

### **Academic Address**

Department of Kinesiology  
California State University, San Marcos  
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### **Education and Training:**

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

### **Academic Employment History:**

- **2013-present** Associate Professor and Chair, Department of Kinesiology, California State University, San Marcos, CA 92096
- **2014-2016** Visiting Professor, 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 and Health Promotion, California State Polytechnic University, Pomona, CA, 91768
- **2006** Adjunct Professor, School of Physical Therapy Doctoral Program, 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
- **2002** Teaching Assistant, Dept. of Mechanical and Aerospace Engineering, University of California, Irvine, CA, 92697
- **2000** Teaching Assistant, Dept. of Exercise and Nutritional Science, San Diego State University, San Diego, CA 92182

**Courses Taught:**

<b>Institution</b>	<b>Course Number</b>	<b>Course Description</b>
Cal State San Marcos		
	KINE 202	Introduction to Kinesiology
	KINE 301	Undergraduate Motor Control and Learning w/ Lab
	KINE 303/403	Undergraduate Research Methods and Statistics
	KINE 305	Undergraduate Movement Anatomy
	KINE 425	Undergraduate Biomechanics w/ Lab
Cal Poly Pomona		
	KIN 402	Undergraduate Biomechanics w/ Lab
	KIN 412	Undergraduate Movement Anatomy w/ Lab
	KIN 430	Undergraduate Motor Control w/ Lab
Pepperdine University		
	SPME 410	Neuroscience of Motor Control
Chapman University		
	PT 511	Graduate Biomechanics w/ Lab
Vanguard University		
	EXSS 421	Undergraduate Biomechanics
	EXSS 328	Program Design and Conditioning

**Professional Organizations:**

American College of Sports Medicine (ACSM) 2007-present  
 Southwest Chapter, American College of Sports Medicine (SWACSM) 2007-present  
 American Society of Biomechanics (ASB) 2010 – present  
 IEEE Engineering in Medicine and Biology Society (EMBS) 2003-2012  
 Society for the Neural Control of Movement 2012-2014

**Editorial Activities:**

Ad hoc reviewer for Chaos  
 Ad hoc reviewer for Journal of Biomechanics  
 Ad hoc reviewer for Journal of Neural Engineering and Rehabilitation  
 Ad hoc reviewer for International Conference on Rehabilitation Robotics  
 Ad hoc reviewer for Annals of Biomedical Engineering  
 Ad hoc reviewer for IEEE Transactions on Neural Systems and Rehabilitation Engineering  
 Ad hoc reviewer for PLOS One  
 Ad hoc reviewer for Gait and Posture  
 Ad hoc reviewer for Sport Sciences  
 Ad hoc reviewer for Human Movement Science  
 Program Co-Chair, Southern California Conference on Biomechanics (2008)  
 Ad hoc member, review panel, GARDE program, National Science Foundation (2009, 2015)  
 Ad hoc member, review panel, Department of Veterans Affairs (2010)  
 Ad hoc member, review panel, NIH Musculoskeletal Rehabilitation Sciences (2015, 2016)  
 Accepted into Early Career Reviewer Program NIH (2013)  
 Reviewer: National Council for Scientific Research, Romanian Government (2011)  
 Textbook Reviewer, Lippincott, Williams, and Wilkins

