Paige Elizabeth Rice

Department of Health and Exercise Science, Wake Forest University,
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EDUCATION

Edith Cowan University

School of Medical and Health Sciences Joondalup, Western Australia, Australia

DOCTOR OF PHILOSOPHY, AUGUST 2021

MAJOR FIELD OF STUDY: EXERCISE AND SPORTS SCIENCE

(BIOMECHANICS/PHYSIOLOGY)

PRINCIPAL SUPERVISOR: DR. SOPHIA NIMPHIUS

CO-PRINCIPAL SUPERVISORS: DR. KIISA NISHIKAWA, DR. KEVIN A. ZWETSLOOT

DISSERTATION: DETERMINING MUSCLE-TENDON CHARACTERISTICS AND FUNCTION

OF STRETCH-SHORTENING CYCLE PERFORMANCE IN DANCERS

Appalachian State University

Department of Health & Exercise Science Boone, NC, USA

MASTER OF SCIENCE, MAY 2017

MAJOR FIELD OF STUDY: EXERCISE SCIENCE (BIOMECHANICS/PHYSIOLOGY)

ADVISOR: DR. JEFFREY M. McBRIDE

THESIS: COMPARISON OF LOWER LEG MORPHOLOGY AND STRETCH-SHORTENING CYCLE CAPABILITIES BETWEEN DANCERS AND VOLLEYBALL PLAYERS

University of Wisconsin- La Crosse

Department of Exercise and Sport Science La Crosse, WI, USA

BACHELOR OF SCIENCE, AUGUST 2014

MAJOR FIELD OF STUDY: EXERCISE AND SPORT SCIENCE

University of Wisconsin- La Crosse

Department of Exercise and Sport Science La Crosse, WI, USA

BACHELOR OF SCIENCE, AUGUST 2014
MAJOR FIELD OF STUDY: SPANISH

REFEREED JOURNAL PUBLICATIONS

- 1. RICE, P.E., NISHIKAWA, K., NIMPHIUS, S. STRENGTH AND POWER CAPABILITIES PREDICT WEIGHTED PARAMETER RANKING OF SAUT DE CHAT LEAPING PERFORMANCE IN DANCERS. SPORTS BIOMECHANICS, ONLINE AHEAD OF PRINT, 2021.
- 2. RICE, P.E., NIMPHIUS, S. WHEN TASK CONSTRAINTS DELIMIT MOVEMENT STRATEGY: IMPLICATIONS FOR ISOLATED JOINT TRAINING. FRONTIERS IN SPORTS AND ACTIVE LIVING, VOLUME 2, ARTICLE 49, PAGES 1-8, 2020.
- 3. RICE, P.E., NEEDLE, A.R., LEICHT, Z.S., ZWETSLOOT, K.A., MCBRIDE, J.M. MUSCLE PROPERTIES, BONE HEALTH AND STRETCH-SHORTENING CYCLE FUNCTION OF YOUNG AND ELDERLY MALES.

