ANITA SINGH, PhD

923 Ridley Creek Drive, Media, PA 19063, Cell: 313-595-5660, anitausingh@hotmail.com

EDUCATION

PhD, Biomedical Engineering, 2006 Wayne State University, Detroit, MI
Master of Science, Biomedical Engineering, 2004 Wayne State University, Detroit, MI
Bachelor of Engineering, Mechanical Engineering, 2001 Lukhdhirji Engineering College, India

PROFESSIONAL HISTORY

Assistant Professor – Biomedical Engineering, Widener University, Chester, PA – Present
Assistant Research Professor (Part-time) – Mechanical Engineering, Rowan University, Glassboro, NJ – 2012-Present
Assistant Professor (Director of Undergraduate Program)– Biomedical Engineering, University of Delaware, Newark, DE – 2014
Adjunct Faculty – Biomedical Engineering, Widener University, Chester, PA – 2013 - Present
Supplemental Faculty – Biomedical Engineering, University of Delaware, Newark, DE – 2012-2014
Adjunct Faculty - School of Biomedical Engineering, Science & Health Systems, Drexel University, Philadelphia, PA –2010-2011
Project Manager – Clinical Research, Globus Medical Inc., Audubon, PA – 2010 - 2012
Co – Director of Behavior and Biomechanics Lab, Spinal Cord Research Center, Drexel University – College of Medicine, Philadelphia, PA – 2007 - 2010
Research Associate, Neurobiology and Anatomy Department, Drexel University – College of Medicine, Philadelphia, PA – 2007 - 2010
Post Doctoral Fellow, Lankenau Hospital, Wynnewood, PA – 2007
Graduate Research/Teaching Assistant, Wayne State University, Detroit, MI – 2002 - 2006

HONORS AND AWARDS

Faculty Development Options Award: $4500 "Enhancing Biomedical Engineering Teaching and Research Through Course Revision and Involvement in Ongoing Projects in the Neuro and Orthobiomechanics Lab at Widener University". Duration Academic Year 2015-16 Role: Principal Investigator
New Jersey Commission on Spinal Cord Research: Exploratory Research Grant at Rowan College of Engineering and SOM: $ 200,000 "Using bioengineered scaffold loaded with neurotrophins to enhance functional recovery after locomotor training in spinal cord injury animals". Duration: July 2014- June 2016. Role: Principal Investigator
Rowan Wood Johnson Foundation: $75,000 "Improving Patient Simulator Biomechanics". Duration: July 14– June 15. Role: Co- Principal Investigator
Christiana Care Sponsored Research at Rowan University: $14,000 "Mechanical and Biomechanical Characteristics of new forearm plate". Duration: Oct 2013 – Aug 2014. Role: Principal Investigator
Junior Travel Award: "Mechanism and Treatment of Brachial Plexus injury" Neonatal Brachial Plexus Palsy Symposium, May 12-13 2014, Wayne State University, Detroit, MI
Craig H. Neilsen Foundation Fellowship Grant: $120,000 "Mechanism of locomotor recovery after body weight supported treadmill training". Duration: 2009-2011. Role: Principal Investigator
Aircast Foundation Grant: $120,000 "Mechanical, Functional and Structural Changes in Nerve Roots in Response to Tension at Various Strains and Rates". Duration: 2004 – 2006. Role: Principal Investigator
Best Student Paper Award, 50th Stapp Car Crash Conference, 2006
Best Student Paper Award, Wayne State University, 2006
Graduate Professional Scholarship, Wayne State University, Detroit, 2001–2002, 2004-2007
Merit Scholarship, LE College, India, 1997 – 2001

ANITA SINGH, PhD

923 Ridley Creek Drive, Media, PA 19063, Cell: 313-595-5660, anitausingh@hotmail.com

ACADEMIC SERVICES

- IRB Member Widener University – Present
- ABET Coordinator Widener University – Present
- Widener University BMES Chapter Faculty Advisor -Present
- ABET Coordinator at University of Delaware – 2013-14
- Undergraduate Committee Member at University of Delaware – 2013-14
- University of Delaware BMES Chapter Faculty Advisor - 2013-14
- University of Delaware BME career services Faculty Advisor - 2013-14

