

Jeff A. Nessler, Ph.D.

Professor

Academic Address

Department of Kinesiology
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Education and Training

- 2005-2006 **Postdoctoral Fellow, Rehabilitation Engineering**, Feinberg School of Medicine, Northwestern University and Rehabilitation Institute of Chicago, Chicago, IL.
- 2002-2005 **Ph.D. in Mechanical and Aerospace Engineering**, University of California, Irvine
Dissertation: *Robotic Assessment of Locomotor Ability Following Spinal Cord Injury in Rats.*
- 2000-2002 **M.S. in Mechanical and Aerospace Engineering**, University of California, Irvine
Project: *Affordable Actuator Backdriveability for Human-Robot Interaction: the Series Elastic Servomotor.*
- 1998-2000 **M.A. in Physical Education**, San Diego State University
Thesis: *The Use of Radiographic Absorptiometry to Quantify Bone Mineral Density Loss Resulting from Disuse.*
- 1993-1997 **B.S. in Sports Medicine**, 1997, Pepperdine University, Malibu, CA

Academic Employment History

- 2018-present **Professor**, Department of Kinesiology,
California State University, San Marcos, CA 92096
- 2013-2018 **Associate Professor and Chair** (chair through Summer 2019), Department of Kinesiology,
California State University, San Marcos, CA 92096
- 2014-2016 **Visiting Professor** (Summer term), Division of Natural Science,
Pepperdine University, Malibu, CA 90263
- 2008-2013 **Assistant Professor**, Department of Kinesiology,
California State University, San Marcos, CA 92096
- 2006-2008 **Assistant Professor**, Department of Kinesiology,
California State Polytechnic University, Pomona, CA 91768
- 2006 **Adjunct Professor**, School of Physical Therapy,
Chapman University, Orange, CA 92866
- 2005-2006 **Postdoctoral Fellow**, Feinberg School of Medicine,
Northwestern University and Rehabilitation Institute of Chicago, Chicago, IL
- 2003-2005 **Adjunct Professor**, Department of Exercise and Sport Science,
Vanguard University, Costa Mesa, CA 92626

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Professional Affiliations (Past and Present)

- American College of Sports Medicine (ACSM)
- Society for Mathematical Biology (SMB)
- Society for the Neural Control of Movement (NCM)
- American Society of Biomechanics (ASB)
- IEEE Engineering in Medicine and Biology Society (EMBS)

Editorial/Reviewer Activities

Ad hoc reviewer for (2006-present)	<i>Chaos, J Biomechanics, J Neural Engineering and Rehabilitation, Annals of Biomedical Engineering, IEEE Transactions on Neural Systems and Rehabilitation Engineering, PLOS One, Gait and Posture, Sport Sciences, Human Movement Science, Biology Letters, J Strength and Conditioning Research, PeerJ</i>
2009, 2015, 2018, 2021	Study Section: GARDE/DARE program, National Science Foundation
2015, 2016, 2019, 2020	Study Section: National Institutes of Health, Musculoskeletal Rehabilitation Sciences
2011	Reviewer: National Council for Scientific Research, Romanian Government
2010	Review panel: Department of Veterans Affairs
2008	Program co-chair, Southern California Conference on Biomechanics

External Funding

National Institutes of Health

National Institute of General Medical Sciences (NIGMS)
NIH 1SC3GM096900

Title: *Using Vertical Treadmill Movement to Influence Human Walking.*

Role: Principal Investigator

Duration: 4 years (2012-2016)

Award: \$423,360

National Science Foundation

Research to Aid Persons with Disabilities

Title: *Robotic Locomotor Training and Muscle Atrophy in the Rat Model of Spinal Cord Injury.*

Role: Principal Investigator

Duration: 3 years (2008-2011)

Award: \$296,000

Internal Funding

Approximately \$46,250 awarded for a total of 11 research projects
Over \$7000 awarded to support travel

Graduate Student Advising (since 2016)

Thesis Chair	Easton Tackett, M.S. (2018) Joseph Moon, M.S. (2018) Mashaer Alyami, M.S. (2019)	Carly Re (2021) Tyler Wiles (2021)	Chase Grant (Current) April Denny (Current)
Member, Thesis Committee	Heather Furr, M.S. (2018) Taylor Copeland, M.S. (2018) Robert Smetanka, M.S. (2019) Jennifer Hein, M.S. (2019) Shane Maher, M.S. (2020) Natalie Skillern, M.S. (2020) Jessica Atencio, M.S. (2020)	Daniel Klawiter, M.S. (2020) Isaac De la Cruz, M.S. (2020) Morgan Simmons (2021) David Gomez (2021) Nathaniel Frady (2021) Alison Gillaspay (2021) Julian Pantano (2021)	Danielle Tildahl (2021) Jordana Ulloa Marquez (2021) Mitch Anders (2021) Mackenzie Warner (Current) Megan Patterson (Current) Kristen Lantis (Current) Peter Trhac (Current)

Recently Named Faculty Grants Research Fellow (2020-2022)

Design workshops and provide mentorship for CSUSM faculty preparing applications for external funding.