 JOURNAL OF MUSCULOSKELETAL AND NEURONAL INTERACTIONS, VOLUME 19, ARTICLE 4, PAGES 389-395, 2019.
- 4. NIMPHIUS, S., MCBRIDE, J.M., RICE, P.E., GOODMANN-CAPPS, C.L., CAPPS, C.R., SPITERI, T. COMPARISON OF QUADRICEP AND HAMSTRING MUSCLE ACTIVITY DURING ISOMETRIC SQUAT BETWEEN STRENGTH-MATCHED MEN AND WOMEN. JOURNAL OF SPORTS SCIENCE AND MEDICINE, VOLUME 18, PAGES 101-108, 2019.
- 5. MILLER, H.N., RICE, P.E., FELPEL, Z.J., STIRLING, A.M., BENGSTON, E.N., NEEDLE, A.R. INFLUENCE OF VISUAL MIRROR FEEDBACK AND ANKLE JOINT LAXITY ON DYNAMIC BALANCE IN TRAINED BALLET DANCERS. *JOURNAL OF DANCE MEDICINE & SCIENCE*, VOLUME 22, NUMBER 4, PAGES 184-191, 2018.
- 6. RICE, P.E., GURCHIEK, R.D., MCBRIDE, J.M. PHYSIOLOGICAL AND BIOMECHANICAL RESPONSES TO AN ACUTE BOUT OF HIGH KICKING IN DANCERS. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, VOLUME 32, NUMBER 10, PAGES 2954-2961, 2018.
- 7. RICE, P.E., H. VAN WERKHOVEN, E.K. MERRITT, J.M. MCBRIDE. LOWER LEG MORPHOLOGY AND STRETCH-SHORTENING CYCLE PERFORMANCE OF DANCERS. *Journal of Applied Biomechanics*, Volume 34, Number 3, Pages 211-219, 2018.
- 8. D.E. LIDSTONE, H. VAN WERKHOVEN, A.R. NEEDLE, **P.E. RICE**, J.M. MCBRIDE. GASTROCNEMIUS FASCICLE AND ACHILLES TENDON LENGTH AT THE END OF THE ECCENTRIC PHASE IN A SINGLE AND MULTIPLE COUNTERMOVEMENT HOP. *JOURNAL OF ELECTROMYOGRAPHY AND KINESIOLOGY*, VOLUME 48, PAGES 175-181, 2018.
- 9. RICE, P.E., H. VAN WERKHOVEN, D.J. DEIOURNETTE, R.D. GURCHIEK, J.W. MACKALL, J.M. MCBRIDE. COMPARISON OF MUSCULO-ARTICULAR STIFFNESS AND MAXIMAL ISOMETRIC PLANTARFLEXION AND KNEE EXTENSION FORCE IN DANCERS AND UNTRAINED INDIVIDUALS. *JOURNAL OF DANCE MEDICINE & SCIENCE*, VOLUME 21, NUMBER 4, PAGES 144-150, DECEMBER 2017.
- 10. RICE, P.E., C.L. GOODMAN, C.R. CAPPS, N.T. TRIPLETT, T.M. ERICKSON, J.M. McBride. Force- and power-time curve comparison during JUMPING BETWEEN STRENGTH MATCHED MALE AND FEMALE BASKETBALL PLAYERS. EUROPEAN JOURNAL OF SPORTS SCIENCE, VOLUME 17, PAGES 286-293, 2016.
- 11. LIDSTONE, D.E., H. VAN WERKHOVEN, J.A. STEWART, R. GURCHIEK, M. BURRIS, P. E. RICE, G. FEIMSTER, J.M. MCBRIDE. MEDIAL GASTROCNEMIUS MUSCLE-TENDON INTERACTION AND ARCHITECTURE CHANGE DURING EXHAUSTIVE HOPPING EXERCISE. JOURNAL OF ELECTROMYOGRAPHY AND KINESIOLOGY, VOLUME 30, PAGES 89-97, 2016.

MANUSCRIPTS IN REVIEW

- 1. RICE, P.E., NISHIKAWA, K., ZWETSLOOT, K.A., BRUCE, A.S., GUTHRIE, C.D., NIMPHIUS, S. STRETCH SHORTENING CYCLE PERFORMANCE AND MUSCLE-TENDON PROPERTIES IN DANCERS AND RUNNERS. *JOURNAL OF APPLIED BIOMECHANICS* (UNDER REVIEW, MARCH, 2021).
- 2. RICE, P.E., NISHIKAWA, K., NIMPHIUS, S. ANKLE-SPECIFIC BLOCK PROGRESSION TRAINING IMPROVES SAUT DE CHAT LEAPING PERFORMANCE IN DANCERS. JOURNAL OF SPORTS SCIENCE (UNDER REVIEW, JUNE, 2021).
- 3. RICE, P.E., NIMPHIUS, S., ABBISS, C., ZWETSLOOT, K.A., NISHIKAWA, K. MICRO-BIOPSIES: A LESS INVASIVE TECHNIQUE FOR HUMAN MUSCLE FIBER MECHANICS FRONTIERS IN PHYSIOLOGY (IN PREPARATION).

