

Ian M. Rice

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BIO

Ian M. Rice earned his MSOT from Washington University in 2002 and PhD from the University of Pittsburgh in 2010 in rehabilitation science and technology under the guidance of Michael Boninger, MD. Dr Rice's research interests include the investigation of technological and educational strategies to maximize health and QOL in mobility device users through prevention and mitigation of secondary health complications. Guided by principles in occupational therapy, ergonomics, motor control, and biomechanics, Dr. Rice has developed expertise investigating upper limb preservation strategies during activities like wheelchair propulsion, transferring, and adapted sports while accounting for the influence of personal factors and the ambient conditions in which these activities occur. Dr. Rice has instructed both graduate and undergraduate level courses in Biomechanics, Assistive technology, Adapted Physical Education, Psychosocial Aspects of Disability, and Perceptions of Disability through Popular Culture. Additionally, Dr. Rice is a Paralympian in the sport of wheelchair racing (2000 Sydney, 2004 Athens).

EDUCATION

PhD. Rehabilitation Science and Technology University of Pittsburgh	2010
M.S. Occupational Therapy Washington University School of Medicine	2002
B.S. Psychology University of Illinois, Champaign Urbana, IL	1999

PROFESSIONAL EXPERIENCE

Work:

Director of Diversity Equity Inclusion/Special Projects- Department of Health & Kinesiology; University of Illinois at Urbana Champaign; 2023-present

Beckman Institute for Advanced Science and Technology Affiliate Appointment (Biomedical Imaging Center)- University of Illinois at Urbana Champaign; 2022- present

Associate Head for Undergraduate Studies in Kinesiology- Department of Kinesiology and Community Health; University of Illinois at Urbana Champaign; 2020-23

Associate Teaching Professor- Department of Kinesiology and Community Health; University of Illinois at Urbana Champaign; 2019-present.

Assistant Professor: Department of Kinesiology and Community Health; University of Illinois at Urbana Champaign; 2010-2018.

Occupational Therapist: The Center for Assistive Technology; UPMC Health System, Pittsburgh, PA, 2007

Graduate:

VA Pre-Doctoral Fellow: Associated Health Rehabilitation Research Fellowship Veterans Administration Human Engineering Research Laboratories, University of Pittsburgh, October 2007- 2009. (Research mentor: Dr. Michael Boninger & Dr. Rory Cooper.)

NSF, IGERT Pre-Doctoral Fellow: National Science Foundation Integrative Graduate Education and Research Training (IGERT) Fellowship at Human Engineering Research Laboratories, Pittsburgh, PA, Clinical research investigating manual wheelchair propulsion training using real time feedback software, 2006-2007. (Research mentor: Dr. Michael Boninger)

Research Associate/Doctoral Candidate: University of Pittsburgh, Human Engineering Research Laboratories, 2002- 2009. (Research mentor: Dr. Michael Boninger)

Research Assistant: Collaboration of Upper Limb Pain in Spinal Cord Injury (CULPSCI) University of Pittsburgh, 2002-2006 (Research mentor: Dr. Michael Boninger)

Research assistant: Assistive Technology Laboratory, Washington University School of Medicine - Program in Occupational Therapy, 2001-2002. (Research mentor: Dr. David Gray)

ACADEMIC HONORS

1. 2019, Academy of Spinal Cord Injury Professionals, Therapy Leadership Council, Distinguished Lecture Award
2. University of Pittsburgh Distinguished Lecture Series. Emerging insights into pain detection, upper limb-based exercise, and physical activity interventions in full time wheelchair users. Pittsburgh PA, November 27, 2023
3. Commencement Speaker for the Washington University School of Medicine Program in Occupational Therapy Graduation Ceremony (May 13, 2024). Contact: Michayla Williams, Administrative Coordinator WASHU-OT
4. List of Teachers Ranked as Excellent by Their Students:
 Kin 522 Psychosocial Aspects of Disability- Fall 2015
 Kin 355 Human Movement Biomechanics)- Spring 2020, 2022
 Kin 199 Disability through Popular Culture Fall 2024, Spring 2024, 2016, 2015
 KIN 520 Disability through Popular Culture Fall 2015
 KIN 360 Adapted Physical Education Fall 2011
 KIN 494 Assistive Technology, Spring 2022, 2024

VA Pre-Doctoral Fellow	Human Engineering Research Laboratories University of Pittsburgh	2007- 2009
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NSF, IGERT, Pre-Doctoral Fellow	Human Engineering Research Laboratories University of Pittsburgh	2006-2007
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GRANTS AWARDED

1. **Rice I.** *Power of Play*. National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) Rehabilitation Engineering Research Center (RERC). REGE-0096, 9/1/23- 8/31/28, Overall total costs \$4,539,541 (Role: Project Director & PI, 2 AY Effort).

