**CURRICULUM VITAE**

Ulrike Hildegard Mitchell, PhD, PT

Manual Therapy Certified

Orthopedic Certified Specialist

Fellow of the American Academy of Orthopaedic and Manual Physical Therapists

Brigham Young University, Department of Exercise Sciences

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Provo, UT 84602-2216

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**Education**

* PhD Exercise Science, emphasis on Physical Medicine and Rehabilitation, Brigham Young University, 2005
* MS Orthopedic Physical Therapy, University of St. Augustine for Health Sciences, Florida, 2000
* BS (equivalent), Physical Therapy, Krankengymnastikschule Hessisch Lichtenau, Germany, 1987
* BA (equivalent), Romance Languages and Sport Sciences, University of Heidelberg, Germany, 1984

**Physical Therapy License**

#4986055-2401 in Utah

Trigger Point Dry Needling 2016 to present

**Certifications**

* **Physical Therapist,** licensed in Germany 1988, licensed in USA 1991
* **Mechanical Diagnosis and Therapy,** credentialed by The McKenzie Institute, U.S.A. Center for Post-Graduate Study in Spinal Mechanical Therapy; May 1994
* **Manual Therapist,** certified by the Institute of Physical Therapy, St. Augustine, Florida; January 1997
* **Board Certified Specialist in Orthopedic Physical Therapy**, certification number 46745; May 2015
* **Fellow of the American Academy of Orthopaedic Manual Physical Therapists**, Fellow number 2495; August 2016

**Employment**

* 2008–Present Current position: Associate Professor, full time, professorial continuous faculty status track
* 2006–Present Adjunct faculty at University of St. Augustine
* 2005, 2010–Present Adjunct faculty at Rocky Mountain University of Health Professions
* 2008 Adjunct faculty at Utah State University
* 1991–2008 Orthopedic physical therapist in multiple settings in Germany, Texas and Utah
* 1992–1997 Director of Physical Therapy in Nederland, El Paso and Plano (all Texas) for the county hospital, RCSA, and Rehab Specialists, respectively

**TEACHING**

**ExSc 460** Orthopedic Impairment and Therapeutic Exercise, 2008 - present

**ExSc 440** Advanced Human Musculoskeletal Anatomy (formerly known as Musculoskeletal Functional Anatomy and Kinesiology, ExSc 400 and ExSc 390), 2005, 2006, 2008–present

**ExSc 497R** Undergraduate Individual Research, 2009-present

**ExSc 625R** Strength Rehabilitation, 2012-present

**ExSc 221** The Science of Wellness, 2015 (online)

**ExSc 400L** Anatomy Lab Instructor, 2001-2005

**Graduate Student Committee Service**

**Chair**

Robert Larson (PhD) Admitted 2015 2019

Erika Richards (MS) Admitted 2014 Graduated 2017

Jennifer Bowden (PhD) Admitted 2011 Graduated 2017

Samantha Burton (MS) Admitted 2011 Graduated 2015

Paula Johnson (MS) Admitted 2010 Graduated 2013

**Committee Member**

Kyle Bills (PhD) Admitted 2016 2019

Kent Crossley (PhD) Re-admitted 2015 2018

Kelsey Garner (MS) Admitted 2014 Graduated 2016

Tiffany deVries (MS) Admitted 2013 Graduated 2016

Heather Black Melanson (MS) Admitted 2012 Graduated 2015

Michael Wilcock (MS) Admitted 2011 2013–DNF

Jared Franson (MS) Admitted 2011 Graduated 2013

Brett Mortensen (PhD) Admitted 2010 Graduated 2018

Alyssa Smyres Evanson (MS) Admitted 2010 Graduated 2012

Melanie Morgan (MS) Admitted 2010 2012–DNF

Carie Eastman (MS) Admitted 2009 Graduated 2011

**Undergraduate Research Mentoring**

**Mentored undergraduate students who presented at a conference**

Adam Killpack

Barbara Simmons

Chris Grant (platform)

Misae Nomiyama

Stephen Richardson (platform and poster)

Josiah Tingey (platform and poster)

Erik Hunsaker

Sean Parker

Cameron Seamons (platform and poster)

Brandon Muhlestein

**Mentored undergraduate students who are listed as co-authors on peer-reviewed publications**

Brynn Adamson

Erik Hunsaker Cameron Seamons

**Undergraduate Clinical Mentoring**

**Mentored undergraduate students in the area of physical therapy**

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| --- | --- | --- |
| **2015** | **2016** | **2017** |
| Chris Hovey | Garbriel Canozo | Andy Proctor |
| Eldon Cummings | Robert Kemsley | Janelle Udall |
| Blake Sherwood | Colby Nielsen | Alex Buchkovich |
|  | Todd Barrett | Ashley Correa |
|  | Tyler Bills | Kelsie Buchkovich |
|  | Graylon Berg | Jonathan Egbert |
|  | Jeffrey Ewert | Ashley Owen |
|  | Caitlyn Wahnschaffe | Jed Lee |
|  | Orion Wilson | Scott Cryer |
|  | Brian Burton | Alex Burhoe |
|  | Brandon Gust |  |
|  | Michael Vogt |  |
|  | Joe Valdez |  |
|  | Alexandra Bennett |  |
|  | Devon Alkema |  |