CONFERENCE ABSTRACTS

- 1. RICE, P.E., JARVIS, D. THE PRINCIPLES OF BIOMECHANICS APPLIED TO LEAPING: IMPLICATIONS FOR PERFORMANCE ENHANCEMENT AND INJURY RISK. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, DENVER, CO, 2021, ACCEPTED.
- 2. RICE, P.E., NIMPHIUS, S. ISOLATED ANKLE-JOINT TRAINING IMPROVES STRENGTH AND SAUT DE CHAT PERFORMANCE IN DANCERS WHILE MAINTAINING AESTHETICS. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, DENVER, CO, 2021, ACCEPTED.
- 3. RICE, P.E., NIMPHIUS, S., NISHIKAWA, K. MICRO-BIOPSY FIBER MECHANICS FROM THE MEDIAL GASTROCNEMIUS OF DANCERS. INTERNATIONAL SOCIETY OF BIOMECHANICS, STOCKHOLM, SWEDEN, 2021.
- 4. COPPING, L.F., RICE, P.E., VOLKOVA, V., YE, S., YUTZEY, E.F. HOW TO IDENTIFY QUALITY RESEARCH. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, ICONFERENCE, AUGUST, 2020.
- 5. RICE, P.E., NIMPHIUS, S. RELATIONSHIP BETWEEN MAXIMAL ANKLE STRENGTH AND SAUT DE CHAT LEAPING PERFORMANCE. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, MONTREAL, QUEBEC, OCTOBER 2019.
- 6. RICE, P.E., YUTZEY, E.F., COPPING, L.F., HABER, C.M., HORNYAK, E.K., MEDER, C.T., STEELE, L., DESCOTEAUX, J. THE RESEARCH PROCESS FOR STUDENTS IN DANCE MEDICINE AND SCIENCE. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, MONTREAL, QUEBEC, OCTOBER 2019.
- 7. RICE, P.E., ZWETSLOOT, K.A., BRUCE, A.S., GUTHRIE, C.D., GILLEN, L.A., NIMPHIUS, S. MUSCLE ACTION OF STRENGTH ASSESSMENT INFLUENCES PERFORMANCE RANKING IN ANKLE-DOMINANT ATHLETES. INTERNATIONAL CONFERENCE ON STRENGTH TRAINING, PERTH, WESTERN AUSTRALIA, DECEMBER, 2018.
- 8. RICE, P.E., ZWETSLOOT, K.A., NIMPHIUS, S. EMPLOYING AN ANKLE-SPECIFIC TRAINING PROGRAM TO MAXIMIZE THE AESTHETIC STRETCH-SHORTENING CYCLE IN DANCERS. INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE, HELSINKI, FINLAND, OCTOBER, 2018.
- 9. RICE, P.E., ZWETSLOOT, K.A., NEEDLE, A.R., BRUCE, A.S., GUTHRIE, C.D., GILLEN, L.A., NIMPHIUS, S. FORCE-VELOCITY PROFILES OF DANCERS AND ENDURANCE RUNNERS DURING ANKLE-SPECIFIC STRETCH-SHORTENING CYCLE TASKS. INTERNATIONAL SOCIETY OF BIOMECHANICS IN SPORTS, AUCKLAND, NEW ZEALAND, SEPTEMBER, 2018.