**External Funding Received:**

**Organization:** National Science Foundation

**Program:** 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

**NIH 1SC3GM096900**

**Organization:** National Institutes of Health, NIGMS

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

**Role:** Principal Investigator

**Duration:** 4 years (2012-2016)

**Award:** \$423,360

**Peer Reviewed Journal Publications**

1. Corona, L.J., Simmons, G.H., **Nessler, J.A.**, Newcomer, S.C. (In press.) Characterization of regional skin temperatures in recreational surfers wearing a 2mm wetsuit. *Ergonomics*.
2. **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*.
3. **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.
4. **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.
5. 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.
6. LaLanne, C.L., Cannady, M.S., Moon, J.F., Taylor, D.L., **Nessler, J.A.**, Crocker, G.H., Newcomer, S.C. (2016). "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*, PMID: 27623020.
7. **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.
8. **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.
9. Freedson, P., Buchner, D.M., Pate, R., Hatfield, B., DiPietro, L., Dziewaltowski, D.A., Gavin, T., **Nessler, J.** (2015). "Integrating Public Health in Kinesiology: Instruction, Academic Programs, Research, and Outreach," *Kinesiology Review*, 4(4), 355-369.
10. 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*.

11. **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.
12. **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.
13. **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).
14. **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.
15. **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.
16. **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.
17. **Nessler, J.A.** & Gilliland, S.J. (2010). Kinematic Analysis of Side by Side Stepping with Intentional and Unintentional Synchronization. *Gait & Posture*, 31, 527-529.
18. **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.
19. **Nessler, J.A.**, Deleone, C., Gilliland, S.J. (2009). Nonlinear time series analysis of knee and ankle kinematics during side by side treadmill walking. *Virtual Journal of Biological Physics Research*, 18(1).
20. **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.
21. **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.
22. 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.
23. **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.

24. **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.
25. 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.
26. 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.

### **Manuscripts Currently Under Review**

1. Borgonovo-Santos, Telles, T., Machado, L. **Nessler, J.**, Figueiredo, P., Vilas-Boas, J.P. (Submitted), *Journal of Strength and Conditioning Research*.
2. Crocker, G.H., Moon, J.F., **Nessler, J.A.**, Newcomer, S.C. (Submitted) *Journal of Strength and Conditioning Research*.

### **Peer-Reviewed Conference Publications**

1. **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.
2. Pham, J.A., Newcomer, S.C., **Nessler, J.A.** (2015). *A Comparison of Balance and Postural Sway in Surfers vs. Non Surfers*. Medicine and Science in Sport and Exercise (presented at the Annual Meeting of the American College of Sports Medicine).
3. **Nessler, J.A.**, Spargo, T., Craig-Jones, A., Lagorio, L., Johnson, S. (2013). *Properties of the Phase Resetting Curve for Human Gait*, *Dynamic Walking Conference*, Pittsburgh, PA.
4. **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.
5. **Nessler, J.A.** & Moustafa, M.B. (2012). *Robotic Locomotor Training and Muscle Atrophy in the Rat Model of Spinal Cord Injury*. NSF CBET Grantees Conference, Baltimore, MD.
6. **Nessler, J.A.**, Long-Anastasia, T., Lopez, A., Studer, J., Terwilliger, N. (2012). Practice with a prophylactic brace alters knee flexion during a run stop jump task. *Medicine and Science in Sport and Exercise*, 2012.
7. **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. 33<sup>rd</sup> Annual Meeting IEEE Engineering in Medicine and Biology, Boston, MA.
8. **Nessler, J.A.**, Duhon, J., Keller, R., Thys, T. (2010) Animal-robot interaction force as a measure of locomotor recovery following spinal cord injury, In Proc. Annual Meeting American Society of Biomechanics, Providence, RI.