**SCHOLARLY WORK**

**Peer Reviewed Publications**

1. **Mitchell UH**, Hurrell J (graduate student from University of St. Augustine, FL). Clinical Spinal Instability: 10 years since the derivation of a Clinical Prediction Rule, a narrative review. *Journal of Back and Musculoskeletal Rehabilitation* 2018 (pre-press, DOI: 10.3233/BMR-181239)
2. **Mitchell UH**, Johnson AW, Larson RE (graduate student), Seamons CT (undergraduate student). Positional Changes in Distance to the Pleura and in Muscle Thickness for Dry Needling. *Physiotherapy* 2018 (in press <https://doi.org/10.1016/j.physio.2018.08.002>)
3. **Mitchell UH**, Stoneman PD, Larson RE (graduate student), Page G. The construction of sham dry needles and their validity. *Evidence-Based Complementary and Alternative Medicine* 2018 <https://doi.org/10.1155/2018/9567061>
4. **Mitchell UH**, Obray JD, Hunsaker E (undergraduate student), Garcia BT, Clarke TJ, Hope S, Steffensen SC. Peripheral Dopamine in Restless Legs Syndrome. *Frontiers in Neurology* 2018:9:155 DOI: 10.3389/fneur.2018.00155
5. Bowden JA (graduate student), Bowden AE, Wang H, Hager RL, LeCheminant JD, **Mitchell UH** (senior author). In Vivo Correlates Between Daily Physical Activity and Intervertebral Disc Health. *Journal of Orthopaedic Research* 2018:36:1313-1323 DOI 10.1002/jor.23765
6. **Mitchell UH**, Burton S (graduate student), Mack GW. The Effect of Being Aerobically Active Versus Inactive on Nitric Oxide Concentration and Synthesis in an Older Population. *Frontiers – Physiology* 2017 8:859 DOI: 10.3389/fphys.2017.00859
7. **Mitchell UH**, Beattie P, Bowden JA (graduate student), Larson RE (graduate student), Wang H. Age-related differences in the response of the L5-S1 Intervertebral disc to spinal traction*. Musculoskeletal Science and Practice (formerly Manual Therapy)* 2017:31:1-8DOI: 10.1016/j.msksp.2017.06.004
8. **Mitchell UH**, Helgeson K, Mintken P. Physiological effects of physical therapy interventions on lumbar intervertebral discs - A Systematic Review. *Physiotherapy Theory and Practice* 2017:33(9):695-705 DOI: 10.1080/09593985.2017.1345026.
9. Ulfberg J, Stehlik R, **Mitchell UH**. Treatment of restless legs syndrome with selenium. *Iranian Journal of Neurology* 2016:15(4)
10. Melanson H, Draper DO, Eggett DL, **Mitchell UH**. Comparison of Hands-free Ultrasound and Traditional Ultrasound for Therapeutic Treatment. *Athletic Training Sports Health Care* 2016: 8(4): 177-184 DOI: 10.3928/19425864-20160505-01
11. **Mitchell UH**, Hunsaker E (undergraduate student), Ulfberg J, Hilton SC. Decreased symptoms without augmented skin blood flow in subjects with RLS/WED after vibration treatment. *Journal of Clinical Sleep Medicine* 2016:12(7):947-52 DOI: 10.5664/jcsm.5920
12. Nielson C, Lockhart BD, George JD, Hager RL, Eggett DL, Steffen PR, **Mitchell UH**, Bailey BW. The Effect of Interval Training on Resting Blood Pressure. *International Journal of Exercise Science* 2016:9(1):89-100 <http://digitalcommons.wku.edu/ijes/vol9/iss1/10/>
13. **Mitchell UH**, Johnson AW, Vehrs PR, Feland JB, Hilton CH. Performance on the functional movement screen in older active adults. *Journal of Sport and Health Science*. 2016:5(1):119-125 DOI:10.1016/j.jshs.2015.04.006
14. Johnson AW, Myrer JW, **Mitchell UH**, Hunter I, Ridge ST. The effects of a transition to minimalist shoe running on intrinsic foot muscle size. *International Journal of Sports Medicine* 2016:37(2):154-8 DOI: 10.1055/s-0035-1559685
15. **Mitchell UH**. Medical devices for restless legs syndrome – clinical utility of the Relaxis Pad (invited review). *Therapeutics and Clinical Risk Management*. online December 2015:2015(11):1789-1794 (https://www.dovepress.com/medical-devices-for-restless-legs-syndrome-ndash-clinical-utility-of-t-peer-reviewed-article-TCRM)
16. **Mitchell UH**, Johnson AW, Adamson B (undergraduate student). Relationship between functional movement ability, core strength, posture and BMI in school children in Moldova. *Journal of Strength and Conditioning Research* 2015:29(5):1172-1179
17. Ulfberg J, **Mitchell** UH. Efficacy of sildenafil in a patient with restless legs syndrome/Willis-Ekbom disease. *Clinical Neuropharmacology* 2015:38(2):67-68
18. Zalai D, Bobak P, Csaki I, Hamar P, Myrer JW, **Mitchell** UH, Johnson AW. Motor skills, anthropometrical characteristics and Functional Movement in elite young soccer players. *Journal of Exercise, Sports and Orthopedics* 2015:2(1):1-7
19. Franson J (graduate student), Draper DO, Rigby J, Johnson AW, **Mitchell UH**. Three MHz ultrasound vigorously heats tissues at a 3 cm depth. *Athletic Training and Sports Health Care* 2014:6(6):267-272
20. Johnson AW, **Mitchell UH**, Meek K (undergraduate student), Feland, JB.Hamstring flexibility increases the same with 3 or 9 repetitions of stretching held for a total time of 90 seconds. *Physical Therapy in Sport* 2014:15:101-105. DOI: 10.1016/j.ptsp.2013.03.006