- 10. McBride, J.M., Rice, P.E., Needle, A.R., Leicht, Z.S., Zwetsloot, K.A. Lower leg morphology and stretch-shortening cycle performance in young and elderly males. International Society of Biomechanics in Sports, Auckland, New Zealand, September, 2018.
- 11. RICE, P.E., H. VAN WERKHOVEN, E.K. MERRITT, W.J. NORRIS, J.P. RODRIGUES, J.M. McBride. Stretch-shortening cycle performance in dancers. American Society of Biomechanics, Boulder, CO, August, 2017.
- 12. RICE, P.E., H. VAN WERKHOVEN, E.K. MERRITT, W.J. NORRIS, J.P. RODRIGUES, J.M. MCBRIDE. LOWER LEG MORPHOLOGY AND PLANTARFLEXION STRENGTH IN DANCERS. AMERICAN SOCIETY OF BIOMECHANICS, BOULDER, CO, AUGUST, 2017.
- 13.RICE, P.E., D. LISTONE, H. VAN WERKHOVEN, J. STEWART, R. GURCHIEK, M. BURRIS, G. FEIMSTER, J.M. McBride. Effect of exhaustive hopping on muscle-tendon interaction and architecture. *American Society of Biomechanics*, Raleigh, NC August 2016.
- 14. STEWART, J.A., K.A. ZWETSLOOT, P.E. RICE, V.P. GEORGESCU, D. LIDSTONE, R.D. GURCHIEK, S.C. CAPPS, J.M. McBride. Mechanical efficiency is lower after cycling compared to after running in trained triathletes. *National Strength & Conditioning Association*, New Orleans, LA July 2016.

PROFESSIONAL SERVICE

- 1. JOURNAL OF DANCE MEDICINE AND SCIENCE EDITORIAL BOARD MEMBER (2021-2024)
- 2. NSCA ABSTRACT REVIEW COMMITTEE (2018-2021)
- 3. International Association for Dance Medicine and Science Student Committee (2018-2020)
- 4. International Conference on Strength Training Student Committee (2018)
- 5. UPWARD BOUND RESEARCH MENTOR APPALACHIAN STATE UNIVERSITY (2018)
- 6. GUEST JOURNAL REVIEWER
 - A. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH
 - B. EUROPEAN JOURNAL OF SPORTS SCIENCE
 - C. JOURNAL OF SPORTS SCIENCES
 - D. SPORTS BIOMECHANICS
 - E. INTERNATIONAL JOURNAL OF SPORTS PHYSIOLOGY AND PERFORMANCE
 - F. MEDICAL PROBLEMS OF PERFORMING ARTISTS
 - G. JOURNAL OF APPLIED BIOMECHANICS
 - H. SCIENTIFIC REPORTS

TEACHING EXPERIENCE

1. 2021 (UNDERGRADUATE) - ASSESSMENT TECHNIQUES IN HEALTH & EXERCISE SCIENCE, DEPARTMENT OF HEALTH & EXERCISE SCIENCE, WAKE FOREST UNIVERSITY, WINSTON SALEM, NC.

- 2. 2021 (UNDERGRADUATE) HUMAN PHYSIOLOGY LABORATORY. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, WAKE FOREST UNIVERSITY, WINSTON SALEM, NC.
- 3. 2021 (UNDERGRADUATE) HYBRID ANATOMY LABORATORY. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 4. 2018 (GRADUATE) BIOMECHANICAL AND PHYSIOLOGICAL ASSESSMENT GUEST LECTURES. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 2018, (UNDERGRADUATE) INTRODUCTION TO PHYSIOLOGICAL ASSESSMENT. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 6. 2017-2018, (UNDERGRADUATE) ANATOMY & PHYSIOLOGY LABORATORY. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 7. 2017, (UNDERGRADUATE) ADVANCED PHYSIOLOGICAL ASSESSMENT. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 8. 2016, (Undergraduate) Exercise Physiology Guest Lecture. Department of Health & Exercise Science, Appalachian State University, Boone, NC.
- 2016, (UNDERGRADUATE) BIOMECHANICS GUEST LECTURES. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 10.2015-2016, (UNDERGRADUATE) BIOMECHANICS LABORATORY. DEPARTMENT OF HEALTH & EXERCISE SCIENCE, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 11.2015 (UNDERGRADUATE) PERSONAL TRAINING AND GROUP FITNESS.
 DEPARTMENT OF PHYSICAL EDUCATION MINNEAPOLIS COMMUNITY &
 TECHNICAL COLLEGE, MINNEAPOLIS, MN.