Peer Reviewed Journal Publications

1. Maher, S.S., Dill, L.L., Hein, J.L., **Nessler, J.A.**, Schmidt, D.J. (2021). Forces at the Feet, Gait Timing, and Trunk Flexion/Extension Excursion While Walking with a Gear Belt or Gear Vest Load, *Int J Exerc Sci* (in press).
2. Romanin, A., English, S., Furness, J., Kemp-Smith, K., Newcomer, S., **Nessler, J.** (2021). Surfing Equipment and Design: A Scoping Review, *Sports Engineering* (in press).
3. Skillern, N., **Nessler, J.A.**, Schubert, M.M., Moore, B., Newcomer, S.C. (2021). Thermoregulatory sex differences among surfers during a simulated surf session, *Sports Engineering* (in press).
4. Hein, J., **Nessler, J.A.**, Armenta, R., Schmidt, D. (2021). Upper Limb Dexterity, Strength and Blood Flow after Walking with Backpack Load, *Applied Ergonomics* (in press).
5. Hibbert, J.E., Schubert, M., **Nessler, J.A.**, Schmidt, D. (2021). Strength, cardiovascular fitness, and blood lipid measures in law enforcement personnel following a 12-week health promotion program. *J Strength and Conditioning*, (in press).
6. Alyami, M., **Nessler, J.A.** (2021). Walking on a vertically oscillating platform with simulated gait asymmetry. *Symmetry*, (in press)
7. Borgonovo-Santos, M., Telles, T., **Nessler, J.A.**, Peduzzi de Castro, M., Fernandes, R.J., Vilas-Boas, J.P. (2021) Are the kinetics and kinematics of the surf pop-up related to the anthropometric characteristics of the surfer? *Sensors*, 21(5).
8. Atencio, J, Armenta, R., **Nessler, J.A.**, Schubert, M., Furness, J., Newcomer, S.C. (2020). Fluid loss in recreational surfers. *Int J Exerc Sci* (in press).
9. Smith, C., Saulino, M., Luong, K., Simmons, M., **Nessler, J.A.**, Newcomer, S.C. (2020). Effect of Wetsuit Outer Surface Material on Thermoregulation During Surfing. *Sports Engineering*, 23(1). **Best Paper Award 2020!**
10. Kellogg, D., Wiles, T., **Nessler, J.A.**, Newcomer, S.C. (2020) Impact of Velcro cuff closure on forearm skin temperature in surfers wearing a 2mm and 3 mm wetsuit. *Int J Exerc Sci*, 13(6).
11. Tackett, E., **Nessler, J.A.** (2020) Sensorimotor synchronization during gait is altered by the addition of variability to an external cue, *Hum Move Sci*, 71.
12. Wiles, T., Kellogg, D., Furr, H., **Nessler, J.A.**, Newcomer, S.J. (2020) Characterization of adult heart rate responses during recreational skateboarding at community skateparks. *Int J of Exerc Sci*, 13(2), 501-510.
13. Smetanka, R.G., Armenta, R.F., **Nessler, J.A.**, Newcomer, S.C. (2020), Heart rate response, duration, grip strength, and anthropometric characteristics in recreational indoor rock climbers. *Journal of Strength and Conditioning Research*.
14. Saulino, M., Skillern, N., Warner, M.E., Martinez, A., Moore, B., **Nessler, J.A.**, Newcomer, S.C. (2019) Characterization of heart rate response during frontside and backside wave riding in an artificial wave pool. *American Journal of Sports*.
15. Sharp, J., Cristini, M., Furness, J., Schram, B., Harvie, D., Keady, E., Ghobrial, M., Tussler, J., **Nessler, J.A.** (2019) Biomechanical profiling of experienced and inexperienced SUP riders: a comparative study. *Peer J*, PubMed ID: 31695968.
16. Warner, M.E. **Nessler, J.A.**, Newcomer, S.C. (2019). Skin Temperatures in Females Wearing a 2 mm Wetsuit During Surfing. *Sports*, 7(6).
17. **Nessler, J.A.**, Ponce-Gonzalez, J.G., Robles-Rodriguez, C., Furr, H.N., Warner, M.E., Newcomer, S.C. (2019). Electromyographic Analysis of the Surf Paddling Stroke Across Multiple Intensities, *Journal of Strength and Conditioning Research*, 33(4), 1102-1110.
18. Furr, H.N., Warner, M.E., Copeland, T.L., Robles-Rodriguez, C., Ponce-Gonzalez, J.G., **Nessler, J.A.**, Newcomer, S.C. (2019). Differences in VO₂peak of Surfers when Paddling in Water Versus on a Swimbench Ergometer, *Journal of Strength and Conditioning Research*, 33(4), 1095-1101.
19. Furr, N., **Nessler, J.A.**, Newcomer, S.C. (2018) Characterization of Heart Rate Responses, Duration, and Distances Traveled in Youth Participating in Recreational Skateboarding at Community Skateparks. *Journal of Strength and Conditioning Research*.
20. Crocker, G.H., Moon, J.F., **Nessler, J.A.**, Newcomer, S.C. (2018) Energetics of Swimming With Hand Paddles of Different Surface Areas. *Journal of Strength and Conditioning Research*.
21. Corona, L.J., Simmons, G.H., **Nessler, J.A.**, Newcomer, S.C. (2018) Characterization of regional skin temperatures in recreational surfers wearing a 2mm wetsuit. *Ergonomics*.
22. **Nessler, J.A.**, Frazee, T., Newcomer, S.C. (2017). "Fore-Aft Distribution of Volume in a Short Surfboard Does Not Affect Board Motion, Drag Force, and Metabolic Efficiency While Paddling," *Sports Engineering*.