2. **Rice I.** *Technologies to Support Aging Among People with Long-Term Disabilities.* National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) Rehabilitation Engineering Research Center (RERC). 90 REGE0021 09/1/23-8/31/2028, Overall total costs \$4,624,442 (Role: PI on Project D3, CO-I on R3 @ .25 SM Effort, PI Rice L).
3. Hanks M, **Rice I**, Chiu, C. *Determining the Role of Physical Activity on Shoulder Musculoskeletal Adaptation, Biomechanics, Pain, and Pathology in Pediatric and Young Adult Manual Wheelchair Users.* Center on Health, Aging, and Disability: Pilot Grant. 08/15/2023-02/15/2025. \$30,000 (Role: collaborator, Hanks M PI).
4. **Rice I**, Jan Y & Bleakney A. *Pressure Management in in Adapted Sports.* Paralyzed Veterans of America (PVA) Education Foundation. (Grant # 817). 6/01/2017- 5/31/2018. \$47,709.00 (Role PI, 1 AY Effort).
5. **Rice I**, Rice L, Sosnoff J & Ratnam R. *Home Based Telerehabilitation Training System for Veterans with Spinal Cord Injury.* Chez Family Foundation Center for Wounded Veterans in Higher Education seed funding program, University of Illinois Urbana Champaign. (#4455). 1/19/2016-12/30/2016. \$30,000. [Role PI (No support)].
6. **Rice I** & Jan Y. *Sustainable Sports Science Instructional Program for VA Athletes and Coaches* Department of Veterans Affairs (VA), Adapted Sports Grant (581 VA 2016-ASG-66). 9/1/2015-3/01/2017. \$40,000. [Role PI (No support)].
7. Rice, L.A., **Rice, I.M.** *Enhancement of Community Participation among Full Time Wheeled Mobility Device Users.* University of Illinois Campus Research Board. May 1, 2015 – November 30, 2016. \$29,025. (Role: Co- I).
8. **Rice I** & Woods J. *Instrumented Treadmill and Motion Capture System for Disability Studies.* Office of the Provost/Vice Chancellor for Research Equipment Funding Program. UIUC 2015, \$140,000. [Role PI (No support)].
9. **Rice I**, Hedrick, B, Sosnoff J& Rice, L. (2013-14) *Impact of Wheelchair Propulsion and Transfer Training on Reducing Shoulder Pain and Increasing Community Participation in Pediatric Manual Wheelchair Users with Physical Disabilities.* University of Illinois Center on Health Aging, and Disability (CHAD) Award. 9/1/2013-9/1/2014. \$19,780. [Role PI (No support)].
10. **Rice I**, Motl R & Rice, L *Promoting Physical Activity through a Manual Wheelchair Propulsion Activity Intervention in Persons with Multiple Sclerosis.* National Multiple Sclerosis Society (# IL 0005)10/5/2012-11/05/2013. \$109,679. (Role: PI, .35 AY effort).
11. Cooper, R., Crytzer T M, **Rice I** & Oyster, ML. *Development of clinical practice guidelines for the racing smart wheel.* Veterans Administration, VAPHS Pilot Grant. May, 2013- September, 2013. \$15,000. [Role Co-PI (No support)].
12. **Rice I** & Sosnoff, J. *Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training in Reducing Injurious Propulsion Biomechanics in Novice Individuals.* University of Illinois Research Board, Award 12078, 3/1/2012-5/31/2013. \$22,620. [Role PI (No support)].
13. Crytzer T M, **Rice I** & Oyster, ML. *Development of Clinical Practice Guidelines for the Racing Smart Wheel.* Veterans Administration Pilot Grant, 2012. \$25,000. [Role Co-PI (No support)]

14. Boninger ML & **Rice I**. Manual Wheelchair Propulsion Training. NIH 1-R03-HD049735-01A1. September 1, 2007 – September 1, 2008. (\$100.000) Role RA.

PUBLICATIONS

1. Sipes GC, Lee M, Halloran KM, **Rice I**, Kersh ME. Kinematics-Based Predictions of External Loads during Handcycling. *Sensors*. 2024; 24(16):5297. <https://doi.org/10.3390/s24165297>
2. Peters J, Halloran K, Teague A, Erlenbach E, Abou L, Kersh M, **Rice I**. Perceptions of High-Intensity Interval Training Among People with Spinal Cord Injury: A Mixed-Methods Analysis. *Adapted physical activity quarterly: APAQ*. 2024; 41:153-175.
3. Peters J, Teague A, Halloran K, Sung J, Rice LA, **Rice I**. The influence of gender on shoulder kinematics and head-hip technique during non-level transfers in full-time wheelchair users. *Clin Biomech* (Bristol, Avon). 2023; 105:105969.
4. Peters J, Halloran K, Focht M, Huang K, Kersh M, **Rice I**. Cardiorespiratory Responses to an Acute Bout of High Intensity Interval Training and Moderate Intensity Continuous Training on a Recumbent Handcycle in People with Spinal Cord Injury: A Within-Subject Design. *Top Spinal Cord Inj Rehabil*. 2023; 29:16-26.
5. Halloran KM, Peters J, Focht MDK, **Rice I**, Kersh ME. Propulsion kinetics of recumbent handcycling during high and moderate intensity exercise. *J Biomech*. 2023; 156:111672.
6. Halloran KM, Focht MDK, Teague A, Peters J, **Rice I**, Kersh ME. Moving forward: A review of continuous kinetics and kinematics during handcycling propulsion. *J Biomech*. 2023; 159:111779.
7. Sanz-Quinto S, Moya-Ramón M, Brizuela G, **Rice I**, López-Grueso R. ESTRATEGIAS DE HIDRATACIÓN DE UN MARATONIANO CONCENTRADO A 4000 M DE ALTITUD. *Revista multidisciplinar de las Ciencias del Deporte*. 2023;23(91).
8. Rice LA, Peters J, Fliflet A, Sung J, **Rice IM**. The influence of shoulder pain and fear of falling on level and non-level transfer technique. *The journal of spinal cord medicine*. 2022; 45:364-372.
9. **Rice IM**, Jeng B, Silveira SL, Motl RW. Push-Rate Threshold for Physical Activity Intensity in Persons Who Use Manual Wheelchairs. *Am J Phys Med Rehabil*. 2021; 100:292-296.
10. Peters J, Abou L, Rice LA, Dandeneau K, Alluri A, Salvador AF, **Rice I**. The effectiveness of vigorous training on cardiorespiratory fitness in persons with spinal cord injury: a systematic review and meta-analysis. *Spinal Cord*. 2021; 59:1035-1044.
11. **Rice I**, Jayaraman C, Pohlig RT. The short-term influence of rear wheel axle position and training on manual wheelchair propulsion technique in novice able-bodied participants during steady-state treadmill propulsion, a pilot study. *Assistive technology: the official journal of RESNA*. 2020; 32:136-143.
12. Peters J, **Rice I**, Bull T. Exploring the Influence of Wheelchair-User Interface and Personal Characteristics on Ischial Tuberosity Peak Pressure Index and Gradient in Elite Wheelchair Basketball Players. *Adapted physical activity quarterly: APAQ*. 2020; 37:56-71.
13. Sanz-Quinto S, Moya-Ramon M, Brizuela G, **Rice I**, Urban T, Lopez-Grueso R. Nutritional strategies in an elite wheelchair marathoner at 3900 m altitude: a case report. *J Int Soc Sports Nutr*. 2019; 16:51.