21. Johnson PK (graduate student), Feland JB, Johnson AW, Mack GW, **Mitchell UH** (senior author). Effect of whole body vibration on skin blood flow and nitric oxide production. *Journal of Diabetes Science and Technology* 2014:8(4):889-94 <http://dst.sagepub.com/content/early/2014/05/20/1932296814536289>
22. **Mitchell UH**, Johnson PK (graduate student). Vibration and skin blood flow changes in subjects with RLS. *Journal of Parkinsonism and Restless Legs Syndrome* 2014:4:9-16[*http://www.dovepress.com/articles.php?article\_id=15902*](http://www.dovepress.com/articles.php?article_id=15902)
23. **Mitchell UH**, Hilton SC. Change of International Restless Legs Syndrome Group Rating Scale subscales with treatment and placebo – a pilot study. *Journal of Parkinsonism and Restless Legs Syndrome* 2014:4:27-33 <http://www.dovepress.com/articles.php?article_id=15923>
24. Ridge S, Johnson AW, **Mitchell UH**, Hunter I, Robinson E, Rich BS, Brown SD. Foot bone marrow edema after 10 week transition to minimalist running shoes*.* ***Medicine & Science in Sports & Exercise* 2013:45(7):1363-8. doi:** 10.1249/MSS.0b013e3182874769<http://www.ncbi.nlm.nih.gov/pubmed/23439417>
25. **Johnson AW, Eastman CS, Mitchell UH, Feland JB, Eggett, DL. Effect of high-speed treadmill training with a body weight support system in a sport acceleration program with female soccer players. *Journal of Strength and Conditioning Research* 2013:27(6):1496-502** <http://www.ncbi.nlm.nih.gov/pubmed/22986445> doi: 10.1519/JSC.0b013e31826cac04
26. **Mitchell UH, Mack GW. Low Level Laser Treatment with Near-Infrared Light Increases Venous Nitric Oxide Levels Acutely: Single Blind, Randomized Clinical Trial of Efficacy. *American Journal of PM&R* 2013**:92(2):151-156. **doi: 10.1097/PHM.0b013e318269d70a** <http://journals.lww.com/ajpmr/toc/publishahead>
27. **Mitchell UH, Johnson AW, Myrer JW, Hager, RL, Eggett DL. A Randomized Single-Blind Controlled Trial Comparing Two Monochromatic Near-Infrared Light Devices: Implications for Tissue Heating and Safety. *American Journal of PM&R* 2012**:91(9):789-796. doi: 10.1097/PHM.0b013e31825a1937
28. **Mitchell UH**, Johnson AW, Ridge SC, Standifird T. “Natural Running” – Joggen im Minimalschuh. *pt* *Zeitschrift fűr Physiotherapeuten* 2012:7:47-49
29. **Mitchell UH**. Ekbom-Syndrom behandeln. *pt Zeitschrift fűr Physiotherapeuten* 2011:6:46-48
30. **Mitchell UH**, Helgeson, K. Treatment of Ekbom Disease; effectiveness of physical therapy interventions—a systematic review. *pt* *Zeitschrift fűr Physiotherapeuten* 2011:6:6-17
31. **Mitchell UH**. Wittmaack-Ekbom-Syndrom – ein Fall fuer Physiotherapeuten *pt Zeitschrift fűr Physiotherapeuten* 2011:5:21-11
32. **Mitchell UH**, Myrer JW, Johnson AW. Restless legs syndrome and near-infrared light: an alternative treatment option. *Physiotherapy Theory and Practice* 2011:27(5):345-51
33. **Mitchell UH**, Johnson AW, Myrer JW. Comparison of two infrared devices in their effectiveness in reducing symptoms associated with RLS. *Physiotherapy Theory and Practice* 2011:27(5):352-359
34. **Mitchell UH**. Non-drug related aspect of treating Ekbom Disease (EKD), formerly known as Restless Legs Syndrome (RLS). *Neuropsychiatric Disease and Treatment* 7(1) 251–257 published online 06 May 2011. doi: [10.2147/NDT.S19177](http://dx.crossref.org/10.2147%2FNDT.S19177) <http://www.dovepress.com/articles.php?article_id=7359>
35. Myrer JW, Johnson AW, **Mitchell UH**, Measom GJ, Fellingham GW. Topical analgesic added to paraffin enhances paraffin bath treatment of individuals with hand osteoarthritis. *Disability and Rehabilitation* 2011:33(6):467-74 doi: 10.3109/09638288.2010.498552.
36. **Mitchell UH**. Use of near-infrared light to reduce symptoms associated with restless legs syndrome in a woman: a case report. *Journal of Medical Case Reports* 2010;4:286 <http://www.dovepress.com/articles.php?article_id=7359&l=jlhvpzYTHvhRAXMWKPEYDw0h105657>
37. **Mitchell UH**. PNF-Stretching; basieren Erfolge of Reflexaktivität? *pt Zeitschrift fűr Physiotherapeuten* 2009:11:1015–1019
38. **Mitchell UH**, Myrer JW, Hopkins JT, Hunter I, Hilton S, Feland JB. Neurophysiological reflex mechanisms’ lack of contribution to the success of PNF stretches. *Journal of Sports Rehabilitation* 2009:18:343–357
39. **Mitchell UH**, Myrer JW, Hopkins JT, Hunter I, Feland JB, Hilton S. Acute stretch perception alteration contributes to the success of the PNF “contract-relax” stretch. *Journal of Sports Rehabilitation* 2007:16:85–92
40. **Mitchell UH**, Wooden MJ, McKeough DM. The short-term effect of lumbar positional distraction. *The Journal of Manual & Manipulative Therapy* 2001:9(4):213–221

