt, IV Smirnova, Y Colgrove, W Liu. (2017) "A mind-body exercise for Parkinson's disease: A pilot study". American Physical Therapy Association Combined Section Meeting, San Antonio, TX.
6. [S Moon](#), M Schmidt, W Liu. (2014) "Benefits of a mild exercise on gait, cognition, and sleep in Parkinson's disease". Student Research Forum at University of Kansas Medical Center, Kansas City, KS.

### POSTER PRESENTATION

1. C Sarmento, [S Moon](#), T Pfeifer, M Steinbacher, M Maz, SM Lai, Y Colgrove, IV Smirnova, W Liu. (2019) "The efficacy of Qigong on the main symptoms of fibromyalgia. A randomized clinical trial". American College of Sport Medicine, Orlando, FL. (Abstract accepted; May 29th, 2019)
2. [S Moon](#), M Kahya, KE Lyons, R Pahwa, AE Akinwuntan, H Devos. (2019) "Can we detect early cognitive declines in people with Parkinson's disease using an eye-tracker?". Kansas Physical Therapy Association Conference, Wichita, KS.
3. [S Moon](#), M Kahya, KE Lyons, R Pahwa, AE Akinwuntan, H Devos. (2019) "The eyes as a window to understanding abstract reasoning in Parkinson's disease". Annual Rare KC Meeting. Kansas City, MO.
4. [S Moon](#), M Schmidt, IV Smirnova, Y Colgrove, W Liu. (2018) "Can a mindfulness exercise make your sleep better and change your inflammatory status in Parkinson's disease?" American Congress of Rehabilitation Medicine. Dallas, TX.  
[doi: 10.1016/j.apmr.2018.09.014](https://doi.org/10.1016/j.apmr.2018.09.014)

5. **S Moon**, M Kahya, KE Lyons, R Pahwa, AE Akinwuntan, H Devos. (2018) "The eyes as a window to understanding abstract reasoning in Parkinson's disease". American Congress of Rehabilitation Medicine. Dallas, TX.  
[doi: 10.1016/j.apmr.2018.09.082](https://doi.org/10.1016/j.apmr.2018.09.082)
6. **S Moon**, M Ranchet, M Tant, A Akinwuntan, D Carr, M Raji, H Devos. (2018) "Risks of Unsafe Driving in the Oldest-old With Medical Conditions: A Comparative Analysis". American Congress of Rehabilitation Medicine. Dallas, TX.  
[doi: 10.1016/j.apmr.2018.07.266](https://doi.org/10.1016/j.apmr.2018.07.266)
7. **S Moon**, M Schmidt, IV Smirnova, Y Colgrove, W Liu. (2018) A mindfulness exercise may improve sleep quality and change inflammatory biomarker level in Parkinson's disease: A pilot study". 2nd Pan American Parkinson's Disease and Movement Disorder Congress, Miami, FL.  
[doi: 10.1002/mds.27434](https://doi.org/10.1002/mds.27434)
8. M Kahya, **S Moon**, K Lyons, R Pahwa, AE Akinwuntan, H Devos. (2018) "Increased mental effort during abstract thinking and verbal reasoning in Parkinson's disease: A pilot study". 2nd Pan American Parkinson's Disease and Movement Disorder congress, Miami, FL.  
[doi: 10.1002/mds.27434](https://doi.org/10.1002/mds.27434)
9. **S Moon**, M Ranchet, M Tant, A Akinwuntan, H Devos. (2017) "Comparative analysis of unsafe driving risk in medical conditions". American Congress of Rehabilitation Medicine, Atlanta, GA.  
[doi: 10.1016/j.apmr.2017.08.141](https://doi.org/10.1016/j.apmr.2017.08.141)
10. **S Moon**, M Schmidt, W Liu. (2016) "A meditative exercise for Parkinson's disease". Student Research Forum at University of Kansas Medical Center, Kansas City, KS.
11. **S Moon**, S Son, T Hong, N Lee. (2013) "Mathematical models for fatigue muscle fiber mechanism". National Conference of Undergraduate Research at University of Wisconsin, La Crosse, WI.
12. **S Moon**, S Son, T Hong, N Lee. (2013) "Mathematical models for fatigue muscle fiber mechanism". Undergraduate Research Symposium at Minnesota State University, Mankato, MN.