9. **Nessler, J.A.**, Cowell, J, Kephart, G, Gonzales, T., Steinbrick, M., DeLeone, C., "Biomechanics of Step Synchronization, Two Preliminary Investigations," In Proc. 16<sup>th</sup> annual USNCTAM 2010, State College, PA.
10. Amiton C, **Nessler J**, Owen A, Martin B, Jackson R, Witzke KA. Landing Strategies May Attenuate Peak Ground Reaction Forces in a Home-Based Jumping Program in Premenopausal Women. *Medicine and Science in Sports and Exercise*, 42(5S), 2010.
11. Witzke KA, **Nessler, J**, Amiton C, Owen A, Martin, B. Dose-Dependent Effects Of Jumping On Femoral Bone Density And Femoral Strength Index In Premenopausal Women. *Medicine and Science in Sports and Exercise*, 42(5S), 2010.
12. Gilliland, S.J., **Nessler, J.A.** "Entrainment during side by side treadmill walking is influenced by interpersonal leg length difference," In Proc. APTA 2009, Baltimore, MD.
13. **Nessler, J.A.**, (2009). A Passive Dynamic Model for Simulation of Interpersonal Synchronization During Side by Side Walking. *Medicine and Science in Sport and Exercise*, 41(5S).
14. Gilliland, S.J. & **Nessler, J.A.** Gait entrainment during side by side treadmill walking. In Proc. Southern CA Conference on Biomechanics, Thousand Oaks, CA, April 11-12, 2008.
15. **Nessler, J.A.**, & Pottukalam, R. (2008). Body Weight Support Alters Lower Limb Kinematics During Treadmill Stepping in Unimpaired Subjects. *Medicine and Science in Sport and Exercise*, 40(5S).
16. **Nessler, J.A.**, Lin, W., Dhaher, Y. Synergistic joint torques at the hip and knee are altered in post-stroke hemiplegic gait. Proceedings of the ASME 2007 Summer Bioengineering Conference (SBC2007), June 20-24, Keystone Resort & Conference Center, Keystone, Colorado, USA.
17. **Jeff A. Nessler**, Koyiro Minakata, Kelli Sharp, David J. Reinkensmeyer. "Gait Activity Depends on Limb Extension and Phasing in Spinal Cord Contused Rodents: Implications for Robotic Gait Training and Assessment", International Conference on Rehabilitation Robotics, Chicago IL., pp 556 – 559, 2005.
18. **Nessler J.A.**, Reinkensmeyer D.J., Sharp K., Kwak, E., Minakata, K., DeLeon, R.D. "Robotic Assessment of Locomotor Recovery in Spinal Contused Rats", Proceedings of the 26<sup>th</sup> Annual IEEE Engineering in Medicine and Biology Society Meeting, p. 2687-2690, 2004.
19. **Nessler J.A.**, Reinkensmeyer D.J., Timoszyk W.K., Nelson K., Acosta C., Roy R.R., Edgerton V.R., de Leon R.D. "The Use of a Robotic Body Weight Support Mechanism to Improve Outcome Assessment in the Spinal Cord Injured Rodent", Proceedings of the 25<sup>th</sup> Annual IEEE Engineering in Medicine and Biology Society Meeting, p. 1629-1632, 2003.
20. Reinkensmeyer, D. J. Aoyagi, D. Emken, J. Galvez, J. Ichinose, W. Kerdanyan, G. **Nessler, J.** Maneeakobkunwong, S. Timoszyk, W. Vallance, K. Wynne, J. de Leon, R. Bobrow, J. Harkema, S. Edgerton, R. "Robotic Gait Training: Toward More Natural Movements and Optimal Training Algorithms", Proceedings of the 2004 IEEE Engineering in Medicine and Biology Society Meeting.

21. Reinkensmeyer DJ, Pang CT, **Nessler JA**, Painter CC (2001) Java Therapy: Web-based robotic rehabilitation. *Integration of Assistive Technology in the Information Age*, Proceedings 7th International Conference on Rehabilitation Robotics, Institut National des Télécommunication (INT), Evry, France, April 25-27, IOS Press, Amsterdam, pp. 66-71.