**Invited Editorials**

1. **Mitchell UH**. Editorial. *pt* *Zeitschrift fűr Physiotherapeuten* 2011:6:1
2. **Mitchell UH**. Editorial. *pt Zeitschrift fűr Physiotherapeuten* 2009:11:973

**Book Chapters**

1. **Mitchell UH**. Commentary on: Restless legs syndrome and near-infrared light: an alternative treatment option. *Best of Sleep Medicine* 2012. Lee-Chiong, T. (eds). 2012

**Manuscripts in Preparation**

* **Mitchell UH**, Johnson AW. Flexibility. Chapter in book for the CSCCA (Collegiate Strength and Conditioning Coaches Association); this book is meant as replacement for the NSCA’s Essentials of Strength Training and Conditioning book
* **Mitchell UH**, Cook P, Pulsipher B. Does the addition of site specific trigger point dry needling to physical therapy exercise intervention evoke segmental neuromodulation in the lower extremity and if so, do these changes make an impact on the subject’s disability?
* **Mitchell UH**, Bowden JA, Larson RE, Bailey B. Intervertebral disc and vertebral health in long-term runners
* **Mitchell UH**, Owen P, Belavy DL. Transverse abdominis shortens less with contraction in hypermobile individuals

**Invited professional platform presentations and symposia:**

* **American Academy of Orthopaedic Manual Physical Therapists Annual Meeting** in Salt Lake City, UT, October 2017: **Mitchell UH**, Geiser MB (symposium): “Get with the Flow! Lumbar intervertebral fluid flow and impacts of spinal loading” <http://www.tandf.co.uk/journals/pdf/2017-AAOMPT-conference-abstracts.pdf>
* **American Academy of Orthopaedic Manual Physical Therapists Annual Meeting** in Salt Lake City, UT, October 2017: **Mitchell UH** (platform presentation): “The construction of sham dry needles and their validity”
* **Utah Physical Therapy Association Annual Meeting** in Salt Lake City, UT, October 2017: Larson RE (graduate student, platform presentation), Seamons C (undergraduate student) **Mitchell UH**. “change in scapular muscle thickness with positioning” \*received BEST ABSTRACT award
* **American Academy of Orthopaedic Manual Physical Therapists Annual Meeting** in St. Louis, MO, October 2016: **Mitchell UH**, Johnson AW (plenary platform presentation): “Clinical Pearl: Dry needling the rhomboid major: considerations for positioning.” <http://www.tandf.co.uk/journals/pdf/2016-AAOMPT-conference-abstracts.pdf>, pp 118-120
* **Combined Sections Meeting of the American Physical Therapy Association**, San Antonio, TX, February 2017: **Mitchell** **UH**, Bowden J (graduate student) (platform presentation): “Physiological effects of lumbar traction on the intervertebral disc in young and older subjects” *Journal of Orthopaedic & Sports Physical Therapy* 2017;47(1):A19-20 **DOI:** 10.2519/jospt.2017.47.1.A1
* **American Academy of Orthopaedic Manual Physical Therapists Annual Meeting** in St. Louis, MO, October 2016: **Mitchell UH**, Johnson AW. (platform presentation): “Dry needling the rhomboid major: considerations for positioning.” <http://www.tandf.co.uk/journals/pdf/2016-AAOMPT-conference-abstracts.pdf>, pp118-120
* **American Academy of Orthopaedic Manual Physical Therapists Annual Meeting** in Louisville, KY, October 2015: **Mitchell UH** (platform presentation): “Physiological effects of manual therapies on lumbar intervertebral discs – a systematic review.” <http://www.tandf.co.uk/journals/pdf/YJMT-2015-Abstracts-dv-edits-revised.pdf>, pp 18-19
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2015: Bowden JA (graduate student, platform presentation), **Mitchell UH**, Bowden AE. “Fluid exudation rates in loaded and unloaded intervertebral discs.”
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2014: Richardson, S and Tingey J (undergraduate student, platform presentation), **Mitchell UH** “Research in Kenya, experiences and challenges.”
* **Southwest Chapter of the American College of Sports Medicine** in Newport Beach, CA in October 2013: **Mitchell UH**, Johnson AW, Ridge S, Hunter I. (symposium) “Light, lighter, barefoot”
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2010: **Mitchell UH**, Grant C (undergraduate student, platform presentation) “Near-infrared light treatment to the calves does not increase skin temperature at the soles of the feet.”
* **American College of Sports Medicine, 53rd Annual Meeting** in Denver, CO, June 2006: **Mitchell UH** (platform presentation), Myrer JW, Hopkins JT, Hunter I, Feland JB, Hilton SC. (2006) “Reciprocal inhibition, successive inhibition, autogenic inhibition, or stretch perception alteration: why do PNF stretches work?” **A written copy of the abstract can be found:** *Proceedings of the American College of Sports Medicine 53rd Annual Meeting*
* **Utah Physical Therapy Association Annual Meeting** in Salt Lake City, UT, September 2005: **Mitchell UH** (platform presentation), Myrer JW, Hopkins JT, Hunter, I, Feland JB, Hilton SC. “Autogenic Inhibition or Stretch Tolerance Alteration: why does the PNF Stretch Contract-Relax Work?”