23. **Nessler, J.A.**, Hastings, T., Greer, K., Newcomer, S.C. (2017). "Wearing an Inflatable Vest Alters Muscle Activation and Trunk Angle While Paddling a Surfboard," *Journal of Applied Biomechanics*, Mar 02, 1-21.
24. **Nessler, J.A.**, Heredia, S., Belair, J., Milton, J.G. (2017). "Walking on a Vertically Oscillating Treadmill: Phase Synchronization and Gait Kinematics," *PLOS One*, 0169924.
25. LaLanne, C.L., Cannady, M.S., Moon, J.F., Taylor, D.L., **Nessler, J.A.**, Crocker, G.H., Newcomer, S.C. (2017). "Characterization of Activity and Cardiovascular Responses During Surfing in Recreational Male Surfers Between the Ages of 18 and 75 Years Old," *Journal of Aging and Physical Activity*, 25(2), 182-188.
26. Ekmeçic, V., Jia, N., Cleveland, T.G., Saulino, M., **Nessler, J.A.**, Crocker, G.H., Newcomer, S.C. (2016). "Increasing Surfboard Volume Reduces Energy Expenditure During Paddling," *Ergonomics*, PMID: 27875943.
27. **Nessler, J.A.**, Spargo, T., Craig-Jones, A., Milton, J.G. (2016). "Phase Resetting Behavior in Human Gait is Influenced by Treadmill Walking Speed," *Gait & Posture*, 43, 187-191.
28. **Nessler, J.A.**, Silvas, M., Carpenter, S., Newcomer, S.C. (2015). "Wearing a Wetsuit Alters Upper Extremity Motion During Simulated Surfboard Paddling," *PLOS One*, 0142325.
29. Freedson, P., Buchner, D.M., Pate, R., Hatfield, B., DiPietro, L., Dzewaltowski, D.A., Gavin, T., **Nessler, J.** (2015). "Integrating Public Health in Kinesiology: Instruction, Academic Programs, Research, and Outreach," *Kinesiology Review*, 4(4), 355-369.
30. Bravo, M., **Nessler, J.A.**, Cummins, K., Newcomer, S.C. (2015). Heart Rate Responses of High School Students Participating in Surfing Physical Education," *Journal of Strength and Conditioning Research*.
31. **Nessler, J.A.**, Gutierrez, V., Punsalan, A., Werner, J. (2015). "Side by Side Treadmill Walking Reduces Gait Asymmetry Induced by Unilateral Ankle Weight," *Human Movement Science*, 41, 32-45.
32. **Nessler, J.A.** De Leone, C., McMillan, D., Schoulten, M., Shallow, T., Stewart, B. (2012). "Side by Side Treadmill Walking With Intentionally Desynchronized Gait," *Annals of Biomedical Engineering*, 41(8), 1680-1691.
33. **Nessler, J.A.**, Moustafa, M.B., Soto, D., Duhon, J., Schmitt, R. (2011). Assessment of Hindlimb Locomotor Strength in Spinal Cord Transected Rats Through Animal-Robot Reaction Force. *Journal of Biomechanical Engineering*, 133(12).
34. **Nessler, J.A.**, Kephart, G., Cowell, J., De Leone, C. (2011). Varying Treadmill Speed and Inclination Affects Spontaneous Synchronization During Side by Side Walking. *Journal of Applied Biomechanics*, 27(4), 322-329.
35. **Nessler, J.A.**, Gonzales, T, Steinbrick, M., Deleone, C. (2011). Stride Interval Dynamics are Altered When Two Individuals Walk Side by Side. *Motor Control*, 15(3), 390-404.
36. **Nessler, J.A.**, Huynh, H., McDougal, M. (2011). A Single Bout of Resistance Training Does Not Affect Nonlinear Dynamics of Lower Extremity Kinematics During Treadmill Walking. *Gait & Posture*, 34(2), 285-287.
37. **Nessler, J.A.** & Gilliland, S.J. (2010). Kinematic Analysis of Side by Side Stepping with Intentional and Unintentional Synchronization. *Gait & Posture*, 31, 527-529.
38. **Nessler, J.A.** & Gilliland, S.J. (2009). Interpersonal synchronization during side by side treadmill walking is influenced by leg length differential and restricted sensory feedback. *Human Movement Science*, 28(6), 772-785.
39. **Nessler, J.A.**, Deleone, C., Gilliland, S.J. (2009). Nonlinear time series analysis of knee and ankle kinematics during side by side treadmill walking. *Chaos*, 19, 026104.
40. **Nessler, J.A.**, Minakata, K., Sharp, K., Reinkensmeyer, D.J. (2007). Robot-assisted hindlimb extension increases the probability of swing initiation during treadmill walking by spinal cord contused rats. *J Neurosci Methods*. Jan 15; 159(1):66-77.
41. Reinkensmeyer, D.J., Aoyagi, D., Emken, J.L., Galvez, J.A., Ichinose, W., Kerdanyan, G., Maneekobkunwong, S., Minakata, K., **Nessler, J.A.**, Weber, R., Roy, R.R., de Leon, R., Bobrow, J.E., Harkema, S.J., Edgerton, V.R. (2006). Tools for understanding and optimizing robotic gait training. *J Rehabil Res Dev*. Sep-Oct;43(5):657-70.
42. **Nessler, J.A.**, deLeon, R.D., Sharp, K., Minakata, K., Kwak, E., Reinkensmeyer, D.J. (2006). Robotic gait analysis of bipedal treadmill stepping by spinal contused rats: characterization of intrinsic recovery and comparison to BBB. *J Neurotrauma*, vol.23, no. 6, pp.882-896.
43. **Nessler, J.A.**, Timoszyk, W.K., Merlo, M., Emken, J.L., Minakata, K., Roy, R.R., de Leon, R.D., Edgerton, V.R., Reinkensmeyer, D.J. (2005). A Robotic Device for Studying Rodent Locomotion After Spinal Cord Injury. *IEEE Transactions on Neural Systems and Rehabilitation Engineering* 13(4), pp 497-506.
44. W. Timoszyk, **J.A. Nessler**, K. Nelson, C. Acosta, R.R. Roy, V. R. Edgerton, R. de Leon, D.J. Reinkensmeyer (2005). Relationship Between Hindlimb Loading and Stepping Ability of Spinal Transected Rats. *Brain Research*, 1050(1-2), pp. 180-189.