14. **Rice I**, Peters J, Rice L, Jan YK. Influence of wheelchair user interface and personal characteristics on static and dynamic pretibial skin pressures in elite wheelchair racers, a pilot study. *The journal of spinal cord medicine*. 2019; 42:613-621.
15. Sanz-Quinto S, Brizuela G, Lopez-Grueso R, **Rice I**, Moya-Ramon M. Influence of Training Load on Mood Disturbance at Sea Level and 3900 m Altitude: A Case Study of a Wheelchair Athlete. *Sports (Basel)*. 2018;6.
16. Dysterheft JL GG, Rice L & **Rice I**. Investigating the Outcomes and Perceptions of an Inclusive Aquatic Exercise Class for University Students with Physical Disabilities. *Journal of Postsecondary Education and Disability*. 2018; 31:41-56.
17. Cooper RA, Tuakli-Wosornu YA, Henderson GV, Quinby E, Dicianno BE, Tsang K, Ding D, Cooper R, Crytzer TM, Koontz AM, **Rice I**, Bleakney AW. Engineering and Technology in Wheelchair Sport. *Phys Med Rehabil Clin N Am*. 2018; 29:347-369.
18. **Rice IM** & Rice LRI. Evidenced Based Education Interventions to Preserve Upper Limb Function Among Full Time Manual Wheelchair Users. *Medical Research Archives*. 2017;5.
19. Rice LA, Dysterheft JL, Sanders E, **Rice IM**. Short-term influence of transfer training among full time pediatric wheelchair users: A randomized trial. *The journal of spinal cord medicine*. 2017; 40:396-404.
20. **Rice I**, Dysterheft J & Motl R. How does Vector Magnitude Obtained from Wrist Worn Actigraphy Relate to Kinetic and Spatiotemporal Measures of Wheelchair Propulsion Technique at Different Speeds. *Sports Medicine and Rehabilitation Journal*. 2017;2.
21. Dysterheft JL, GCRI & **Rice IM**. Determinants of Leisure-Time Physical Activity Participation in University Students with Physical Disabilities. *Medicine & Science in Sports & Exercise*. 2017; 49:74-75.
22. Dysterheft J, **Rice I**, Learmonth Y, Kinnett-Hopkins D, Motl R. Effects of Daily Physical Activity Level on Manual Wheelchair Propulsion Technique in Full-Time Manual Wheelchair Users During Steady-State Treadmill Propulsion. *Archives of physical medicine and rehabilitation*. 2017; 98:1374-1381.
23. **Rice I**, Dysterheft J, Bleakney AW, Cooper RA. The Influence of Glove Type on Simulated Wheelchair Racing Propulsion: A Pilot Study. *Int J Sports Med*. 2016; 37:30-35.
24. **Rice I**. Recent Salient Literature Pertaining to the Use of Technology in Wheelchair Sports. *Current Physical Medicine and Rehabilitation Reports*. 2016; 4:329-335.
25. Learmonth YC, Kinnett-Hopkins D, **Rice IM**, Dysterheft JL, Motl RW. Accelerometer output and its association with energy expenditure during manual wheelchair propulsion. *Spinal Cord*. 2016; 54:110-114.
26. Dysterheft JL, Lindahl-Lewis P, Hubbard EA, Jones O, Rice L, **Rice I**. A mixed methods exploration of how university students with physical disabilities perceive physical activity and the influence of perceptions on physical activity levels. *Cogent Medicine*. 2016; 3:1196809.
27. **Rice I**. Manual Wheelchair Propulsion Biomechanics and Upper Limb Pain, Exploring Injury Mechanisms and Preventative Strategies. *Directions*. 2015;3:41-3.
28. Sosnoff JJ, **Rice IM**, Hsiao-Wecksler ET, Hsu IM, Jayaraman C, Moon Y. Variability in Wheelchair Propulsion: A New Window into an Old Problem. *Front Bioeng Biotechnol*. 2015; 3:105.

29. **Rice IM**, Wong AW, Salentine BA, Rice LA. Differences in participation based on self-esteem in power and manual wheelchair users on a university campus: a pilot study. *Disabil Rehabil Assist Technol*. 2015; 10:102-107.
30. **Rice IM**, Rice LA, Motl RW. Promoting Physical Activity Through a Manual Wheelchair Propulsion Intervention in Persons With Multiple Sclerosis. *Archives of physical medicine and rehabilitation*. 2015; 96:1850-1858.
31. Liao F, Liao BY, **Rice IM**, Elliott J, Brooks I, Jan YK. Using local scale exponent to characterize heart rate variability in response to postural changes in people with spinal cord injury. *Front Physiol*. 2015; 6:142.
32. Learmonth YC, **Rice IM**, Ostler T, Rice LA, Motl RW. Perspectives on Physical Activity Among People with Multiple Sclerosis Who Are Wheelchair Users: Informing the Design of Future Interventions. *Int J MS Care*. 2015; 17:109-119.
33. Dysterheft JL, **Rice IM**, Rice LA. Influence of handrim wheelchair propulsion training in adolescent wheelchair users, a pilot study. *Front Bioeng Biotechnol*. 2015; 3:68.
34. **Rice IM**, Jayaraman C, Hsiao-Weckler ET, Sosnoff JJ. Relationship between shoulder pain and kinetic and temporal-spatial variability in wheelchair users. *Archives of physical medicine and rehabilitation*. 2014; 95:699-704.
35. Liao F, Brooks I, Hsieh CW, **Rice IM**, Jankowska MM, Jan YK. Assessing complexity of heart rate variability in people with spinal cord injury using local scale exponents. *IEEE Eng Med Biol Soc*. 2014; 2014:6381-6384.
36. Jayaraman C, Moon Y, **Rice IM**, Hsiao Weckler ET, Beck CL, Sosnoff JJ. Shoulder pain and cycle to cycle kinematic spatial variability during recovery phase in manual wheelchair users: a pilot investigation. *PLoS One*. 2014;9: e89794.
37. **Rice IM**, Pohlig RT, Gallagher JD, Boninger ML. Handrim wheelchair propulsion training effect on overground propulsion using biomechanical real-time visual feedback. *Archives of physical medicine and rehabilitation*. 2013; 94:256-263.
38. Moon Y, Jayaraman C, Hsu IM, **Rice IM**, Hsiao-Weckler ET, Sosnoff JJ. Variability of peak shoulder force during wheelchair propulsion in manual wheelchair users with and without shoulder pain. *Clin Biomech (Bristol, Avon)*. 2013; 28:967-972.
39. Laferrier JZ, **Rice I**, pearlman J, Sporer ML, Cooper R, Liu T, Cooper RA. Technology to improve sports performance in wheelchair sports. *Sports Technology*. 2012; 5:4-19.
40. Koontz AM, Worobey LA, **Rice IM**, Collinger JL, Boninger ML. Comparison between overground and dynamometer manual wheelchair propulsion. *J Appl Biomech*. 2012; 28:412-419.
41. **Rice I**, Gagnon D, Gallagher J, Boninger M. Hand rim wheelchair propulsion training using biomechanical real-time visual feedback based on motor learning theory principles. *The journal of spinal cord medicine*. 2010; 33:33-42.
42. Cooper RA, Koontz AM, Ding D, Kelleher A, **Rice I**, Cooper R. Manual wheeled mobility--current and future developments from the human engineering research laboratories. *Disabil Rehabil*. 2010; 32:2210-2221.
43. **Rice I**, Impink B, Niyonkuru C, Boninger M. Manual wheelchair stroke characteristics during an extended period of propulsion. *Spinal Cord*. 2009; 47:413-417.
44. Furui T S, Furui M & **Rice I**. The grass-roots activism of people with cerebral palsy in Japan: Early protest confronting the inaccessible bus system. *Journal of Osaka Kawasaki*. 2008; 29:963-967.

