CURRICULUM VITAE

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EDUCATION

Ph.D.	Major: Integrated Systems Engineering May 2022 The Ohio State University Columbus, Ohio
M.S.	Major: Mechanical Engineering January 2005 The Ohio State University Columbus, Ohio
B.S.	Major: Mechanical Engineering December 2002 The Ohio State University Columbus, Ohio

POSITIONS

2022 to present	Senior Researcher, Associate Director Spine Research Institute, The Ohio State University
2010 to present	Senior Researcher, Computational Modeling Director Spine Research Institute, The Ohio State University

2005 to 2010	Senior Research Associate Engineer Spine Research Institute, The Ohio State University
2002 to 2005	Graduate Research Associate Biodynamics Laboratories, The Ohio State University
2000 to 2001	Engineering Intern Lockheed Martin Tactical Defense Systems

PUBLICATIONS

Refereed Journals

1. Korkmaz SV, Hoyle JA, Knapik GG, Splittstoesser RE, Yang G, Trippany DR, Lahoti P, Sommerich CM, Lavender SA, Marras WS. “Baggage handling in an airplane cargo hold: An ergonomic intervention study.” *International Journal of Industrial Ergonomics*. 2006 36:301-312.

2. Theado EW, Knapik GG, Marras WS. “Modification of an EMG-assisted biomechanical model for pushing and pulling.” *International Journal of Industrial Ergonomics*. 2007 37(11-12):825-831.

3. Splittstoesser RE, Yang G, Knapik GG, Trippany DR, Hoyle JA, Lahoti P, Korkmaz SV, Sommerich CM, Lavender SA, Marras WS. “Spinal loading during manual materials handling in a kneeling posture.” *J Electromyogr Kinesiol*. 2007 Feb;17(1):25-34.

4. Marras WS, Knapik GG, Ferguson S. “Loading along the lumbar spine as influenced by speed, control, load magnitude, and handle height during pushing.” *Clinical Biomechanics*. 2009 Feb;24(2):155-63.

5. Marras WS, Knapik GG, Ferguson S. “Lumbar spine forces during manoeuvring of ceiling-based and floor-based patient transfer devices.” *Ergonomics*. 2009 Mar;52(3):384-97.

6. Knapik GG, Marras WS. “Spine loading at different lumbar levels during pushing and pulling.” *Ergonomics*. 2009 Jan;52(1):60-70.

7. Ferguson SA, Marras WS, Gary Allread W, Knapik GG, Vandlen KA, Splittstoesser RE, Yang G. “Musculoskeletal disorder risk as a function of vehicle rotation angle during assembly tasks.” *Appl Ergonomics*. 2011 Jul;42(5):699-709.

8. Knapik GG, Mendel E, Marras WS. “Use of a personalized hybrid biomechanical model to assess change in lumbar spine function with a TDR compared to an intact spine.” *Eur Spine J*. 2012 Jun;21 Suppl 5:S641-52.

9. Ferguson SA, Marras WS, Allread WG, Knapik GG, Splittstoesser RE. “Musculoskeletal disorder risk during automotive assembly: current vs. seated.” *Appl Ergon*. 2012 Jul;43(4):671-8.

10. Howell KJ, McGlumphy EA, Drago C, Knapik G. “Comparison of the accuracy of Biomet 3i Encode Robocast Technology and conventional implant impression techniques.” *Int J Oral Maxillofac Implants*. 2013 Jan-Feb;28(1):228-40.

11. Dufour JS, Marras WS, Knapik GG. “An EMG-assisted model calibration technique that does not require MVCs.” *J Electromyogr Kinesiol*. 2013 Jun;23(3):608-13.

12. Le P, Rose J, Knapik G, Marras WS. “Objective classification of vehicle seat discomfort.” *Ergonomics*. 2014;57(4):536-44.

13. Hwang J, Knapik GG, Dufour JS, Marras WS. “Curved muscles in biomechanical models of the spine: a systematic literature review.” *Ergonomics*. 2016 Jun 2:1-12.