45. Reinkensmeyer DJ, Pang CT, **Nessler JA**, Painter CC (2002). Web-based telerehabilitation for the upper-extremity after stroke, *IEEE Transactions on Neural Science and Rehabilitation Engineering*, vol. 10, no. 2, pp. 102-108.

Select Conference Proceedings (from over 60 total)

LeBlanc Feltner, M., Moustafa, M., Soto, D., **Nessler, J.** (2020) *The Effect of Robotic Gait Training in Spinal Cord Transected Rat Femurs*, Submitted to American College of Sports Medicine Annual Meeting, San Francisco, CA.

Petrone, C., Quartini, E., Newcomer, S., Asakawa, D., **Nessler, J.** (2019) *Prevalence of Scapular Dyskinesia in Surfers vs. Non-surfers*, Southwest American College of Sports Medicine, Newport Beach, CA

Tackett, E, **Nessler, J.A.** (2018). *The Effects of Noise on Sensorimotor Synchronization of Human Gait to an External Cue*. In Proc. World Congress on Biomechanics, Dublin, Ireland.

Nessler, J.A., Silvas, M.N., Newcomer, S.C. (2015). *Wearing a Wetsuit Alters Arm Motion During Simulated Surfboard Paddling*, In Proc. American Society of Biomechanics, Columbus, OH.

Nessler, J.A., Duhon, J., Schmitt, R., Soto, D., Moustafa, M. (2013). *Varying body weight support in bipedal stepping rats: changes in locomotor behavior are partially related to alterations in hindlimb posture*, In Proc. Society for Neural Control of Movement, San Juan, Puerto Rico.

Nessler, J.A., Moustafa, M-B., Soto, D., Duhon, J.E., Schmitt, R. (2011). *Robot applied stance loading increases hindlimb muscle mass and stepping kinetics in a rat model of spinal cord injury*, In Proc. 33rd Annual Meeting IEEE Engineering in Medicine and Biology, Boston, MA.