45. Authier EL, Pearlman J, Allegretti AL, **Rice I**, Cooper RA. A sports wheelchair for low-income countries. *Disabil Rehabil.* 2007; 29:963-967.

BOOK CHAPTERS

1. Mohamed, A.A., Jan, YK., **Rice, I.M.**, Pu, F., Cheng, CK. (2020). Biomechanics of Orthopedic Rehabilitation. In: Cheng, CK., Woo, S.L.Y. (eds) *Frontiers in Orthopedic Biomechanics*. Springer, Singapore. https://doi.org/10.1007/978-981-15-3159-0_14
2. **Rice I**, F. Hettinga, J.Z. Laferrier, M. Spornier, C.M. Heiner, B. Burkett, R.A. Cooper. *The Paralympic Athlete: Handbook of Sports Medicine and Science*, Yves Vanlandewijck and Walter Thompson, Editors, Wiley and Blackwell. Biomechanics (Chapter 2), pp. 33-50, 2011.
3. **Rice, I.**, Laferrier JZ. *Warrior Transition Leader Medical Rehabilitation Handbook*, edited by LTC Paul F. Pasquina, MD, Rory Cooper, PhD, and Ron Drach. Washington, DC: Department of the Army, Office of The Surgeon General, Borden Institute, 2011.
4. Liu H, **Rice I**, Laferrier JZ, Cooper RA, Boninger ML, Cooper RM. *Wheelchair Sports*. Vicky Goosey-Tolfrey, Editor, Human Kinetics. Sports Chair Set-up and Selection, 2010
5. **Rice I**, Cooper RA, Cooper RM, Kelleher AR, Boyles A. *Sports and Recreation for People with Spinal Cord Injuries: management and rehabilitation*: Elsevier; 2008, pp. 455-477.
6. Cooper RA, Boninger ML, **Rice I**, Shimada SD, Cooper RM. *Elite Athletes with Impairments, Exercise in Rehabilitation Medicine, 2nd Edition*, W.R. Frontera, Editor-in-Chief, Human Kinetics Publishing, Champaign, IL, 2006. Chapter 21, pp. 332-353.

INVITED PRESENTATIONS

1. **Rice I.** *Emerging insights into pain detection, upper limb-based exercise, and physical activity interventions in full time wheelchair users*. University of Pittsburgh Distinguished Lecture Series. Pittsburgh PA, November 27, 2023
2. **Rice I.** *Influence of Technology on Adapted Sports*. VISTA Conference and IPC Classification Conference. Cairo Egypt, October 26-November 4, 2023(invited presentation, conference postponed due to Israel and Gaza conflict)
3. Byron, N; Peters J & **Rice I.** *Shoulder Jerk Kinematics During Level Wheelchair Transfers*. Paralyzed Veterans of America Healthcare Summit, August 15, Orlando, FL 2023(invited platform presentation with travel support)
4. **Rice I.** *Interdisciplinary Spinal Cord Injury/Disease Course, Low Tech, High Tech, What the Tech?* Shirley Ryan Ability Lab- April 13-14, 2023 (invited panel discussion member).
5. Peters J, Halloran K, Kersh ME & **Rice I.** *Feasibility and safety of a high intensity interval training based handcycling activity in people with SCI*. Paralyzed Veterans of America Healthcare Summit, August 30, 2022 (invited platform presentation with travel support)
6. Peters J, Savard L, Rice L & **Rice I.** *The influence of gender and shoulder kinematics on head-hip transfer technique*. Paralyzed Veterans of America Healthcare Summit, August 30, 2022 (invited platform presentation with travel support).
7. **Rice I** (April 8, 2021) *Optimizing Health and Quality of Life through Adapted Sport and Physical*