**Peer reviewed scientific and professional poster presentations with their abstracts**

* **Autumn Immunology Conference** in Chicago, IL, November 2018: Roll CC (undergraduate student, oral presentation), Arnold C (undergraduate student), Obray JD (graduate student), Steffensen SC, **Mitchell UH**, Hope S. “Effect of Parkinson’s Disease on expression of dopamine D2 receptors in peripheral blood leukocytes”
* **Utah Physical Therapy Association Annual Meeting** in Salt Lake City, UT, October 2018: Muhlestein B (undergraduate student), Johnson AW, **Mitchell UH** (senior author): “Effects of exercise on the intervertebral disc in sedentary populations”
* **Combined Sections Meeting of the American Physical Therapy Association**, New Orleans, LA February 2018: **Mitchell** **UH**, Johnson AW, Seamons C (undergraduate student), Larson RE (graduate student): “Rhomboid minor and major muscle thickness changes with positioning” *Journal of Orthopaedic & Sports Physical* 2018;48(1):A67–A202. doi:10.2519/jospt.2018.48.1.A67
* **Utah Physical Therapy Association Annual Meeting** in Salt Lake City, UT, October 2017: Bowden JA (graduate student), **Mitchell UH** (senior author). “Vigorous Physical Activity Improves IVD Health as Determined by MRI-DTI Measures”
* **Orthopaedic Research Society Annual Meeting**, San Diego, CA, March 2017: Bowden JA (graduate student), **Mitchell UH** (senior author), Bowden AE: “Moderate-vigorous activity and sedentary time are indicators of IVD health” *Journal of Orthopaedic Research* 2017;35 (S1) March 2017 online abstract: <http://www.ors.org/abstract-search/>
* **Combined Sections Meeting of the American Physical Therapy Association**, San Antonio, TX, February 2017: **Mitchell** **UH**, Johnson AW: “Considerations for dry needling the levator scapulae/upper trapezius” *Journal of Orthopaedic & Sports Physical Therapy* 2017;47(1):A125-126 **DOI:** 10.2519/jospt.2017.47.1.A58
* **Combined Sections Meeting of the American Physical Therapy Association**, San Antonio, TX, February 2017: Johnson AW, **Mitchell** **UH**: “Dry needling in the upper thorax: hand dominance does not affect the distance to the lungs” *Journal of Orthopaedic & Sports Physical Therapy* 2017;47(1):A103-104 **DOI:** 10.2519/jospt.2017.47.1.A58
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2016: Larson, R (graduate student), Bowden, J (graduate student), **Mitchell UH** (senior author), “Differences in intervertebral disc fluid between an active and an inactive individual.” A written copy of the abstract can be found in the proceedings, page 41.
* **Combined Sections Meeting of the American Physical Therapy Association**, Anaheim, CA, February 2016: **Mitchell UH**, Johnson AW, Feland JB, Vehrs PR. “BMI, predicted VO2max and total FMS score in the active elderly population.” *Journal of Orthopaedic & Sports Physical Therapy* 2015;46(1):A118 **DOI:** 10.2519/jospt.2016.46.1.A58
* **Orthopedic Research Society, International Spine Research Symposium** in Philadelphia, PA, November 2015: Bowden JA (graduate student), Fletcher S, Baker S, Rutchi T, **Mitchell UH** (senior author), Bowden AE. “Post-swelling fluid exudation rates following traction and compression.”
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2015: **Mitchell UH**. “Fluid flow in lumbar intervertebral discs with spinal mobilization – a review.”
* **Sleep (American Academy of Sleep Medicine) Annual Meeting** in Seattle, Washington, June 2015: **Mitchell UH**. “Restless Legs Syndrome and Whole Body Vibration.” *SLEEP* 2015:38 Abstract Supplement:A256
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Parker, S (undergraduate student), Johnson, AW, **Mitchell UH** (senior author), “Inter-tester and inter-medium reliability of the FMS.” A written copy of the abstract can be found in the proceedings, page 41.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Hunsaker, E (undergraduate student), **Mitchell UH** (senior author), “Restless Legs Syndrome and dopamine, flux and whole body vibration.” A written copy of the abstract can be found in the proceedings, page 33.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Bowden J (graduate student), Wisco JJ, **Mitchell UH** (senior author), “Intervertebral disc and fluid flow with traction - a pilot study.” A written copy of the abstract can be found in the proceedings, page 20.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: **Mitchell UH**, “Conservative treatment of spinal instability.” A written copy of the abstract can be found in the proceedings, page 40.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Lockhart B, Hunsaker EK (undergraduate student), Hager R, George J, **Mitchell UH**, Eggett D, Steffen P, Nielson C (graduate student). “Interval training for mindbody wellness.” A written copy of the abstract can be found in the proceedings, page37.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Tingey J (undergraduate student), Richardson S (undergraduate student), **Mitchell UH** (senior author), A comparison of FMS between male and female children in Kenya. A written copy of the abstract can be found in the proceedings, page 48.
* **Southwest Chapter of the American College of Sports Medicine** in Costa Mesa, CA, October 2014: Richardson S (undergraduate student), Tingey J (undergraduate student), **Mitchell UH** (senior author), “A comparison of exercise ability and flexibility between children in urban and rural areas in Kenya.” A written copy of the abstract can be found in the proceedings, page 44.
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2014: **Mitchell UH**. “The clinical prediction rule in spinal stabilization.”