### **Peer-Reviewed Conference Abstracts/Presentations**

1. Knudson, K., Bernath, C., Homan, C., Smetanka, R., **Nessler, J.A.**, Newcomer, S.C. "Thermoregulatory Effects of Shirt Variation While Surfing in Tropical Environments," SWACSM Annual Meeting, Costa Mesa, CA 2016. (poster)
2. Furr, H., Palma, N., Gavin, M., Wosk, M., **Nessler, J.A.**, Newcomer, S.C. "Cardiovascular Responses to Recreational Skateboarding in Youth," SWACSM Annual Meeting, Costa Mesa, CA 2016. (poster)
3. **Nessler, J.A.**, Hastings, T., Greer, K., Newcomer, S.C., "Wearing an Inflatable Vest Alters Trunk Angle and Muscle Activation While Paddling a Surfboard," SWACSM, Annual Meeting, Costa Mesa, CA 2016. (poster)
4. Newcomer, S.C., Frazee, T., **Nessler, J.A.**, "Fore-Aft Distribution of Volume in a Short Surfboard Does Not Affect Board Motion, Drag Force, and Metabolic Efficiency While Paddling," SWACSM Annual Meeting, Costa Mesa, 2016. (poster)
5. Moon, J., Jia, N., Rice, A., Flores, A., Corona, L., Delgado, D., Becker, M., **Nessler, J.A.**, Newcomer, S.C., Crocker, G.H., "Energetics of Swimming With Different Size Hand Paddles," SWACSM Annual Meeting, Costa Mesa, 2016. (poster)
6. Corona, L.J., Aguilar, J.C., Kuryshko, V., Simmons, G., **Nessler, J.A.**, Newcomer, S.C., "Characterization of Regional Skin Temperatures in Recreational Surfers Wearing a Wetsuit," SWACSM Annual Meeting, Costa Mesa, 2016. (poster)
7. Martineau, R.A., Tieger, Z.C., Newcomer, S.C., **Nessler, J.A.** "A Comparison of Stroke Length During Surfboard Paddling on a Modified Swim Ergometer vs Swim Flume in Recreational Surfers," SWACSM Annual Meeting, Costa Mesa, CA 2015. (poster)
8. Gutierrez, V., Werner, J, Punsalan, A., **Nessler, J.A.** "Side by Side Treadmill Walking Reduces Gait Asymmetry Induced by Unilateral Ankle Weight," SWACSM Annual Meeting, Costa Mesa, CA 2014. (poster)
9. Pham, J., Newcomer, S., **Nessler, J.A.** "A Comparison of Balance and Postural Sway in Surfers vs. Non-Surfers," SWACSM Annual Meeting, Costa Mesa, CA, 2014. (poster)
10. Reaves, A., Silvas, M., Newcomer, S., **Nessler, J.** "Biomechanical and Energetic Analysis of Surfboard Paddling on a Modified Swim Bench Ergometer," SWACSM Annual Meeting, Costa Mesa, CA 2014. (poster)
11. **Nessler, J.A.** Heredia, S. "Development of a Pneumatically Powered Platform for Vertical Displacement of the Walking Surface: A Preliminary Analysis," SWACSM Annual Meeting, Costa Mesa, CA 2014. (poster)

