OMB No. 0925-0001 and 0925-0002 (Rev. 10/2021 Approved Through 09/30/2024)

# BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: JoEllen Sefton

eRA COMMONS USER NAME (credential, e.g., agency login): JMSEFTON

POSITION TITLE: Professor, Director Warrior Research Center

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

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| --- | --- | --- | --- |
| INSTITUTION AND LOCATION  | DEGREE *(if* *applicable)*   | Completion Date MM/YYYY   | FIELD OF STUDY   |
| Ohio University | B.S.  | 1982 | Zoology  |
| Connecticut Center for Massage Therapy | Cert  | 1995 | Therapeutic Massage  |
| Central Connecticut State University | M.S.  | 2003 | Exercise Science/Athletic Training (2001)  |
| University of North Carolina at Charlotte | Ph.D.  | 2007 | Interdisciplinary Biology  |

# A. Personal Statement

The goal of much of my work is to expand our knowledge of how massage therapy and other therapies influence physiological and functional processes, with the goal of providing evidence/science-based knowledge to therapists that improves clinical outcomes. In my role as Director of the Warrior Research Center I work to improve force readiness, through improving the health, wellness and performance of tactical athletes while reducing injury. There is a great deal of crossover between these two areas, and we work with many different holistic methods and technologies to improve performance, reduce injury, speed healing, and improve overall health and wellness. Musculoskeletal pain is a common issue with my population. Finding ways to evaluate, reduce and treat pain is a common theme in our research. Finally, as a professor I see student training and mentorship as my most important responsibility as a Professor. I feel strongly that students need to be trained to be independent researchers, building skills that will enable them to build a laboratory and conduct independent research when they graduate. Thus, my students are fully involved in all of my work and a critical part of our team and our success.

# B. Positions and Honors

# Positions and Employment

2018 – present Auburn University Full Professor

# 2007 – 2018 Auburn University Assistant/Associate Professor

2005 – 2007 University of North Carolina, Charlotte Doctoral Fellow/Instructor

2003 – 2005 Indiana State University Doctoral Fellow/Instructor

2001 – 2003 University of New Haven Assistant Athletic Trainer

1995 – 2005 Medical Massage Therapist

Other Experience

2017 Affiliate Faculty Appointment, Auburn University Raymond J. Harbert College of Business

2017 Affiliate Faculty Appointment, Auburn University School of Aviation

2017 Affiliate Faculty Appointment, Auburn University College of Engineering, Department of Ind/Systems Engineering

2009 Massage Therapy Body of Knowledge Task Force Member, Massage Therapy Stewards

Academic Honors

2019 Outstanding Faculty Award for Outreach, College of Education

2012 Outstanding Faculty Award for Outreach, College of Education

2010 Emily and Gerald Leischuck Graduate Teaching Award, College of Education

2009 Society for Neuroscience featured abstract, Society for Neuroscience

2009 Young Investigator Award, College of Education.

# Contributions to Science

My research focus comes from by training and experience as a health care provider. As a licensed and certified athletic trainer and massage therapist I have worked in multiple venues and with a wide range of populations. This experience guides my effort to answer practical questions that will have a positive impact on both providers and patients. My training and experience as a massage therapist has influenced all my training, practice and research that came after it. The intimate work with how the muscles and fascia influence the health and function of all the bodies systems is a guiding principal. Seeking to understand how this works is what brought be to academia. At that time we lacked a basic knowledge of how and why manual therapy was effective, and only a clinical knowledge that it was effective. My beginning work sought to add to this knowledge base.

**Sefton J**, Yarar C, Carpenter D, Pascoe D. Therapeutic Massage of the Neck and Shoulders Produces Changes in Peripheral Blood Flow When Assessed with Dynamic Infrared Thermography. *Journal of Complementary and Alternative Medicine*. 2010;16:723-732. DOI: [10.1089/acm.2009.0441](https://doi.org/10.1089/acm.2009.0441) (IF 1.395).

**Sefton J**, Yarar C\*, Carpenter D 5%, Berry J. Physiological and clinical changes after therapeutic massage of the neck and shoulders. *Manual Therapy*. 2011;16:487-494. DOI: [10.1016/j.math.2011.04.002](https://doi.org/10.1016/j.math.2011.04.002) (IF 2.08).

**Sefton J**, Shea M, Hines C 5%. Developing, maintaining, and utilizing a body of knowledge for the massage therapy profession. *The International Journal of Therapeutic Massage and Bodywork.* 2011;4:1-12. PMCID:PCM3184471.

**Sefton J**, Yarar C\*, Berry J. Massage therapy produces short-term improvements in balance, neurological and cardiovascular measures in older persons. *International Journal of Therapeutic Massage and Bodywork* 2012;5:16-27.

