

Sanghee Moon

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[Homepage](#) | [Research Gate](#) | [Google Scholar](#) | [Twitter](#)

POST-EDUCATION

POSTDOCTORAL FELLOW | [University of Kansas Medical Center](#)
Aug 2019–Present | Kansas City, KS

EDUCATION

PH.D. IN REHABILITATION SCIENCE | [University of Kansas Medical Center](#)
Aug 2013–Jul 2019 | 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

POSTDOCTORAL RESEARCH FELLOW (PI: HANNES DEVOS) | [Laboratory for Advanced Rehabilitation Research in Simulation](#)
Aug 2019–Present

GRADUATE RESEARCH ASSISTANT
Aug 2016–July 2019

- 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

GRADUATE RESEARCH ASSISTANT (PI: WEN LIU) | [Neuromuscular Research Laboratory](#)
Aug 2013–July 2019

- 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))
- Effect of a high-intensity exercise on immune response in females with fibromyalgia
- 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

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, M Steinbacher, IV Smirnova, K Lyons, Y Colgrove, SM Lai, W Liu. (2020) "Can Qigong improve non-motor symptoms in people with Parkinson's disease - A pilot randomized controlled trial?". *Complementary Therapies in Clinical Practice* (Accepted; In Press)
[doi: 10.1016/j.ctcp.2020.101169](#)
2. [S Moon](#), CVM Sarmiento, Y Colgrove, W Liu. "Complementary health approaches for people with Parkinson's disease". (2020) *Archives of Physical Medicine and Rehabilitation* (Accepted; In Press)
3. [S Moon](#), M Kahya, K Lyons, R Pahwa, AE Akinwuntan, H Devos. (2020) "Cognitive workload during verbal abstract reasoning in Parkinson's disease: A pilot study". *International Journal of Neuroscience* (Accepted; In Press)
[doi: 10.1080/00207454.2020.1746309](#)
4. [S Moon](#), P Ahmadnezhad, HJ Song, J Thompson, K Kipp, AE Akinwuntan, H Devos. (2020) "Artificial neural networks in neurorehabilitation: A scoping review". *NeuroRehabilitation*. (Accepted; In Press)
[doi: 10.3233/NRE-192996](#)
5. JS Myers, N Alissa, M Mitchell, J Dai, J He, [S Moon](#), A O'Dea, J Klemp, M Kurylo, AE Akinwuntan, H Devos. (2020) "Pupillary response, driving simulation, and increased cognitive load: Assessment of cognitive effort for breast cancer survivors". *Oncology Nursing Forum*. 47(2), 203-212.
[doi: 10.1188/20.ONF.203-212](#)
6. M Kahya, [S Moon](#), M Ranchet, R Vukas, KE Lyons, R Pahwa, AE Akinwuntan, H Devos. (2019) "Neurophysiology of cognitive-motor interference in aging and age-related neurodegenerative conditions". *Experimental Gerontology*. 128, 110756.
[doi: 10.1016/j.exger.2019.110756](#)
7. AS Alqahtani, R Alajam, [S Moon](#), CVM Sarmiento, SM Eickmeyer, S Jernigan, IV Smirnova, W Liu. (2019) "Reduction of risk for cardiovascular disease in non-ambulatory stroke survivors using an assisted-walking aerobic exercise: A pilot study". *International Journal of Cerebrovascular Disease and Stroke*. 2, 118.
[doi: 10.29011/IJCDS-118.100018](#)
8. [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](#)
9. 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*. 27(3), 1121-1128
[doi: 10.1007/s00520-018-4401-0](#)
10. 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](#)
11. [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*. 64, 291-299.
[doi: 10.1159/000486511](#)
12. [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](#) / [Youtube \(Video Abstract\)](#) / [Editorial Comments](#)
13. [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](#)

SUBMITTED MANUSCRIPTS

1. **S Moon**, CVM Sarmiento, IV Smirnova, K Lyons, Y Colgrove, SM Lai, W Liu. "Pilot randomized controlled trial examining effects of Qigong on inflammatory status in people with Parkinson's disease". Integrative Medicine Research (Submitted)
2. CVM Sarmiento, **S Moon**, T Pfeifer, IV Smirnova, Y Colgrove, SM Lai, W Liu. "The therapeutic efficacy of Qigong exercise on the main symptoms of fibromyalgia. A pilot randomized clinical trial". Integrative Medicine Research (Resubmitted after revision; Under Review)
3. 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". Osteoporosis International. (Submitted; Under Review)