12. **Nessler, J.A.**, Spargo, T., Craig-Jones, A., Lagorio, L., Johnson, S. "Properties of the Phase Resetting Curve for Human Gait", SWACSM Annual Meeting, Newport Beach, CA 2013. (poster)
13. Dettelbach, A., Kirkpatrick, A.J., McMillan, D., Plotts, C., Ryan, W., **Nessler, J.A.** "Cell Phone Use and Postural Sway," SWACSM Annual Meeting, Newport Beach, CA 2012. (poster)
14. Stewart, B., De Leone, C., McMillan, D., Schoulten, M., Shallow, T., **Nessler, J.A.** "Side by Side Treadmill Walking with Intentionally Desynchronized Gait," SWACSM Annual Meeting, Newport Beach, CA 2012.
15. Kincaid-Sharp, E., **Nessler, J.** "Synchronization of Gait to a Vertically Oscillating Walkway – A Preliminary Analysis," Southern California Conference on Undergraduate Research, Walnut, CA 2011. (Poster)
16. Terwilliger, N., Lopez, A., Long-Anastasia, T., Studer, J., **Nessler, J.** "Are Knee Kinematics Altered During a Run-Stop-Jump Task Following Practice With a Knee Extension Constraint Brace?," Southern California Conference on Undergraduate Research, Walnut, CA 2011. (Poster)
17. Lopez, A., Long-Anastasia, T., Studer, J., Terwilliger, N., **Nessler, J.** "The Effects of a Knee Extension Constraint Brace on Performance of a Run-Stop-Jump Task vs a Box-Drop Jump," Southern California Conference on Undergraduate Research, Walnut, CA 2011. (Poster)
18. Long-Anastasia, T., Lopez, A., Studer, J., Terwilliger, N., **Nessler, J.** "Running Speed, Jump Height, and Ground Reaction Force During a Run-Stop-Jump Task are not Affected by Use of a Knee Extension Constraint Brace," Southern California Conference on Undergraduate Research, Walnut, CA 2011. (Poster)
19. McDougal, M., Huynh, H., & **Nessler J.** "The Effect of Moderate Muscle Fatigue on Nonlinear Measures of Lower Extremity Kinematics During Treadmill Walking," Southern California Conference on Undergraduate Research, Malibu, CA 2010. (Poster)
20. Duhon, J., Schmitt, R., Soto, D., & **Nessler, J.** "Ground Reaction Force is Altered Following Four Weeks of Automated Locomotor Training in Spinal Cord Injured Rats," Southern California Conference on Undergraduate Research, Malibu, CA 2010. (Poster)
21. Schmitt, R., Duhon, J., Soto, D., & **Nessler, J.** "Robot Applied Plantarflexion Load Increases Ground Reaction Force Without Altering Step Trajectory: Implications for Body Weight Supported Treadmill Training," Southern California Conference on Undergraduate Research, Malibu, CA 2010. (Slide)
22. Soto, D., Doyle, P., Duhon, J., Nakamura, E., Schmitt, R., & **Nessler, J.** "Preserving Lower Limb Muscle Function Following Spinal Cord Injury: a Comparison of Three Robotic Training Algorithms," Southern California Conference on Undergraduate Research, Malibu, CA 2010. (Slide)
23. Soto, D., Doyle, P., Duhon, J., Nakamura, E., Schmitt, R., & **Nessler, J.** "Preserving Lower Limb Muscle Function Following Spinal Cord Injury: a Comparison of Three Robotic Training Algorithms," SWACSM Annual Meeting, San Diego, CA 2010. (Poster)
24. McDougal, M., Huynh, H., **Nessler J.** "The Effect of Moderate Muscle Fatigue on Nonlinear Measures of Lower Extremity Kinematics During Treadmill Walking," SWACSM Annual Meeting, San Diego, CA 2010. (Poster)