  + **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2014: Bowden J (graduate student), **Mitchell UH** (senior author). “Intervertebral disc fluid flow changes using traction: a cadaveric pilot study.”
* **Sleep** (American Academy of Sleep Medicine) Annual Meeting in Minneapolis, Minnesota, June 2014: **Mitchell UH**, Johnson PK (graduate student). “Vibration and skin blood flow changes in subjects with RLS.” *SLEEP* 2014:37 Abstract Supplement:A225
* **Combined Sections Meeting of the American Physical Therapy Association**, Las Vegas, NV, February 2014: **Mitchell UH**, Johnson AW. “Association of core strength and functional movement ability with BMI in school children in Moldova.” *Journal of Orthopaedic & Sports Physical Therapy* 2014;44(1):A20-A46
* **Combined Sections Meeting of the American Physical Therapy Association**, Las Vegas, NV, February 2014: **Mitchell UH**, Johnson AW, Feland JB, Vehrs PR. “BMI, predicted VO2max and total FMS score in the active elderly population.” *Journal of Orthopaedic & Sports Physical Therapy* 2014;44(1):A20-A46
* **Sleep** (American Academy of Sleep Medicine) Annual Meeting in Baltimore, MA, June 2013: **Mitchell UH**, Eggett D. “Re-evaluation of the IRLS – a pilot study.” *SLEEP 2013:*36 Abstract Supplement:A115
* **American Physical Therapy Association** Annual Meetingin **Tampa, FL, June 2012:** **Johnson AW, Eastman CS (graduate student), Mitchell UH, Feland JB, Eggett, DL.** “**Effect of high-speed treadmill training with a body weight support system in a sport acceleration program with female soccer players.” A written copy of the abstract can be found:** http://ptjournal.apta.org/site/misc/annualcon.xhtml
* **American College of Sports Medicine** 59th Annual Meeting in San Francisco, CA, May 2012: **Mitchell UH,** Johnson AW, Simmons B (undergraduate student). “A comparative cross-cultural comparison of posture, core strength, height, age and BMI.” Medicine & Science in Sports & Exercise. 44:5 Supplement: May 2012.
* **American College of Sports Medicine**, 59th Annual Meeting in San Francisco, CA, May 2012: Smyres A (graduate student), Johnson AW, **Mitchell UH**, Myrer JW, Feland JB, Seeley MK, Brooks C (graduate student), Mortensen B (graduate student), Anderson J (graduate student) “Electromyography Comparison Of Three Isometric Lumbar Spine Extensor Strengthening Exercises” Medicine & Science in Sports & Exercise. 44:5 Supplement: May 2012.
* **World Congress for Physiotherapy** in Amsterdam, The Netherlands, June 2011: **Mitchell UH**, Helgeson, K. “Restless Legs Syndrome and Physical Therapy – a systematic review.” A written copy of the abstract can be found: <http://www.abstractstosubmit.com/wpt2011/abstracts/>
* **World Congress for Physiotherapy** in Amsterdam, The Netherlands, June 2011: **Mitchell UH, Johnson AW, Myrer JW, Hager RL.** “Comparison of two near-infrared light devices in regards to skin and tissue heating in a randomized single-blind controlled trial.” A written copy of the abstract can be found: <http://www.abstractstosubmit.com/wpt2011/abstracts/>
* **World Congress for Physiotherapy** in Amsterdam, The Netherlands, June 2011: Johnson AW, Nagel AE (graduate student), **Mitchell UH**. “Preliminary cross-cultural comparison of young women’s core strength in Ghana, Africa and Utah, USA.” A written copy of the abstract can be found: http://www.abstractstosubmit.com/wpt2011/abstracts/
* **American College of Sports Medicine, 58th Annual Meeting** in Denver, CO, June 2011: **Mitchell UH**, Myrer JW, Johnson AW. “Near-infrared light treatment to the calf increases skin temperature at the sole in the foot in patients with diabetic neuropathy.”
* **Southwest Chapter of the American College of Sports Medicine** in San Diego, CA, October 2010: **Mitchell UH**, Mack GW. “Near-Infrared light increases venous nitric oxide levels.”
* **American Physical Therapy Association Annual Meeting in Boston, MA, June 2010: Mitchell UH**, Johnson AW, Myrer JW. “**Infrared and infrared with red light significantly alleviate symptoms associated with restless legs syndrome.” A written copy of the abstract can be found:** <http://ptjournal.apta.org/site/misc/annualcon.xhtml>.
* **American Physical Therapy Association Annual Meeting in Boston, MA, June 2010:** Johnson AW, Feland JB, Myrer JW, Seeley MK, **Mitchell UH.** “Neck Extensor Fatigue Does Not Inhibit Elbow Flexors or Extensors.” A written copy of the abstract can be found: <http://ptjournal.apta.org/site/misc/annualcon.xhtml>.
* **Combined Sections Meeting of the American Physical Therapy Association in San Diego, CA, February 2010: Mitchell UH**, Myrer WJ, Johnson AW, Hilton SC. “Restless Legs Syndrome and Near-Infrared Light Treatment: an alternative treatment option.” *Journal of Neurologic Physical Therapy* 2010:4:233–235.
* **XVIII WFN World Congress on Parkinson’s Disease and Related Disorders in Miami Beach, FL, December 2009: Mitchell UH**. “Case study: use of near-infrared light to reduce symptoms associated with restless legs syndrome” **A written copy of the abstract can be found:** *Parkinsonism & Related Disorders* 15, S194
* **Utah Physical Therapy Association Annual Meeting** in Layton, UT, October 2009: **Mitchell UH**, Myrer JW, Johnson AW. “Comparison of different infrared wavelengths in alleviating symptoms associated with restless legs syndrome”
* **American Physical Therapy Association Annual Meeting** in Baltimore, MD, June 2009: **Mitchell UH**, Myrer JW, Hopkins JT, Feland FB, Hilton SC: “Neurophysiological reflex mechanisms do not contribute to the success of PNF stretches.” **A written copy of the abstract can be found:** <http://ptjournal.apta.org/site/misc/annualcon.xhtml>