14. Hwang J, Knapik GG, Dufour JS, Aurand A, Best TM, Khan SN, Mendel E, Marras WS. “A biologically-assisted curved muscle model of the lumbar spine: Model structure.” *Clinical Biomechanics*. 2016 Aug; 37:53-9.

15. Hwang J, Dufour JS, Knapik GG, Best TM, Khan SN, Mendel E, Marras WS. “Prediction of magnetic resonance imaging-derived trunk muscle geometry with application to spine biomechanical modeling.” *Clinical Biomechanics*. 2016 Aug; 37:60-4

16. Hwang J, Knapik GG, Dufour JS, Best TM, Khan SN, Mendel E, Marras WS. “A biologically-assisted curved muscle model of the lumbar spine: Model validation.” *Clinical Biomechanics*. 2016 Aug; 37:153-9.

17. Alizadeh M, Zindl C, Allen MJ, Knapik GG, Fitzpatrick N, Marras WS. “MRI cross sectional atlas of normal canine cervical musculoskeletal structure.” *Res Vet Sci*. 2016 Sep 30; 109:94-100.

18. Hwang J, Knapik GG, Dufour JS, Best TM, Khan SN, Mendel E, Marras WS. “Validation of a personalized curved muscle model of the lumbar spine during complex dynamic exertions.” *Journal of Electromyography and Kinesiology*. 2017 33: 1-9.

19. Alizadeh M, Knapik GG, Dufour JS, Zindl C, Allen MJ, Bertran J, Fitzpatrick N, Marras WS. “An EMG-driven biomechanical model of the canine cervical spine.” *Journal of Electromyography and Kinesiology*. 2017 32: 101-109

20. Le P, Aurand A, Dufour JS, Knapik GG, Best TM, Khan SN, Mendel E, Marras WS. “Development and testing of a moment-based coactivation index to assess

complex dynamic tasks for the lumbar spine." *Clinical Biomechanics*. 2017 46: 23-32

21. Weston EB, Aurand A, Dufour JS, Knapik GG, Marras WS. "Biomechanically determined hand force limits protecting the low back during occupational pushing and pulling tasks." *Ergonomics*. 2017 Dec 21:1-13.

22. Weston EB, Alizadeh M, Knapik GG, Wang X, Marras WS. "Biomechanical evaluation of exoskeleton use on loading of the lumbar spine." *Applied Ergonomics*. 2018 68: 101-108.

23. Picchiotti MT, Weston EB, Knapik GG, Dufour JS, Marras WS. "Impact of two postural assist exoskeletons on biomechanical loading of the lumbar spine." *Applied Ergonomics*. 2019 Feb;75:1-7.

24. Alizadeh M, Knapik GG, Mageswaran P, Mendel E, Bourekas E, Marras WS. "Biomechanical musculoskeletal models of the cervical spine: A systematic literature review." *Clinical Biomechanics*. 2020 Jan;71:115-124

25. Weston EB, Aurand AM, Dufour JS, Knapik GG, Marras WS. "One versus two-handed lifting and lowering: lumbar spine loads and recommended one-handed limits protecting the lower back." *Ergonomics*. 2020 Apr;63(4):505-521.

26. Alizadeh M, Aurand A, Knapik GG, Dufour JS, Mendel E, Bourekas E, Marras WS. "An electromyography-assisted biomechanical cervical spine model: Model development and validation." *Clinical Biomechanics*. 2020 Dec;80:105169.

27. Weston EB, Alizadeh M, Hani H, Knapik GG, Souchereau RA, Marras WS. "A physiological and biomechanical investigation of three passive upper-extremity exoskeletons during simulated overhead work." *Ergonomics*. 2021 Aug 14:1-13.

Book Chapters

1. Marras, W.S., Knapik, G.G., and J. Gabriel (2008) The Development of a Personalized Hybrid EMG-Assisted/Finite Element Biomechanical Model to Assess Surgical Options" in Yue, J.J. Bertagnoli, R, McAffee, P.C., and An H.S. (eds.) *Motion Preservation Surgery of the Spine: Advanced Techniques and Controversies.* Saunders/Elsevier Inc. Philadelphia, PA. pg 687-694.