25. Soto, D., Doyle, P., Duhon, J., Nakamura, E., Schmitt, R., & **Nessler, J.** "Preserving Lower Limb Muscle Function Following Spinal Cord Injury: a Comparison of Three Robotic Training Algorithms," SWACSM Annual Meeting, San Diego, CA 2010. (Poster)
26. Cowell, J., Kephart, G., **Nessler, J.** "Varying Treadmill Speed and Inclination Affects Unintentional Synchronization During Side by Side Walking," SWACSM Annual Meeting, San Diego, CA 2009. (Poster)
27. Aboy, R. Evans, M., **Nessler, J.** "Spatial Proximity and Interpersonal Synchronization During Side by Side Treadmill Walking," SWACSM Annual Meeting, San Diego, CA 2009. (Poster)
28. **Nessler, J.A.**, Gilliland, S.J. "Interpersonal Synchronization During Gait is Affected by Alterations in Sensory Input", SWACSM Annual Meeting, San Diego, CA 2008. (Poster)
29. Aarestad, L.M., **Nessler, J.A.** "EMG Analysis of an Actual and Virtual Golf Swing Using the Nintendo Wii," SWACSM Annual Meeting, San Diego, CA 2008. (Poster)
30. **Nessler, J.A.**, Lin, W., Dhaher, Y. Synergistic joint torques at the hip and knee are altered in post-stroke hemiplegic gait. ASME 2007 Summer Bioengineering Conference (SBC2007), Keystone Resort & Conference Center, Keystone, Colorado, June 20-24, 2007. (Slide)
31. **Jeff A. Nessler**, Koyiro Minakata, Kelli Sharp, David J. Reinkensmeyer. "Gait Activity Depends on Limb Extension and Phasing in Spinal Cord Contused Rodents: Implications for Robotic Gait Training and Assessment." International Conference on Rehabilitation Robotics, Rehabilitation Institute of Chicago, June 28 - July 1 2005. (Slide)
32. **Jeff A. Nessler**, Koyiro Minakata, Kelli Sharp, David J. Reinkensmeyer. "A New Device for Enhanced Control of Interlimb Coordination During Locomotor Training in Spinal Cord Injured Rodents." Roman Reed/Reeve Irvine Symposium on Spinal Cord Injury, University of California, Irvine, March 2005. (Poster)
33. **Nessler J.A.**, Reinkensmeyer D.J., Sharp K., Kwak, E., Minakata, K., DeLeon, R.D. "Robotic Assessment of Locomotor Recovery in Spinal Contused Rats." IEEE Engineering In Medicine and Biology 26<sup>th</sup> annual conference, San Francisco, CA, September, 2004. (Slide)
34. **Nessler J.A.**, Reinkensmeyer D.J., Sharp K., Kwak, E., Minakata, K., DeLeon, R.D. "Robotic Assessment of Locomotor Function in Spinal Contused Rats." Roman Reed/Reeve Irvine Symposium on Spinal Cord Injury, University of California, Irvine, March 2004. (Poster)
35. **Nessler J.A.**, Reinkensmeyer D.J., Timoszyk W.K., Nelson K., Acosta C., Roy R.R., Edgerton V.R., de Leon R.D. "The Use of a Robotic Body Weight Support Mechanism to Improve Outcome Assessment in the Spinal Cord Injured Rodent." IEEE Engineering In Medicine and Biology 25<sup>th</sup> annual conference, Cancun, Mexico, September, 2003. (Slide)
36. **Nessler J.A.**, Reinkensmeyer D.J., Timoszyk W.K., Nelson K., Acosta C., Roy R.R., Edgerton V.R., de Leon R.D. "The Use of a Robotic Body Weight Support Mechanism to Improve Outcome Assessment in the Spinal Cord Injured Rodent." Southern California Conference on Biomechanics, Pepperdine University, March 2003. (Slide)

37. **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. "A Device for the Assessment and Training of Locomotor Function in Spinal Cord Injured Rodents." Roman Reed/Reeve Irvine Symposium on Spinal Cord Injury, University of California, Irvine, March 2003. (Poster)

### **Invited Research Presentations**

Claremont College, CA, "The Science of Surfing," June 7, 2017.

Nike Inc, Beaverton, OR, "The Science of Surfing," Dec 3, 2015.

University of Nebraska, Omaha, "Walk this Way: How Synchronization of Gait Affects Movement Variability," November 21, 2014.

University of the Third Age, University of San Diego, "The Science of Surf," July 28, 2014.

Club Biomed, Mira Costa College, "Using Robots to Study Human Gait," Oct 18, 2013.

President's Council, Cal State San Marcos. "Walk This Way: How Robots Can Be Used to Study Human Gait." March 14, 2013.

Office for Training, Research, and Education in the Sciences (OTRES), Cal State San Marcos. "May I Trip You? and Other Fun Experiments on the Neuromechanics of Gait." Feb 28, 2013.