**Sefton J**, Yarar C\*, Berry J. Six weeks of massage therapy produces changes in balance, neurological and cardiovascular measures in older persons. *The International Journal of Therapeutic Massage and Bodywork*. 2012;5:28-40. PMCID: PMC3457720).

**Sefton JM**, Dexheimer J, Munk N, Miccio R, Kennedy AB, Cambron J, MacDonald G, Hemsworth R. A research agenda for the massage therapy profession: a report from the massage therapy foundation. *The International Journal of Therapeutic Massage and Bodywork*. 2020; 13(4) 42-46. PMID: [33282035](https://www.ncbi.nlm.nih.gov/pubmed/33282035) (IF 0.41).

An extension of the massage work was to learn how other therapies influence the musculoskeletal system. Whole body vibration and similar therapies have many things in common with manual therapy. What we learn about one therapy can help us understand others.

Games K\*, **Sefton J**. Whole-body vibration influences lower extremity circulatory and neurological function. *Scandinavian Journal of Medicine and Science in Sports*. 2011; 23(4) 516-523. DOI: [10.1111/j.1600-0838.2011.01419.x](https://doi.org/10.1111/j.1600-0838.2011.01419.x) (IF 3.025).

Games K\*, **Sefton J**. Whole-body vibration influences lower extremity circulatory and neurological function. *Scandinavian Journal of Medicine and Science in Sports*. 2013;23:516-23. DOI: [10.1111/j.1600-0838.2011.01419.x](https://doi.org/10.1111/j.1600-0838.2011.01419.x) (IF 3.025).

Yarar-Fisher C\*, Pascoe D, Gladden L, Quindry J, Hudson J, **Sefton J**. Acute physiological effects of whole body vibration (WBV) on central hemodynamics, muscle oxygenation and oxygen consumption in individuals with chronic spinal cord injury. *Disability and Rehabilitation*. 2014. DOI: [10.3109/09638288.2013.782358](https://doi.org/10.3109/09638288.2013.782358) (IF 1.985).

Games K\*, **Sefton J**, Wilson A. Whole-body vibration and blood flow and muscle oxygenation: A meta-analysis. *Journal of Athletic Training*. 2015;50:542-9. DOI: [10.4085/1062-6050-50.2.09](https://doi.org/10.4085/1062-6050-50.2.09) (IF 2.478).

Kephart W, Mobley B, Fox CD, Pascoe D, **Sefton J**, Wilson TJ, Goodlett MD, Kavazis AN, Roberts MD, Martin JS. A single bout of whole-leg, peristaltic pulse external pneumatic compression upregulates PGC-1α mRNA and eNOS protein in human skeletal muscle tissue. *Experimental Physiology*. 2015;100:852-864. DOI: [10.1113/EP085160](https://doi.org/10.1113/EP085160) (IF 2.818).

Games KE, Lakin JM, Quindry JC, Weimar WH, **Sefton JM**. Local pressure application effects on neurological and circulatory function. *Aerosp Med Hum Perform*. 2018; 89(8):693–699. DOI:10.3357/AMHP.4675.2018. (IF 0.85).

Lyons KD, Coker J, Parks A, DadeMatthews O, Zabala M, **Sefton JM**. Core and whole body vibration exercise influences muscle sensitivity and posture during a military foot march. *Int. J. Environ. Res. Public Health*. 2021; 18(9): 4966.

Lyons KD, Parks A, DadeMatthews O, Zandieh N, McHenry P, Games KA, Goodlett, M, Murrah W, Roper JA, **Sefton JM**. Core and whole-body vibration exercise improves military foot march performance. Military Med. Accepted 7-7-2021 (IF 0.906).

My work with tactical athletes has been a cornerstone of my career. While many of the musculoskeletal issues are similar to other physically active people, the population presents many challenges. The specific job tasks required and the inability to ‘take a seat’ when injured makes this a challenging field. Finding ways to prevent injury, improve performance and keep our tactical athletes healthy and well has been my goal for the past 12 years. This effort began when I was asked to build a sports medicine program at Ft Benning, GA., one of the largest Army training centers in the world. This request changed my research focus and my career. This also resulted in 5 military white papers and over 85 technical reports that are restricted.

Hawkins R\*, **Sefton J**. Effects of stance width on performance and postural stability in national-standard pistol shooters. *Journal of Sports Sciences.* 2011;29:13:1381-1387. PMCID: PMD3457719 (IF 2.142).

Sefton JM, Burkhardt TA. Introduction to the tactical athlete special issue. *J of Athletic Training*. 2016. 15(11)845.