GRADUATE STUDENT CO-MENTORSHIP

Babitha Tom – Present, Master of Science in Biomedical Engineering, Widener University, Chester, PA
Kyle Landis - Present, Master of Science in Mechanical Engineering, Widener University, Chester, PA
Alex Herman – Present, Master of Science in Mechanical Engineering, Rowan University, Glassboro, NJ
Jacklyn Witko – Present, Master of Science in Mechanical Engineering, Rowan University, Glassboro, NJ
Silpa Reddy – June 2012 Master of Science in Biomedical Engineering, Drexel University, Philadelphia, PA
Sowmya Surapneni – June 2007 Master of Science in Biomedical Engineering, Wayne State University, Detroit, MI
Raj Israel – December 2005 Master of Science in Biomedical Engineering, Wayne State University, Detroit, MI

INVITED LECTURES

1. Spinal Cord Injury: Mechanism and Treatment, IIT Mumbai, India, August 2012
2. Mechanism of Locomotor Recovery after Body Weight Supported Treadmill Training, MOSS Rehabilitation Center, Philadelphia, March 2010
3. Mechanism of Locomotor Recovery after Body Weight Supported Treadmill Training, Drexel University, Philadelphia, November 2009
4. Advances in Traumatic Axonal Injury: A New Injury Model. Drexel Univ, Philadelphia, March 2008
5. Traumatic Axonal Injury: An Overview. BME Seminar, Rowan University, New Jersey, March 2007
6. Biomechanics of Spinal Nerve Root Injury. SMA, Philadelphia, PA, January 2007

ARCHIVAL JOURNAL PUBLICATIONS

1. **Singh A**, Krisa L, Frederick K, Sandrow-Feinberg, Stackhouse S, Murray M, Shumsky S (2014). "Forelimb Locomotor Rating Scale for Behavioral Assessment of Recovery after Unilateral Cervical Spinal Cord Injury in Rats." J. Neuro Methods. 226:124-31.
2. Jin Y, Neuhuber B, **Singh A**, Bouyer J, Bonner J, Himes BT, Campanelli JT, Fischer I (2011). "Transplantation of human glial restricted progenitors and astrocytes into spinal cord contusion." J. Neurotrauma. 28(4):579-94.
3. **Singh**, A, Balasubramanian, S, Murray, M, Lemay, M, Houle, JD. (2011) "Role of Spared Pathways in Locomotor Recovery after Body Weight Supported Treadmill Training in Contused Rats". Journal of Neurotrauma, 28:1-12
4. **Singh**, A, Murray, M, Houle, JD. (2010) "A Training Paradigm to Enhance Motor Recovery in Contused Rats: Effects of Staircase Training". Neurorehabilitation and Neural Repair, 25(1):24-34
5. **Singh A**, Balasubramanian S. (2009) "Recent Patents on Body Weight Support TrainingDevicesfor SpinalCordInjury".RecentPatentsonBiomedical Engineering, Available online
6. **Singh A**, Kallakuri S, Chen CY, Cavanaugh JM. (2009) "Structural and Functional Changes in Nerve Roots Due to Various Strains and Strain Rates". Journal of Neurotrauma, 26: 1-14
7. Kallakuri S, **Singh A**, Lu Y, Chen C, Patwardhan A, Cavanaugh JM. (2008) "Tensile stretching of cervical facet joint capsule and related axonal changes". European Spine Journal, 17:4, 556-563
8. **Singh A**, Lu Y, Chen CY, Kallakuri S, Cavanaugh JM. (2006) "A New Model of Traumatic Axonal Injury

to Determine the Effects of Strain and Displacement Rates". Stapp Car Crash Journal, 50: 601-623. SAE Paper # 2006-22-0023

9. **Singh A**, Lu Y, Chen C, Cavanaugh JM. (2005) "Mechanical Properties of Spinal Nerve Roots Subjected to Tension at Different Strain Rates". Journal of Biomechanics, 39, 1669-1676
10. Kallakuri S, **Singh A**, Chen CY, Cavanaugh JM. (2004) "Demonstration of Substance P, Calcitonin Gene Related Peptide and Protein Gene Product 9.5 Containing Nerve Fibers in Human Cervical Facet Joint Capsules". Spine, 29:11, 1182-1186