**Internal Funding (funded)**

I am the PI on the following grant applications, unless otherwise noted.

* 2017
  + $5,000 BYU MRI Research Facility Grant: “Long-term running and IVD health”
* 2016
  + $3,500 Faculty Fellowship Research Award: “DNT and segmental neuromodulation”
* 2015
  + $5,000 BYU MRI Research Facility Grant: “Intermittent Lumbar Traction and Intradiscal Fluid Flow”
* 2014
  + $5,000 BYU MRI Research Facility Grant: “Intermittent Lumbar Traction May Improve Intervertebral Disc Health”
* 2013
  + $5,000 David M. Kennedy Center for International Studies Research Grant: *“Cross-cultural comparison of posture, core strength and activity level”*. I was the primary investigator. Wayne Johnson, PhD was a co-investigator.
* 2012
  + $5,790 BYU Teaching Enhancement Grant, funded by the College of Life Sciences: “IPads to assess Posture in the Orthopedic Impairment class (ExSc 460)”, Brent Feland, PhD, Wayne Johnson, PhD and I were co-applicants
* 2010
  + $1,240 College Fund: *“Does Noni extract increase venous nitric oxide availability?”* Co-investigator was Gary Mack, PhD.
* 2009
  + $4,400 BYU Gerontology Research Fund: *“Spinal rehabilitation in older adults with back pain”*. Primary Investigator was Wayne Johnson, PhD. I was a co-investigator involved in the methodology and writing of the grant.
  + $3,374 Fulton Fund: *“Tissue temperature and lower extremity blood flow responses to infrared light therapy”*
  + $1,200 College Fund: *“Nitric oxide levels in subjects receiving infra-red light therapy”*. Co-investigator was Gary Mack, PhD.
  + $1,000 Fulton Fund: *“Does Anodyne Therapy, using monochromatic near-infrared photo energy measurably increase nitric oxide in venous blood?”*. Co-investigator was Gary Mack, PhD.
  + $1,900 College Fund: *“Sitting isometric neck extensor endurance test in sitting patients with neck pain”*. Wayne Johnson, PhD, was the primary investigator. I was a co-investigator involved in the methodology and writing of the grant.
* 2008
  + $5,850 Faculty Fellowship Research Award: *“Effects of monochromatic near-infrared photo energy on restless legs syndrome”*

**Internal Funding (not funded)**

I am the PI on the following grant applications, unless otherwise noted.