## WORK EXPERIENCE

- Republic of Korea Armed Forces Hospital, Gangneung, South Korea Feb 2008–Jan 2010  
 Sergeant Army Medic at Department of Internal Medicine and Surgery
- Namsan Rehabilitation Hospital, Daegu, South Korea Jun–Aug 2007  
 Internship at Department of Musculoskeletal Physical Therapy

## TEACHING EXPERIENCE

### GRADUATE TEACHING ASSISTANT

PTRS 703 - Applied Anatomy	Summer 2019
PTRS 750 - Research in Evidence-Based Physical Therapy Practice	Spring 2019
PTRS 711 - Applied Kinesiology and Biomechanics	Fall 2018
PTRS 703 - Applied Anatomy	Summer 2018
PTRS 750 - Research in Evidence-Based Physical Therapy Practice	Spring 2018
PTRS 711 - Applied Kinesiology and Biomechanics	Fall 2017
PTRS 704 - Physical Therapy Intervention I	Fall 2017
PTRS 817 - Ethics in Health Care	Summer 2017
PTRS 703 - Applied Anatomy	Summer 2017
PTRS 853 - Neurologic Physical Therapy and Rehabilitation II	Spring 2017
PTRS 703 - Applied Anatomy	Summer 2016
PTRS 817 - Ethics in Health Care	Summer 2016
PTRS 785 - Orthopedic Physical Therapy	Spring 2016
REHS 962 - Advanced Studies in Rehabilitation Science	Fall 2015
PTRS 855 - Pharmacology for Physical Therapists	Fall 2015
PTRS 855 - Pharmacology for Physical Therapists	Summer 2015
PTRS 817 - Ethics in Health Care	Summer 2015
PTRS 846 - Musculoskeletal Physical Therapy III	Spring 2015
PTRS 855 - Pharmacology for Physical Therapists	Fall 2014
PTRS 845 - Musculoskeletal Physical Therapy II	Fall 2014
PTRS 828 - Medical Imaging for Physical Therapists	Summer 2014
PTRS 745 - Musculoskeletal Physical Therapy I	Spring 2014
PTRS 711 - Applied Kinesiology and Biomechanics	Fall 2013

## INVITED LECTURER

Pathophysiology of Parkinson's disease  
University of Saint Mary, Leavenworth, KS

Sep 2018

## LEADERSHIP & VOLUNTEERING

- University of Kansas Medical Center, Kansas City, KS  
Vice president of Mindfulness in Medicine - Student Interest Group  
Aug 2018–Present
- University of Kansas Medical Center, Kansas City, KS  
Social network manager of the PhD program in Rehabilitation Science  
Aug 2013–Present
- Greater Kansas City Science & Engineering Fair, Kansas City, MO  
Judge at the event held by Science City Kansas City  
Apr 2019
- Student Research Forum, Kansas City, KS  
Volunteer at the event held by University of Kansas Medical Center  
Apr 2019
- Helen Gold 5K/10K 2017, Overland Park, KS  
Volunteer at the event held by KU Parkinson's Disease Center  
Sep 2018
- Head for the Cure Run/Walk 2018, Overland Park, KS  
Volunteer at the event held by Head for the Cure Foundation  
Aug 2018
- Student Research Forum, Kansas City, KS  
Volunteer at the event held by University of Kansas Medical Center  
Apr 2018
- Greater Kansas City Race for the Cure, Overland Park, KS  
Volunteer at the event held by Susan G. Komen Greater Kansas City  
Oct 2017
- Walk to End Lupus Now, Shawnee, KS  
Volunteer at the event held by Lupus Foundation of America  
Sep 2017
- Helen Gold 5K/10K 2017, Overland Park, KS  
Volunteer at the event held by KU Parkinson's Disease Center  
Sep 2017
- Stroke Walk 2017, Kansas City, MO  
Volunteer at the event held by American Stroke Foundation  
Sep 2017
- Student Research Forum, Kansas City, KS  
Volunteer at the event held by University of Kansas Medical Center  
Apr 2017
- Stroke Walk 2016, Kansas City, MO  
Volunteer at the event held by American Stroke Foundation  
Sep 2016
- Minnesota State University, Mankato, MN  
Vice president of Korean Student Association  
Aug 2011–Aug 2012