CONFERENCE ABSTRACTS

1. Loftus JP, Kadlowec J, **Singh A**. (2015). Comparing Effects of Body Weight Supported Treadmill Training on Bone and Muscle Following Complete and Incomplete Spinal Cord Injury The 39th Annual Meeting of the American Society of Biomechanics (ASB) will be held Columbus, Ohio - Aug 5-8. Poster # 371
2. Zamorski T, Stoy L, Shadi M, Delivoria M, **Singh A.** (2015) Investigating The Mechanism Of Neonatal Brachial Plexus Palsy Using Biomechanical Testing. The 39th Annual Meeting of the American Society of Biomechanics (ASB) will be held Columbus, Ohio - Aug 5-8. Poster # 491
3. Dyer K, Merlino A, Bouaynaya N, Merill T, Podolin D, **Singh A.** (2015) Improving Patient Simulator Upper Arm Biomechanics. The 39th Annual Meeting of the American Society of Biomechanics (ASB) will be held Columbus, Ohio - Aug 5-8. Poster # 142
4. King B, Witko J, Herman A, Tom B, Vernengo AJ, **Singh A**. (2015) A Bioengineering Solution to Cure Spinal Cord Injury. Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C2015) in Snowbird, Utah - June 17-20. Poster # 186
5. Loftus JP, Stoy L, Patterson DJ, **Singh A.** (2015) An Efficient And Reliable Biomechanical Testing Device To Perform Torsion Testing In Long Bones With Locking Compression Plates. Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C2015) in Snowbird, Utah - June 17-20. Poster # 256
6. Dyer K, King B, Witko J, **Singh A**. (2015) A New Body Weight Supported Treadmill Device to Measure Kinetic Response from Spinal Cord Injury Animals. NEBEC Abstract - 41st Annual Northeast Bioengineering Conference (NEBEC) held in Troy, NY - April 17-19 2015. Poster # P2-54
7. Kim K, Lopez J, Eastlack R, Pennings F, **Singh** A. (2011) Does the Type of Procedure Affect the Incidence of Dysphagia and Dysphonia in Anterior Cervical Spine Surgery? Cervical Spine Research Society, Scottsdale, AZ December 8-11
8. **Singh** A, Murray M, Houle J. (2010) Effects of Neurotrophins and Body Weight Supported Treadmill Training after Spinal Cord Injury. Society for Neuroscience, San Diego, CA, November 13-17
9. Reddy S, Balasubramanian S, **Singh** A. (2010) Effects of Neurotrophins and Body Weight Supported Treadmill Training after Spinal Cord Injury. Drexel University, Biomedical Talent & Technology Poster Showcase, November 3
10. **Singh** A, Murray M, Houle J. (2010) Mechanism of Locomotor Recovery after Body Weight Supported Treadmill Training in Contused Rats. Research Day; Philadelphia, PA; April 15
11. **Singh** A, Murray M, Houle J. (2010) Mechanism of Locomotor Recovery after Body Weight Supported Treadmill Training in Contused Rats. Society for Neuroscience- Philadelphia chapter; PA; February 15
12. **Singh** A, Murray M, Houle J. (2009) Mechanism of Locomotor Recovery after Body Weight Supported Treadmill Training in Contused Rats. Society for Neuroscience; Chicago, IL; Oct 10-13
13. **Singh A**, Zhukareva V, Houle J. (2008) A New Exercise Paradigm to Improve Locomotor Recovery after Spinal Cord Contusion in Rats. Society for Neuroscience, Washington DC, Nov 15-19. Poster # 573.10
14. Potluri S, Himes BT, **Singh A**, Hyun JK, Tessler A, Young-Jin Son. (2008) Selective vulnerability of neuromuscular junction in ankle flexors to the paralysis elicited by spinal cord injury. Discovery Day, Drexel University- College of Medicine, Philadelphia. Oct – 15. Poster # 339
15. **Singh A**, Houle J. (2008) A New Exercise Paradigm to Improve Locomotor Recovery after Spinal Cord Contusion in Rats. Discovery Day, Drexel Univ- College of Medicine, Philadelphia. Oct – 15. Poster # 343