HONORS AND AWARDS

- 1. BIOLOGY RESEARCH AFFILIATE, AUGUST 2019-DECEMBER 2021, NORTHERN ARIZONA UNIVERSITY, FLAGSTAFF, AZ.
- 2. HIGHER DEGREE BY RESEARCH SCHOLARSHIP, FEBRUARY 2018-AUGUST 2021, EDITH COWAN UNIVERSITY, PERTH, WESTERN AUSTRALIA.
- 3. In-State North Carolina Tuition Scholarship, August 2016-May 2017, Appalachian State University, Boone, NC.
- 4. GRADUATE RESEARCH ASSISTANTSHIP, AUGUST 2015-MAY 2017, NEUROMUSCULAR & BIOMECHANICS LABORATORY, APPALACHIAN STATE UNIVERSITY, BOONE, NC.
- 5. In-State North Carolina Tuition Scholarship, August-December 2015, Appalachian State University, Boone, NC.

INTERNAL GRANTS

 EDITH COWAN UNIVERSITY, INTERNATIONAL COLLABORATION RESEARCH GRANT, MARCH 2019. PRINCIPLE INVESTIGATOR: PAIGE E. RICE, CO-INVESTIGATORS: KIISA C. NISHIKAWA, SOPHIA NIMPHIUS. FUNDED: \$5,000 AUD.

- 2. EDITH COWAN UNIVERSITY, CENTRE FOR EXERCISE AND SPORTS SCIENCE, RESEARCH GRANT, SEPTEMBER 2018. CALF MICRO-BIOPSY TECHNIQUE AND MECHANICAL ANALYSIS. PRINCIPLE INVESTIGATOR: SOPHIA NIMPHIUS, CO-INVESTIGATORS: PAIGE E. RICE, KEVIN A. ZWETSLOOT, KIISA C. NISHIKAWA. FUNDED: \$7,150.93 AUD.
- 3. APPALACHIAN STATE UNIVERSITY, GRADUATE STUDENT ASSOCIATION SENATE, TRAVEL GRANT, FEBRUARY 2017, 2017 AMERICAN SOCIETY OF BIOMECHANICS ANNUAL CONFERENCE. PRINCIPAL INVESTIGATOR: PAIGE E. RICE, CO-INVESTIGATORS: JEFFREY M. McBride. Funded: \$500 USD.
- 4. Appalachian State University, Appalachian Innovation Scholars Programs, Research Grant, January 2017. Muscle Health, Bone Health and Neuromuscular and Physical Functional Capabilities in the Elderly. Principle Investigator: Jeffrey M. McBride, Co-Investigators: Kevin Zwetsloot, Edward Merritt, Brooke Christian, Brooke Hester, Jennifer Burris, Cate Trate, Paige E. Rice. Not Funded: \$9,835 USD.
- 5. Appalachian State University, Graduate Student Association Senate, Research Grant, November 2016. Analysis of titin from microbiopsies. Principle Investigator: Paige E. Rice, Co-Investigator: Jeffrey M. McBride. Funded: \$100 USD.
- 6. APPALACHIAN STATE UNIVERSITY, OFFICE OF STUDENT RESEARCH, RESEARCH GRANT, SEPTEMBER 2016. ANALYSIS OF TITIN FROM MICROBIOPSIES. PRINCIPLE INVESTIGATOR: PAIGE E. RICE, CO-INVESTIGATOR: JEFFREY M. McBride. Funded: \$300 USD.
- 7. APPALACHIAN STATE UNIVERSITY, OFFICE OF STUDENT RESEARCH, TRAVEL GRANT, JULY 2016, 2016 AMERICAN SOCIETY OF BIOMECHANICS ANNUAL CONFERENCE. PRINCIPAL INVESTIGATOR: **PAIGE E. RICE**, CO-INVESTIGATORS: JEFFREY M. McBride. Funded: \$250 USD.