Natural Science Research Seminar, Pepperdine University, Malibu, CA 90263. "Walk This Way: Experiments on the Neuromechanics of Gait." Feb 14, 2012.

Bridges Scholars Community, Mira Costa College, "Walk This Way: Experiments on the Neuromechanics of Human Locomotion," Dec 3, 2010.

Symposium: Southwest Chapter American College of Sports Medicine, "Unintentional synchronization of movement during side by side walking: contributing factors and potential for gait rehabilitation," Annual meeting, San Diego, CA, 2009.

Honors Forum, San Diego Christian College, El Cajon, CA, 92019. "A robotic device for the study of locomotor function following spinal cord injury." October 19, 2009.

Frontiers in Science Lecture Series, California State University, San Marcos, CA 92096. "A robotic device for the study of locomotor function following spinal cord injury." April 30, 2009

California Baptist University, Riverside, CA 92504. "The Use of Robotics in Gait Rehabilitation Following Neurological Injury," March 13, 2007.

Natural Science Research Seminar, Pepperdine University, Malibu, CA 90263  
"The Use of Robotics in Gait Rehabilitation Following Neurological Injury." Feb 14, 2007.

University of Michigan, Ann Arbor, MI, 48109. "A robotic device for locomotor training and outcome assessment in the spinal cord injured rodent." May 13, 2005.

Rehabilitation Institute of Chicago, Chicago, Ill, 60611. "A robotic device for locomotor training and outcome assessment in the spinal cord injured rodent." May 6, 2005.

**Internal Funding Received:**

**Source:** California State University, San Marcos, University Professional Development

**Title:** The Effects of Wetsuit Design on Paddling Mechanics and Dynamic Balance in Recreational Surfers

**Duration:** 1 year (2016/2017)

**Award:** \$5986

**Source:** California State University, San Marcos, University Professional Development

**Title:** A Virtual Reality System for the Study of Gait Synchronization

**Duration:** 1 year (2012/2013)

**Award:** \$6500

**Source:** California State University, San Marcos, Faculty Center Professional Development Grant

**Year(s):** 2009-2016

**Total Awarded:** \$5775

**Source:** California State University, San Marcos, University Professional Development

**Title:** *The Effects of Orthotic Knee Bracing on Gait Stability and Variability*

**Duration:** 1 year (2010/2011)

**Award:** \$5,400

**Source:** California State University, San Marcos, Grant Proposal Seed Money

**Title:** *Tail nerve electrical stimulation and locomotor training in spinal cord injured rats*

**Duration:** 1 year (2010)

**Award:** \$2,400

**Source:** California State University, San Marcos, Grant Proposal Seed Money

**Title:** *Side by Side Walking as a Therapeutic Strategy for the Restoration of Gait Function*

**Duration:** 1 year (2009)

**Award:** \$1,850

**Source:** California State University, San Marcos, University Professional Development

**Title:** *Using Unintentional Synchronization of Gait to Alter Stepping Kinematics*

**Duration:** 6 months (2008/2009)

**Award:** \$1,550 (not accepted)

**Source:** California State University, San Marcos, University Professional Development

**Title:** *Interpersonal Synchronization During Side by Side Treadmill Walking*

**Duration:** 6 months (2008/2009)

**Award:** \$6,300

**Source:** California State Polytechnic University, Pomona, Provost's Teacher-Scholar Development Program

**Duration:** 2 years (2007-2008)

**Award:** \$11,000

**Source:** California State Polytechnic University, Pomona, Research, Scholarship, & Creative Activities

**Title:** *Toward an Assist-as-Needed Robotic Gait Training Algorithm in Humans: Increasing Patient Workload.*

**Duration:** 1 year (2008)

**Award:** \$6,668.49

**Source:** California State Polytechnic University, Pomona, Faculty Center for Professional Development Grant

**Title:** Development of a Low-Cost EMG System for Use in Student Laboratory Activities

**Duration:** 1 year (2007)

**Award:** \$996