16. **Singh A**, Miller K, Jacob S, Shumsky J, Houle J. (2008) Effect of Robotic Training on Hindlimb Stepping in Adult Contused Rats. 31st Annual Meeting of the Philadelphia Chapter, Society of Neuroscience, PA, February 5. Poster # 53
17. **Singh A**, Lu Y, Chen CY, Kallakuri S, Cavanaugh JM. (2006) Structural and Functional Changes in Nerve Roots Due to Various Strains and Strain Rates. BMES Annual Fall Meeting, October 11-14, Chicago, IL. Poster # 469
18. **Singh A**, Chen CY, Cavanaugh JM. (2005) Mechanical Properties of Spinal Nerve Roots Subjected to Tension at Different Strain Rates. 51st Annual Meeting of the Orthopaedic Research Society, Feb 20-23, Washington D.C. Poster # 540
19. Chen C, Kallakuri S, Lu Y, **Singh A**, Patwardhan A, Cavanaugh JM. (2005) Response of A- and C Fibers to the Stretch of Cervical Facet Joint Capsule and Related Axonal Morphological Studies. 51st Annual meeting of the Orthopaedic Research Society, Feb 20-23, Washington D.C. Poster # 1341
20. **Singh A**, Chen CY, Cavanaugh JM. (2005) Mechanical Properties of Spinal Nerve Roots Subjected to Tension at Different Strain Rates. Annual Meeting of the International Society for the Study of the Lumbar Spine, May 10-14, New York. Poster # 420
21. Kallakuri S, Cavanaugh JM, **Singh A**, Chen CY. (2003) Cervical Facet Capsule Innervation: A Preliminary Immunohistochemical Study. 49th Annual meeting of the Orthopaedic Research Society, Feb 2-5, New Orleans, LA. Poster # 01237

CONFERENCE PODIUM PRESENTATIONS

1. **Singh A**, King B, Witko J, Herman A, Tom B, Vernengo AJ (2015). Using Bioengineering Scaffolds and Body Weight Supported Treadmill Training to Improve Motor Function after Spinal Cord Injury. Biomedical Engineering Society (BMES) Oct 7-10, Tampa, FL. (Special Session: Neurorehabilitation – Neural Engineering Track).
2. **Singh A**, Ferry D. Identifying Unmet Needs in Biomedical Engineering Through Bridging the Gap Between Classroom and Clinic. American Society for Engineering Education (ASEE). April 10-11, Villanova University, PA.
3. **Singh A**, Kallakuri S, Chen CY, Cavanaugh JM. (2009) Effects of varying strain and strain rate on nerve root conduction changes. Annual Meeting of the International Society for the Study of the Lumbar Spine, May 4-7, Miami, FL. (Special Session: Experimental Deformity)
4. **Singh A**, Kallakuri S, Chen CY, Cavanaugh JM. (2009) Effects of varying strain and strain rate on nerve root morphological injury. Annual Meeting of the International Society for the Study of the Lumbar Spine, May 4-7, Miami, FL. (Special Session: Experimental Deformity)
5. **Singh A**, Chen CY, Kallakuri S, Cavanaugh JM. (2008) Extent of Nerve Root Injury and Recovery Due to Tension at Various Strains and Rates. Fourth Annual Philadelphia Spine Research Symposium, Nov 13, Philadelphia, PA. (Session 4)
6. **Singh A**, Lu Y, Chen CY, Kallakuri S, Cavanaugh JM. (2007) Structural and Functional Changes in Nerve Roots Due to Various Strains and Strain Rates. 53rd Annual meeting of the Orthopaedic Research Society, Feb 11-14, San Diego, CA. (Session 5 – Paper # 35)
7. **Singh A**, Lu Y, Chen CY, Kallakuri S, Cavanaugh JM. (2006) A New Model of Traumatic Axonal Injury to Determine the Effects of Strain and Displacement Rates. Stapp Car Crash Journal, 50: 601 623. SAE Paper # 2006-22-0023

PROFESSIONAL SOCIETY MEMBERSHIPS

Biomedical Engineering Society

JOURNAL REFEREE

ANITA SINGH, PhD

923 Ridley Creek Drive, Media, PA 19063, Cell: 313-595-5660, anitausingh@hotmail.com

Journal of Biomechanics, Journal of Neurotrauma, Journal of Neuroscience Methods, Brain Research, European Spine Journal