- Activity among Wheelchair users with SCI*. Johns Hopkin's Kennedy Krieger Institute Grand Rounds. (invited presentation, virtual format). Contact: Christina Sadowsky, M.D.
8. **Rice, I.M** & Rice, L.A. (2019, September 1 -4). *Putting into Practice What We Preach*. Presented at the 2019 Academy of Spinal Cord Injury Professionals Conference and Expo, Nashville, TN. Therapy Leadership Council Distinguished Lecture Award. (Award)
 9. Peters, J. & **Rice, IM**. (2019, August 15-17). *Influence of personal and wheelchair characteristics on skin pressure in elite wheelchair racing and basketball*. Paper presented at the Paralyzed Veterans of America, Orlando, FL.
<http://2019.summitpva.org/sites/default/files/pdf/summit-2019-abstract.pdf>
 10. **Rice, I.M.**, Sung, J.H., Fliflet, A., Rice, L.A. (2019, March 18-22). *Influence of Transfer Height on Key Measures of Technique*. Presented at the 2019 International Seating Symposium, Pittsburgh, PA.
 11. **Rice I.** *Manual Wheelchair Propulsion and Biomechanics*. National Registry of Rehabilitation Technology Suppliers (NRRTS) Webinar. December 10, 2015.
 12. Dysterheft J, Rice L & **Rice I.** *Influence of hand rim wheelchair propulsion training in adolescent wheelchair users*. Rehabilitation Engineering Specialists of North America (RESNA). Student scientific paper competition winner (\$1000), Denver CO June 28, 2015.
 13. **Rice I.** *Targeting modifiable Factors to improve quality of life in wheelchair users across a lifespan*. Chittenden Symposium on Mobility, Technology and the Future of Health Champaign, IL, January 29, 2015.
 14. **Rice, I.** *Maximizing the functional potential of manual wheelchair users; Translating research into daily practice*. Rehabilitation Institute of Chicago (RIC) 37th Annual Spinal Cord Interdisciplinary Course, Chicago, IL, June 2014 [keynote speaker].
 15. **Rice I**, Blauwet C, & Rice LA. *Presentation and laboratory on adapted wheelchair sports*. Rehabilitation Institute of Chicago (RIC) 37th Annual Spinal Cord Interdisciplinary Course, Chicago, IL, June 1, 2014
 16. **Rice I**, Dysterheft J, Bleakney A & Cooper R, *Influence of glove type on wheelchair racing biomechanics*. Wheelchair Track Summit, United States Olympic Committee USOC. Colorado Springs CO, January 2014.
 17. **Rice, I.** *Biomechanics & training concepts for wheelchair racing & handcycling*. Academy of Spinal Cord Injury Professionals (ASCIP), Las Vegas NV, September 2013.
 18. **Rice, I.**, Crytzer T. M., & Oyster, M.L. & Bleakney, A. *Preliminary analysis of the racing smart wheel*. Wheelchair racing coaches' summit, Olympic Training Center, Colorado Springs, CO, Jan, 2013. (presenter)
 19. **Rice I** “*DRES Mission to Enhance Quality of Life for Individuals with Disabilities*” Presented to University of Illinois Trustee Karen Hasara. Champaign IL, November 2010.
 20. **Rice I.** “*Manual Wheelchair Propulsion Feedback Training Software*”. Faculty Presentation, Washington University Program in Occupational Therapy, St. Louis MO, July 2010.
 21. **Rice I.** “*Manual Wheelchair Propulsion Training Using Real-time Feedback*”. Developing Amazing Leaders Paralympic Conference, US Olympic Training Center, Colorado Springs CO, April 2009.
 22. **Rice I.** “*Equipment and Training Considerations for Wheelchair Athletes*”, 23rd International Seating Symposium (ISS) Orlando, FL, March 8, 2007.
 23. **Rice I.** & Cooper, R. “*Locus of Control-A Client Centered Approach to AT Service Delivery*”, State of the Science Workshop for Polytrauma at Walter Reed Army Medical Center, Washington DC, September 2006.

24. **Rice, I.**, Dicianno, B & Cooper, R. “*Wheelchair Racing: Technique, Equipment and Injury Prevention*”. American Academy of Physical Medicine & Rehabilitation Annual Assembly Philadelphia, PA, October 27, 2005.

PEER REVIEWED PROCEEDINGS/ABSTRACTS

1. Byron N, **Rice I**, Peters J (2023, April 7). *Shoulder jerk kinematics during level wheelchair transfers*. Poster Presentation, 21st Annual Health Innovation Research Day, Champaign, IL.
2. Bloomer C, Tokarsky A, Abou L, Bleakney A, **Rice IM**, Peters J (2023, January 26). *Validity and reliability of a single-unit inertial measurement unit: A real-time kinematic assessment too for the clinic and classroom*. Poster Presentation, Medical Education Experience at Carle Illinois College of Medicine, Champaign, IL.
3. Halloran K, Peters J, Focht M, **Rice I** & Kersh ME. *Kinetics of high intensity interval training during handcycling*. North American Congress on Biomechanics, August 21-25, 2022. (presentation)
4. **Rice I**, Pohlig R, Dysterheft J & Motl R. *How does Vector magnitude obtained from wrist worn Actigraphy relate to kinetic and spatiotemporal measures of wheelchair propulsion technique at different speeds?* American Spinal Cord Injury Professionals Conference (ASCIP), Denver CO, Sept 3-7, 2017
5. Dysterheft, J, Chaparro G, Jones O, Rice LA & **Rice, I**. *Investigating the Outcomes and Perceptions of an Aquatic Exercise Class for University Students with Physical Disabilities*. National Association for Adapted Physical Activity (NAFAPA), September 21-23, 2017.
6. Dysterheft, J, Chaparro G, & **Rice, I**. *Determinants of Leisure-Time Physical Activity Participation in University Students with Physical Disabilities: A Multi-University Study*. World Congress on Exercise is Medicine®, and World Congress on the Basic Science of Exercise and the Brain of the American College of Sports Medicine. Denver CO. May 31, 2017.
7. Gacek EA, Pakeltis A, Gaglio A, Daigle S, Jahanian O, Slavens B, **Rice I**, & Hsiao-Weckler E. *An Investigation of the Effect of Gear Ratio on Manual Wheelchair Kinetics*. Midwest American Society of Biomechanics, Grand Rapids, MI. Feb. 23-24, 2017.
8. Gaglio A, Daigle S, Gacek EA, Jahanian O, Slavens B, **Rice I**, & Hsiao-Weckler E. *Validation of an Instrumented Wheelchair Hand Rim” Design of Medical Devices*, American Society of Mechanical Engineering, Minneapolis, MN. April 10-13, 2017.
9. Rice, L.A., Dysterheft, J., **Rice, I.M**. *Impact of Transfer Training Among Full Time Pediatric Wheelchair Users*. International Seating Symposium, Vancouver, Canada, March 1-4, 2016.
10. Dysterheft, J, Chaparro G, Jones O, Rice L & **Rice, I**. *Investigating the Outcomes and Perceptions of an Aquatic Exercise Class for University Students with Physical Disabilities*. North American Federation of Adapted Physical Activity (NAFAPA), Edmonton, AB, September 21-23, 2016.
11. **Rice I**, Dysterheft J, & Rice L. *Influence of Hand rim Wheelchair Propulsion Training in Adolescent Wheelchair Users, a Pilot Study*. American Spinal Cord Injury Professionals Conference (ASCIP), Nashville, TN. September 4-7, 2016.
12. **Rice I** & Motl R. *Physical activity intervention for persons with advanced Multiple Sclerosis*. International Seating Symposium (ISS). Nashville TN., 3/1/ 2015.