Games K\*, Lakin J, Quindry J, Weimar W, **Sefton J**. Prolonged restricted sitting effects in UH-60 helicopters. *Aerospace Medicine and Human Performance*. January (1st Quarter/Winter) 2015. DOI: [10.3357/AMHP.4092.2015](https://doi.org/10.3357/AMHP.4092.2015) (IF 0.85).

Games K\*, **Sefton J**. Tissue changes during operational load bearing conditions of the UH-60 Black Hawk helicopter using high field magnetic resonance imaging. *Aerospace Medicine and Human Performance*. June 2015. DOI: [10.3357/AMHP.4227.2015](https://doi.org/10.3357/AMHP.4227.2015) (IF 0.85).

Kollock R\*, Games K\*, **Sefton J**. Effects of vehicle-ride exposure on cervical pathology - a meta-analysis. *Industrial Health*. September 2015. DOI: [10.2486/indhealth.2014-0156](https://doi.org/10.2486/indhealth.2014-0156) (IF 1.057).

Kollock RR\*, Games K\*, Wilson A, Sefton J. Vehicle ride exposure and spinal musculature fatigue in military warfighters: a meta-analysis. Journal of Athletic Training. 2016;51(11):981-990. DOI: 10.4085/1062-6050-51.9.13 (IF 2.478).

Games K\*, Lakin J, Quindry J, Weimar W, **Sefton J**. Effects of local pressure application on discomfort, temperature, and limb oxygenation. *Aviation, Space and Environmental Medicine*. August 2016. DOI: [10.3357/AMHP.4516.2016](https://doi.org/10.3357/AMHP.4516.2016) (IF 0.85)

Kollock R\*, Andrews C\*, Elliott T\*, Games K\*, Wilson A, **Sefton J**. A meta-analysis to determine if lower extremity muscle strengthening should be included in military knee-overuse injury-prevention programs. *Journal of Athletic Training*. 2016;51:919-926. DOI: [10.4085/1062-6050-51.4.09](https://doi.org/10.4085/1062-6050-51.4.09) (IF 2.478).

**Sefton J**, McAdam J\*, Pascoe D, Lohse K, Banda RL\*, Jenault CB\*, Cherrington AR\*, Adams NE\*. Evaluation of 2 heat-mitigation methods in Army trainees. *Journal of Athletic Training*. 2016;51:936-945. DOI: [10.4085/1062-6050-51.10.13](https://doi.org/10.4085/1062-6050-51.10.13) (IF 2.478).

**Sefton J**, McAdam J\*, Lohse K. Prediction of Injuries and Injury Types in Army Basic Training, Infantry, Armor, and Cavalry Trainees Using a Common Fitness Screen. *Journal of Athletic Training*. 2016;51:849-857. DOI: [10.4085/1062-6050-51.9.09](https://doi.org/10.4085/1062-6050-51.9.09) (IF 2.478, 30 citations).

Strube EM\*, Sumner A\*, Kollock R, Games K\*, Lackamp MA\*, Mizutani M\*, **Sefton J**. The effect of military load carriage on postural sway, forward trunk lean, and pelvic girdle motion. *International Journal of Exercise Science*. 2017; 10(1) 3. PMCID:PMC5213736.

Hanks M,\* **Sefton J,** Oliver G. Neck kinematics and electromyography while wearing head supported mass during running. *Aerosp Med Hum Perform*. 2018; 89(1):9-13. DOI:10.3357/AMHP.4955.2018.( IF 0.85).

Games KE, Lakin JM, Quindry JC, Weimar WH, **Sefton JM**. Local pressure application effects on neurological and circulatory function. *Aerosp Med Hum Perform*. 2018; 89(8):693–699. DOI:10.3357/AMHP.4675.2018. (IF 0.85).

As a sports medicine professional much of my early work focused specifically on sports injury. Discovering how the nervous system specifically responded to common pathologies. This work was great training both on techniques and experience designing research to solve specific practical problems.

**Sefton J**. An examination of factors that influence knowledge and reporting of head injuries in college football. 2003. Central Connecticut State University Thesis .

Cordova ML, Hubbard TJ, **Sefton J**. Mechanical Joint Laxity Associated with Chronic Ankle Instability: A Systematic Review. *Sports Health: A Multidisciplinary Approach*. 2010;2:452-459. DOI: [10.1177/1941738110382392](https://doi.org/10.1177/1941738110382392).

**Sefton J**, Hicks-Little CA, Koceja DD, Hubbard TJ, Clemens MG, Yengo CM, Cordova ML. Sensorimotor function as a predictor of chronic ankle instability. *Journal of Clinical Biomechanics*. 2009;24:451-458. [10.1016/j.clinbiomech.2009.03.003](https://doi.org/10.1016/j.clinbiomech.2009.03.003) (IF 2.12).