MANUSCRIPTS IN PREPARATION

1. RA Alajam, AS Alqahtani, **S Moon**, CVM Sarmiento, J Frederick, IV Smirnova, W Liu. "The effects of walking training on cardiovascular risk markers in people with chronic spinal cord injury". (In preparation)
2. **S Moon**, CVM Sarmiento, IV Smirnova, K Lyons, Y Colgrove, SM Lai, W Liu. "Challenges in a mind-body intervention clinical trial for people with Parkinson's disease". (In preparation)
3. CVM Sarmiento, **S Moon**, W Liu. "Low compliance to exercise in patients with fibromyalgia: What to blame, psychological or physiological factors?". (In preparation)
4. CVM Sarmiento, **S Moon**, IV Smirnova, SM Lai, Y Colgrove, M Maz, W Liu. "Immune response to a bout of high-intensity exercise in females with fibromyalgia: A pilot study". (In preparation)
5. **S Moon**, HJ Song, K Kipp, VD Sharma, K Lyons, AE Akinwuntan, H Devos. "Classification of movement disorders using artificial neural networks: A retrospective database study". (In preparation)
6. 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. J Colistra, J Buzhardt, H Devos, D Irvin, **S Moon (Postdoc)**. (2019) "Smart and Connected Communities Planning Grant: The Impact of Data-Driven Architecture on Population Health Initiatives", National Science Foundation, \$132,912 (Under Review).
2. J Colistra, H Park, H Devos, K Lyons, R Pahwa, **S Moon (Postdoc)**. (2019) "Predictive resident gait monitoring using a smart-floor building system", Michael J. Fox Foundation, \$214,925 (Not funded).
3. **S Moon (Postdoc)**, R Nudo, H Devos (2019) "Eye-catching brain-behavior interactions in virtual reality dual tasking for individuals with Parkinson's disease", NIH TL1 Postdoctoral Clinical and Translational Research Training Program, University of Kansas Frontiers, (Not funded).
4. **S Moon (PI)**, H Devos. (2018) "Artificial Brain Mapping", The NSF 2026 Idea Machine, National Science Foundation, \$26,000 (Not funded).
5. W Liu, IV Smirnova, SM Lai, K Lyons, J Qiu, **S Moon (RA)**, CVM Sarmiento, V Gangeddula. (2018) "Assessment of mind-body intervention in patients with Parkinson's disease", R21HD094003, National Institutes of Health, \$191,250 (Funded).
6. 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).
7. 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).

ACADEMIC PRESENTATIONS

INVITED TALK

1. H Devos, AE Akinwuntan, **S Moon** (2019) "Virtual reality applications in rehabilitation". Cerner's World Usability Day, Kansas City, MO.
2. **S Moon** (2019) "Benefits of Qigong on non-motor symptoms and inflammatory status in people with Parkinson's disease". International Medical Tai Chi and Qigong Association Conference at Massachusetts General Hospital and Harvard Medical School, Boston, MA.

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.
url: ACRM.org/551435

PLATFORM PRESENTATION

1. CVM Sarmento, [S Moon](#), IV Smirnova, Y Colgrove, SM Lai, M Maz, W Liu. (2020) "Inflammatory response to a bout of high-intensity exercise in females with fibromyalgia. American Physical Therapy Association Combined Sections Meeting, Denver, CO.
url: apta.confex.com/apta/csm2020/meetingapp.cgi/Paper/24452
2. [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.
3. [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.
4. [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.
5. [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.
6. [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 Sections Meeting, San Antonio, TX.
7. [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. [S Moon](#), CVM Sarmento, M Steinbacher, SM Lai, Y Colgrove, K Lyons, IV Smirnova, W Liu. (2020) "Qigong to improve sleep quality and inflammation in people with Parkinson's disease: Potentials and challenges". American Physical Therapy Association Combined Sections Meeting, Denver, CO.
url: apta.confex.com/apta/csm2020/meetingapp.cgi/Paper/24436
2. [S Moon](#), P Ahmadnezhad, HJ Song, J Thompson, K Kipp, A Akinwuntan, H Devos. (2019) "Scoping review on artificial neural networks in neurorehabilitation research: Current status and future avenues". American American Congress of Rehabilitation Medicine. Chicago, IL.
doi: 10.1016/j.apmr.2019.08.353
3. V Sharma, [S Moon](#), H Devos, K Lyons, R Pahwa (2019) "Quantitative gait assessment of patients with essential tremor using wireless sensors". International Congress of Parkinson's Disease and Movement Disorders, Nice, France.
doi: 10.1002/mds.27795
4. C Sarmento, T Pfeifer, [S Moon](#), 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.
url: acsmannualmeeting.org/ACSM19Abstract
5. [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.
6. [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.
7. [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
8. [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
9. [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

10. [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](#)
11. 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](#)
12. [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](#)
13. [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.
14. [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.
15. [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.

ACADEMIC SERVICE

PEER-REVIEWED JOURNAL

- Reviewer - Archives of Physical Medicine and Rehabilitation
- Reviewer - PLOS One

TEACHING EXPERIENCE

INVITED LECTURER

- Research in Evidence-Based Physical Therapy Practice Mar 2020
University of Kansas Medical Center, Kansas City, KS
- Pathophysiology of Parkinson's disease Sep 2018
University of Saint Mary, Leavenworth, KS

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

AWARDS & ACHIEVEMENTS

- Certificate of Contribution
Cerner's World Usability Day 2019 Nov 2019
- Scientific Inquiry Award for the Best Overall Poster Presentation
Kansas Physical Therapy Association Research Committee Apr 2019
- Best PTRS 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
- Best PTRS 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)
Undergraduate Research Council, Minnesota State University Oct 2012
- Certificate of Appreciation
Kearney International Center, Minnesota State University Jan 2012, Aug 2012
- Who's Who Among Students
Who's Who Among Students in American Universities & Colleges May 2012
- Certificate of Recognition
Department of Ethnic Studies, Minnesota State University Oct 2010
- Dean's List
College of Science, Engineering & Technology, Minnesota State University 2010, 2011, 2012, 2013
- US-Korea Dual Degree Scholarship (\$100,000)
Daegu Catholic University, South Korea 2006–2007, 2010–2013

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

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

CERTIFICATION

- Neural Networks and Deep Learning Aug 2019
deeplearning.ai (Credential ID: 3NRXPPU5SLKA)