13. Learmonth, YC, **Rice, IM**, Ostler, T, Rice, LA, Motl, RW. *Implications for Informing the Design & Delivery of Interventions to Increase Physical Activity & Exercise Behaviors in Advanced Multiple Sclerosis*. CMSC ACTRIMS Annual Meeting 2014.
14. Dysterheft J, **Rice I**, Crytzer T. M. & Cooper R. *The Influence of Racing Glove Type on Kinetic and Spatial Temporal Parameters in Elite Wheelchair Racers*. American Spinal Cord Injury Professionals Conference(ASCIP). 8/31-9/3/2014. St. Louis, Missouri (Accepted Abstract Presentation)
15. **Rice I.**, Jayaraman C. & Sosnoff J. Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training In Novice Able Bodied Individuals. American Spinal Cord Injury Professionals Conference(ASCIP). 8/31-9/3/2014. St. Louis, Missouri (Poster Presentation)
16. Sosnoff J, Hsiao-Weckler ET, **Rice I**, ET Jayaraman C & Moon Y. *Variability in Wheelchair Propulsion: A New Window into an Old Problem*. American Spinal Cord Injury Professionals Conference (ASCIP). St. Louis, Missouri 8/31-9/3/2014. [Methodological design award winner]
17. **Rice I** & Motl R. *Physical activity intervention for persons with advanced Multiple Sclerosis*. International Seating Symposium (ISS) Nashville TN, 3/1/ 2015.
18. Liao F, Brooks I, Hsieh CW, **Rice IM**, Jankowska MM, and Jan YK. *Assessing complexity of heart rate variability in people with spinal cord injury using local scale exponents*. Proceeding of IEEE International Conference on Engineering in Medicine and Biology Society, 2014.
19. Learmonth, YC, **Rice, IM**, Ostler, T, Rice, LA, Motl, RW. *Implications for Informing the Design & Delivery of Interventions to Increase Physical Activity & Exercise Behaviors in Advanced Multiple Sclerosis*. CMSC ACTRIMS Annual Meeting, 2014.
20. **Rice I**, Jayaraman C. & Sosnoff J. *Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training in Reducing Injurious Propulsion Biomechanics in Novice Individuals*. 29th International Seating Symposium (ISS), Academic Paper Session. Nashville, TN, March 2013.
21. Hsu, I.M., Moon, Y., Jayaraman, C., **Rice, I**, Sosnoff J & Hsiao-Weckler E.T. *Variability of upper extremity kinematics and shoulder pain during wheelchair propulsion: A vector coding analysis*. American Society of Biomechanics (ASB). Omaha, NE, September 4-8, 2013.
22. Jayaraman, C., **Rice I.**, Moon, Y., Hsu, I.M., Hsiao-Weckler, H.T., Beck, C & Sosnoff, J.J. *A principal component analysis of kinematic variability during wheelchair propulsion*. American Society of Biomechanics (ASB). Omaha, NE, September 4-8, 2013.
23. Moon, Y., Jayaraman, C., Hsu, I. M., **Rice I., M.**, & Hsiao-Weckler, E.T & Sosnoff J.J. *Variability of peak shoulder force during wheelchair propulsion: The effect on shoulder pain*. American Society of Biomechanics (ASB). Omaha, NE, September 4-8, 2013.
24. **Rice I**, Sosnoff J, Jayaraman C, Hsu IM & Hsiao-Weckler ET. *Hand rim force variability during two speeds of wheelchair propulsion*. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, 2012.
25. Jayaraman C, Hsu IM, Moon YJ, Hsiao-Weckler E T, **Rice I**, Sosnoff J& Beck C. *Correlation analysis of upper extremity kinematics for manual wheelchair propulsion: A preliminary investigation on coupling between arm segments for people with spinal cord disorder*. American Society of Biomechanics, 2012.
26. Jayaraman C, Culp S, Anc Z, Beck C, **Rice I**, Sosnoff J. *Correlation analysis of upper extremity motion during manual wheelchair propulsion: A preliminary investigation on coupling between arm segments*. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, 2012.
27. Hsua IM, Jayaraman C, Culp S, **Rice I**, Hsiao-Weckler E T & Sosnoff, J. *Variability and complexity of shoulder motion during wheelchair propulsion*. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, 2012.