Cordova ML, Bernard LW, Au KK, **Sefton J**. The effects of cryotherapy and ankle bracing on peroneus longus response during sudden inversion. *Journal Electromyography and Kinesiology*. 2010;20:348-353. [DOI: 10.1016/j.jelekin.2009.03.012](https://doi.org/10.1016/j.jelekin.2009.03.012) (IF 2.06).

**Sefton J**, Hicks-Little CA, Koceja DM, Cordova ML. Effect of Inversion and Ankle Bracing on Peroneus Longus the Hoffmann Reflex. *Scandinavian Journal of Medicine and Science in Sports*. 2008;15:539-546. DOI: 1[0.1111/j.1600-0838.2006.00593.x](https://doi.org/10.1111/j.1600-0838.2006.00593.x) (IF 3.025).

**Sefton J**, Hicks-Little CA, Koceja DM, Cordova ML. Segmental Spinal Reflex Adaptations Associated with Chronic Ankle Instability. *Archives of Physical Medicine and Rehabilitation*. 2008;89:1991-1995. DOI: [10.1016/j.apmr.2008.03.014](https://doi.org/10.1016/j.apmr.2008.03.014) (IF 3.045).

**Sefton J**, Koceja DM, Cordova ML. Modulation of soleus H-reflex by presynaptic spinal mechanisms during varying surface and ankle brace conditions. *Neurophysiologie Clinique*. 2007;37:15-21. DOI: [10.1016/j.neucli.2007.01.007](https://doi.org/10.1016/j.neucli.2007.01.007) (IF 2.32).

**Sefton J**, Hicks-Little CA, Yarar C\*, Berry J, Cordova ML. Six-weeks of balance training program improves sensorimotor function in individuals with chronic ankle instability. *Journal of Orthopaedic and Sports Physical Therapy*. 2010;41:81-89. DOI: 10.2519/jospt.2011.3365 (IF 3.011).

**Sefton J**, Games K\*. Effects of balance training in individuals with CAI. *Lower Extremity Review*. 2011;3:31-35. (1 citation).

. Radzak KN, **Sefton JM**, Timmons MK, Lopp R, Stickley CD, Lam KC. Musculoskeletal Injury in Reserve Officers Training Corps: A Report from the Athletic Training Practice-Based Research Network. *Orthopaedic Journal of Sports Medicine*. Accepted 4-16-2020. (IF 2.589).

Games KE, Winklemann ZK, McGinnis KD, McAdam JS, Pascoe DD, **Sefton JM.** Functional performance of firefighters after exposure to environmental conditions and exercise. *Journal of Athletic Training*; 2020; 55(1). doi: 10.4085/1062-6050-75-18. (IF 2.478).

McGinnis KD,\* McAdam JS,\* Lockwood, CM, Young, KC, Roberts MD, **Sefton JM.** Impact of protein and carbohydrate supplementation on musculoskeletal injuries in army initial entry training soldiers. *Nutrients;*2018;10(12). doi.org/10.3390/nu10121938. (IF 3.55).

McAdam JS\*, McGinnis KD,\* Ory, RL,\* Young, KC, Fruge’, AD, Roberts MD, **Sefton JM**. Estimation of energy balance and training volume during Army Initial Entry Training. *Journal of the International Society of Sports Nutrition*. 2018;15(15). [doi.org/10.1186/s12970-018-0262-7](https://doi.org/10.1186/s12970-018-0262-7) (IF 3.135).

McAdam JS,\* McGinnis KD,\* Beck, DT, Haun, CT,\* Romero, MA,\* Mumford, PW,\* Robertson, PA,\* Young, KC, Lohse KR, Lockwood, CM, Roberts MD, **Sefton JM**. Effect of whey protein supplementation on physical performance and body composition in Army initial entry training soldiers. *Nutrients* 2018; 10(9). DOI: 10.3390/nu10091248. (IF 3.55).

**Sefton JM**. McGinnis KD,\* Beck DT, Haun CT, Romero MA, Mumford PW, Robertson PA, Young KC, Roberts MD, McAdam JS. Markers of bone health and impact of whey protein supplementation in Army initial entry training Soldiers: a double-blind placebo-controlled study. *Nutrients*. 2020;12(8), 2225. doi: [10.3390/nu12082225](https://dx.doi.org/10.3390/nu12082225) (IF 3.55).

Hirschhorn R., DadeMatthews O, Sefton, JM. Exertional heat stroke knowledge and management among emergency medical service providers. *Int. J. Environ. Res. Public Health*. 2021; 18, 5016. doi: [10.3390/ijerph18095016](https://dx.doi.org/10.3390/ijerph18095016) (IF 3.390).

# Published Work

<https://www.ncbi.nlm.nih.gov/myncbi/joellen.sefton.1/bibliography/public/>