EXTERNAL GRANTS

- NATIONAL BIOMECHANICS DAY FOR WOMEN GRANT, FEBRUARY 2021. INVESTIGATOR: PAIGE E. RICE. CO-INVESTIGATOR: DANIELLE JARVIS. FUNDED: \$1,000 USD.
- CAPSTONE EDITING, CONFERENCE TRAVEL GRANT, JULY 2018. INVESTIGATOR: PAIGE E. RICE. CO-INVESTIGATOR: SOPHIA NIMPHIUS. NOT FUNDED: \$1,900 AUD.
- 3. International Society of Biomechanics in Sport, Student Travel Grant, May 2018. Investigator: Paige E. Rice. Funded: \$200 NZD.
- 4. JOURNAL OF FUNCTIONAL MORPHOLOGY AND KINESIOLOGY, PHD STUDENT TRAVEL AWARD, MAY 2018. INVESTIGATOR: **PAIGE E. RICE**, CO-INVESTIGATOR: SOPHIA NIMPHIUS. NOT FUNDED: \$600 USD.
- 5. National Strength and Conditioning Association, Doctoral Research Grant, March 2018. Investigator: **Paige E. Rice**, Co-Investigators: Kevin A. Zwetsloot, Sophia Nimphius. Funded: \$8,900 USD.
- 6. Sports, Ph.D. Travel Grant, October 2017. Investigator: Paige E. Rice, Co-Investigators: Kevin A. Zwetsloot, Jeffrey M. McBride. Not Funded: \$815 USD.
- 7. AMERICAN SOCIETY OF BIOMECHANICS, STUDENT TRAVEL GRANT, MAY 2017. INVESTIGATOR: PAIGE E. RICE, CO-INVESTIGATOR: JEFFREY M. MCBRIDE. FUNDED: \$250 USD.

PROFESSIONAL MEMBERSHIPS

NATIONAL STRENGTH & CONDITIONING ASSOCIATION (NSCA)
INTERNATIONAL ASSOCIATION FOR DANCE MEDICINE AND SCIENCE (IADMS)
INTERNATIONAL SOCIETY OF BIOMECHANICS (ISB)

REFERENCES

KIISA NISHIKAWA, PHD, REGENTS' PROFESSOR, DEPARTMENT OF BIOLOGICAL SCIENCES, PO BOX 5640 NORTHERN ARIZONA UNIVERSITY, FLAGSTAFF, AZ, 86011, USA. TELEPHONE: +1 928 523-9497 FAX: +1 928 523-7500 EMAIL: KIISA.NISHIKAWA@NAU.EDU

SOPHIA NIMPHIUS, PHD, PROFESSOR, SCHOOL OF MEDICAL AND HEALTH SCIENCES, 270 JOONDALUP DRIVE, EDITH COWAN UNIVERSITY, JOONDALUP, WA 6027 AUSTRALIA. TELEPHONE: +61 8 6304 5848, FAX: +61 8 6304 5036, EMAIL: S.NIMPHIUS@ECU.EDU.AU

KEVIN A. ZWETSLOOT, PHD, ASSOCIATE PROFESSOR, DEPARTMENT OF HEALTH & EXERCISE SCIENCE, DEPARTMENT OF BIOLOGY (SECONDARY APPOINTMENT), 1179 STATE FARM RD, APPALACHIAN STATE UNIVERSITY, BOONE, NC, 28608 USA. TELEPHONE: (828)-262-7281, FAX: (828)-262-3138, EMAIL: ZWETSLOOTKA@APPSTATE.EDU