28. Salatin B, **Rice I**, Teodorski E, Ding D, Cooper RA. *A Survey of Outdoor Electric Powered Wheelchair Driving*. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, Las Vegas, NV, CD-Rom, June 26-30, 2010.
29. **Rice I**. *Manual Wheelchair Propulsion Feedback Training Software*. Proceedings of the International Seating Symposium, pp. 121-122, Orlando, FL, March 12-19, 2009.
30. **Rice I**, Boninger ML, Price R, Gallagher J. *Manual Wheelchair Propulsion Feedback Training Software*. Institute for Rehabilitation and Research Day, University of Pittsburgh, June 6, 2008.
31. Turkovich , M, Koontz AM, Cowan R, **Rice I**, Boninger ML. *The Effect of Shoulder Position on Pushrim Forces during Over Ground Manual Wheelchair Propulsion*. Proceedings of the Annual RESNA Conference, Arlington VA, CD-ROM, June 26-30, 2008.
32. Betz K, Cooper RA, **Rice I**, Dicianno BE. *Adaptive Sports: Professional Roles in Supporting Athlete Participation and Performance, International Seating Symposium*, p. 181-184, Orlando, FL, March 8-10, 2007.
33. Koontz AM, **Rice I**, Cowan R, Boninger ML. *Effects of Wheelchair Propulsion Training on Pushrim Kinetics, American Society of Biomechanics Annual Meeting*. Stanford University, CA, August 22-25, 2007.
34. Furui T, Furui M, Shiraishi K, Tsuchia Y & **Rice I**. *Childhood Interventions and Progressive Functional Limitation Among Adults with Cerebral Palsy at the age of 42*. 6th International Congress on Cerebral Palsy, Bled, Slovenia, April 20-22, 2006.
35. Furui T, Boninger ML, Hunt PC & **Rice I**. *Social Participation of Individuals with Spinal Cord Injuries Making the Transition from Walking to Using a Wheelchair*. Proceedings of the 20th Japanese Conference on the Advancement of Assistive and Rehabilitation Technology (RESJA), Saga City, Japan, pp. 188-189, September 2005.
36. **Rice I**, Boninger ML, Koontz AM & Cooper RA. *Characteristics of the Manual Wheelchair Propulsive Stroke Under Fatigue Conditions*. Proceedings of the 28th Annual RESNA Conference, Atlanta, GA, CD-ROM, June 25-27, 2005ROM, June 25-27, 2005.
37. Furui T, Boninger ML, Hunt PC, Fitzgerald SG & **Rice I**. *Effect of Transition from Walking to a Wheelchair on Participation in Spinal Cord Injury*. Proceedings of the 28th Annual RESNA Conference, Atlanta, GA, CD-ROM, June 25-27, 2005ROM, June 25-27, 2005
38. Koontz AM, **Rice I**, Boninger ML & Cooper RA. *Wheelchair Users with SCI Exhibit Paradoxical Trunk Movement during Propulsion*. 3rd International Congress, "Restoration of Wheeled Mobility in Spinal Cord Injury Rehabilitation: State of the Art III," Vrije Universiteit, Amsterdam, The Netherlands, April 19-21, 2004.
39. **Rice I**, Boninger ML, Souza AL, Cooper RA. *Wrist Pain Strength, and Function in Individuals with Paraplegia*. 26th Annual RESNA Conference, Atlanta, GA, CD-ROM, 2003.
40. **Rice I**, Koontz AM, Boninger ML, Cooper RA. *An Analysis of Trunk Excursion in Manual Wheelchair Users*. 27th Annual RESNA Conference, Orlando, FL, CD-ROM, June 20-22, 2004.
41. **Rice I**, Boninger ML, Koontz AM, Cooper RA. *Characteristics of the Manual Wheelchair Propulsive Stroke under Fatigue Conditions*. 28th Annual RESNA Conference, Atlanta, GA, CD-ROM, June 25-27, 2005.

TEACHING

Courses Taught

- Kin 199 Undergraduate Open Seminar, Disability through Popular Culture: Fall 2016-present.
- REHAB 520 Psychosocial Aspects of Disability (graduate): Spring 2011-2015
- Kin 360 Adapted Physical Education: Fall 2011, 2019-present.
- Kin 355 Biomechanics of Human Movement: 2012-present.
- Kin 494 Special Topics in Assistive Technology: 2014-2016, 2021- present.

Teaching awards (see longitudinal ICES report)

List of teachers ranked as excellent by their student based on Instructor and Course Evaluation (ICES) questionnaire forms maintained by Measurement and Evaluation, Center for Innovation in Teaching & Learning, UIUC:

Kin 522 Psychosocial Aspects of Disability- Fall 2015
 Kin 355 Human Movement Biomechanics)- Spring 2020, 2022
 Kin 199 Disability through Popular Culture Fall 2024, 2016, 2015
 KIN 520 Disability through Popular Culture Fall 2015
 KIN 360 Adapted Physical Education Fall 2011
 KIN 494 Assistive Technology, Spring 2022

Students Advised

Ph.D. Students:

1. Joseph Peters, PhD (Advisor) “The sub-acute effects of upper body high intensity interval training in persons with spinal cord injury” 2018-2022. Current position – Medical student University of Kansas.
2. Jennifer Dysterheft, PhD (Advisor) “Investigating the Determinents and Outcomes of Leisuretime Physical Activity Participation in University Students with Physical Disabilities ” 2012-2016, Current position - Assistant Professor of Exercise Science, Hamline University
3. Chandrasekaran Jayaraman, PhD (Co-advisor) “Shoulder Pain in Manual Wheelchair Users: Towards a Multidisciplinary Solution for a Multifaceted Problem” 2011-2016, Current position- Postdoctoral scholar at the Rehabilitation Institute of Chicago (RIC)
4. Jong Hun Sung, PhD (Co-Advisor) “Fall Prevention Among Full Time Wheelchair Users” 2016-2019. Current position – Assistant Professor Inha University, South Korea.

M.S. Students:

1. Joseph Peters, MS, (Co-advisor) “Influence of Body Position on Skin Pressure in Wheelchair Athletes” 2016-2018
2. Michael Groves, MS, (Primary advisor) 2016-2017, Non thesis option
3. Benjamin A. Salentine, MS, (Co-advisor and thesis advisor), “Manual versus power wheelchair propulsion: Quality of life and self-perception” 2011-2012, Current position- Associate Director of Health Sciences Managed Care — University of Illinois Hospital & Health Sciences System Chicago
4. Chandrasekaran Jayaraman, MS, (Co-advisor & thesis advisor) “Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training in Reducing Injurious Propulsion Biomechanics in Novice Individuals” 2011-2012

Undergraduate student research:

1. Kaushik Perkari
 - a. Undergraduate Research experience Fall 2020-Spring2022
 - b. Project = Data collection High Intensity Interval Training for wheelchair users
2. Kavin Lavari
 - a. Undergraduate Research experience Fall 2020-Spring 22
 - b. Project = Data collection High Intensity Interval Training for wheelchair users
3. Isaac Mordechai Soloveychik
 - Undergraduate Research experience Spring 2021
 - Project = Observation and data collection High Intensity Interval Training for wheelchair users
4. Isabella Wuxiaofeng
 - James scholar project (KIN 355) Fall 2021
 - Investigating the biomechanics of lower limb injuries in ballet dancers

Graduate Student Committee Membership:

1. Sunghoon Shin, PhD (KCH, Dissertation Committee Member) “Spinal Cord Injury and Seated Postural Control, Kinesiology”, completed 2011.
2. Yaejin Moon, MS (KCH, Master’s Thesis Committee Member) “Variability of Peak Shoulder Force During Wheelchair Propulsion in Manual Wheelchair Users With and Without Shoulder Pain”, completed 2013.

3. Marissa Sible, PhD (KCH, Dissertation Committee Member), “Assessment of accessibility and perceived accessibility of campus recreation facilities by students with mobility impairments”, 2013.
4. Karla Wessels, PhD (KCH, Dissertation Committee Member) “Concussions in Wheelchair Athletics”, completed 2015.
5. Alicia Pence, PhD (Department of Special Education, UIUC, Dissertation Committee Member) “School-Based Extracurricular Activity Participation of Secondary Students with Severe Disabilities”, completed 2016.
6. Sara Khosravinasr, PhD (KCH, Dissertation Committee Member) “A Model for Prediction of Modern Assistive Technology Abandonment among People with Disabilities”, completed 2017.
7. Kate Rougeau, PhD (KCH, Dissertation Committee Member), “An Examination of Affective Change in the Absence of Physical Sensation”, completed 2017.
8. Allan Gaglio, MS (Mechanical Engineering, UIUC), “An Investigation of the Effect of Gear Ratio on Manual Wheelchair Kinetics”, 2016.
9. Akhila Veerubhotla, Lakshmi, PhD (University of Pittsburgh, Human Engineering lab) “Wearable Sensors to Predict Energy Expenditure for Manual Wheelchair users with Spinal Cord Injury”, 2017-2018.
10. Xiong (Phillip) Qin, PhD (KCH, Dissertation Committee Member) “Physical Activity Participation and Obesity in U.S. Youth: A MIMS Equating Study” (Defense date: 11/12/2021)

SERVICE

Journal Editor:

1. The Journal of Spinal Cord Medicine, 2018-present (role: associate editor)
2. Sports Medicine and Rehabilitation Journal (Remedy Publications LLC.), 2017- 2020 (role: associate editor)

Journal Reviewer for:

1. Archives of Physical Medicine and Rehabilitation
2. Journal of Applied Biomechanics
3. Annals of Biomedical Engineering
4. Cogent Engineering
5. Medical Engineering & Physics
6. American Journal of Physical Medicine and Rehabilitation
7. Spinal Cord
8. Journal of Spinal Cord Injury Medicine
9. Topics in Spinal Cord Injury Medicine
10. Topics in Spinal Cord Injury Rehabilitation
11. Disability and Rehabilitation
12. Assistive Technology
13. Medical Engineering & Physics & Journal of Electromyography and Kinesiology
14. Journal of Aging Research
15. Transactions on Neural Systems and Rehabilitation Engineering
16. Sports Medicine and Rehabilitation Journal
17. Journal of Sports Medicine and Therapy
18. Disability and Health Journal
19. Journal of Healthcare engineering,
20. Journal of Rehabilitation Research & Development
21. PLOS ONE

Grant Reviewer for:

1. The American Institute of Biological Sciences (AIBS) Paralyzed Veterans of America (PVA), Education Foundation grant review panel, 2021, 2022, 2024.
2. Chancellor's Call to action Research Program, UIUC, 2023
3. University of Missouri Spinal Cord Injuries Research Program, 2011-2014, 2018
4. Natural Sciences and Engineering Research Council of Canada (NSERC). Discovery Grant Reviewer. *Wheelchairs and their efficiencies: a biomechanical approach*. January 6, 2014
5. Netherlands Organization for Health Research and Development (ZonMw) 2018
6. University of Illinois Research Board, (2014-present)
7. Toyota Mobility Unlimited Challenge, 2018

Other Reviews:

- Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Position Paper on the Application of Ultralight Manual Wheelchairs, 2021 (role: reviewer/editor)

Professional Membership:

- Visiting Advisory Board for Diversity and Equity Vanderbilt University, May 2016 (role: committee member)
- Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Professional Standards Board, 2013-2016 (role: committee member)
- American Spinal Cord Injury Professionals (ASCIP), 2015-present (role: member)

University/Campus Service:

- National Academy Kinesiology Doctoral Program Evaluation- 2019, 2023 (role: committee member)
- Diversity Equity and Inclusion Committee KCH, 2021 –present (role: chair)
- Diversity Equity and Inclusion Committee AHS, 2023 –present (role: committee member)
- Kinesiology Minor Administrator KCH, 2023 (role: committee member)
- Directors of Undergraduate Studies AHS, 2021-2023 (role: committee member)
- Classroom Scheduling Policy Committee, 2021(role: committee member)
- Education and Policy Committee, 2015-17, 2021-2023 (role: ex-officio)
- Curricular Revision Committee KCH, 2022 (role: committee member)
- KCH Website and Communications Committee, 2021-present (role: committee member)
- KCH Undergraduate Degree Taskforce, 2021-2023(role: committee member)
- Chittenden Symposium on Human Factors for Health Technology, April 13th, 2022 (role: committee member/symposium development)
- Advisory Committee KCH, 2021-present (role: ex-officio)
- Capricious Grading Committee, 2012-2014 (role: committee member)
- Graduate College Grants, 2012 (role: committee member/ reviewer)
- Search Committees-
 - Instructor/Teaching Assistant Professor Veterans' Health, 2023(role: committee member)
 - Open rank Biomechanics/Motor Control, 2022 (role: committee member)
 - Adjunct Instructor or Lecturer Community Health, 2022 (role: committee member)
 - Adjunct Instructor or Lecturer Kinesiology, 2022 (role: committee member)
 - Assistant Professor Adapted Physical Education and Physical Activity, 2022 (role: committee member)
 - Specialized Faculty Kinesiology, 2022 (role: committee member)
 - Assistant Professor Health Administration, 2019 (role: chair)
 - Assistant Professor Health Disparities and Disability, 2012 (role: committee member)

Non-University Service:

- Stephens Family YMCA, 2023-present (role: Board of Directors)