* 2017
  + $ 5,000 Women’s Research Initiative Grants: “Posture and low back pain in women living in remote areas in Peru”
* 2017
  + $5,000 David M. Kennedy Center for International Studies Research Grant: “Posture and Low Back Pain in People living in a remote area in Peru – Is there a correlation between sleeping in a hammock and low back pain?”
* 2017
  + $ 6,000 Gerontology Grant: “Long-term running and IVD health – pilot study”
* 2014
  + $25,000 John A. Widtsoe Grant: “Intermittent Lumbar Traction May Improve Intervertebral Disc Health”
  + $9,725 BYU Gerontology Research Fund: *“The role of ceramide as a mediator of aging-associated atherosclerotic development via altered nitric oxide synthesis”*. Co-investigators were Ben Bikman, PhD and Pat Vehrs, PhD.
* 2010
  + $5,790 BYU Gerontology Research Fund: *“Diabetic neuropathy and near-infrared light: Implications for treatment and prevention”*. Co-investigator was Gary Mack, PhD.
  + $1,225 BYU Gerontology Research Fund: *“Nitric oxide blood level changes after near-infrared radiation in patients with restless legs syndrome (a 2-step study)”*. Co-investigator was Wayne Johnson, PhD.

**External Grants (funded)**

* 2018
  + $ 5,000 American College of Sports Medicine Visiting Scholar Award to visit the Institute of Physical Activity and Nutrition in Melbourne, Australia August – December 2018
* 2016
  + $4,000 American Academy of Orthopaedic Manual Physical Therapists: “Does site specific trigger point dry needling evoke segmental neuromodulation in the lower extremity and if so, do these changes make an impact on the subject’s disability?” I am the primary investigator of this grant and as such conceived the idea, developed the methods and am responsible for data collection (still ongoing in physical therapy clinics in Utah and Louisiana)

**External Grants (not funded)**

* 2017, resubmitted 2018
  + $ 386,961 National Science Foundation: “Smart nanocomposite bio-sensing wearable for enhanced out-of-clinic rehabilitation”, Anton E. Bowden (department of Mechanical Engineering) is lead author and primary investigator. I am a co-investigator and helped with the methodology and writing of the grant. My role in this grant will be to perform and supervise the rehabilitation and clinical measurements associated with this project.
* 2016, resubmitted 2018
  + $1,815,000 NIH R01: “Longitudinal Study of Natural Disc Degeneration Using a Novel Camelid Animal Model “, Anton E. Bowden (department of Mechanical Engineering) is lead author and primary investigator; ID: 1 R01 AR070224-01. My role in this grant consisted of the clinical aspect in this study, such as range of motion measurements in these animals.
* 2016
  + $40,000 Orthopedic Section Research Grant from the Foundation for Physical Therapy: “Long term effects of lumbar traction on intervertebral disc health”. I was the primary investigator. The proposal was reviewed, but not funded.
* 2015
  + $300,000 NIH R15: “Fundamental mechanisms of nutrient transport subsequent to intermittent lumbar traction”. I was the primary investigator. The proposal was reviewed, but not scored.
  + $300,000 NIH R15: “Longitudinal Study of Natural Disc Degeneration Using a Novel Camelid Animal Model”, Anton E. Bowden (department of Mechanical Engineering) is lead author and primary investigator; Tracking # GRANT12010078. My role in this grant consisted of the clinical aspect in this study, such as range of motion measurements in these animals.
* 2014
  + $40,000 Orthopedic Section Research Grant from the Foundation for Physical Therapy: “Intervertebral disc health and traction”. I was the primary investigator. The proposal was reviewed and scored, but not funded.
* 2012
  + $40,000 Foundation for Physical Therapy: *“Near-infrared light treatment for the symptoms associated with diabetic neuropathy”*. I was the primary investigator, co-investigator Gary Mack.
* 2011
  + $451,725 American Diabetes Association: *“Near-infrared light treatment for the symptoms associated with diabetic neuropathy”*. I was the primary investigator, co-investigator Gary Mack.
* 2010
  + $20,000 Restless Legs Syndrome Foundation: *“Biomarkers and gene expression profiles in response to challenge of RLS symptoms”*. Jacinda Sampson, MD, PhD (University of Utah) was the primary investigator, Alan Licht, PhD (University of Utah) and I were co-investigators. My role consisted of writing and managing the parts of the grant that dealt with near-infrared light. This proposal was scored, but not funded.
* 2008
  + $8,084 Restless Legs Syndrome Foundation: *“Effects of monochromatic near-infrared photo energy on restless legs syndrome”*. I was the primary and sole investigator, this proposal was not reviewed.

**Continuing Education**

* 2018 Combined Sections Meeting of the American Physical Therapy Association, New Orleans, LA
* 2017 Movement analysis of the extremities: exploring directional preference (Schenk) at AAOMPT, Salt Lake City, UT
* 2017 Manipulating the brain or spine? Applying modern pain neuroscience to orthepaedic manual physical therapy practice (Jo Nijs) at AAOMPT, Salt Lake City, UT
* 2017 Combined Sections Meeting of the American Physical Therapy Association, San Antonio, TX
* 2016 Level 2: Functional Dry Needling by Kinetacore, Las Vegas, NV
* 2016 The Kinesiopathological model – a theoretical construct of the movement systems (Shirley Sahrmann) at AAOMPT, St. Louis, MO
* 2016 Spinal manipulation refinement: future practice based on evidence and clinical decision making for safety and patient comfort (Brian Power) at AAOMPT, St. Louis, MO
* 2016 Combined Sections Meeting of the American Physical Therapy Association, Anaheim, CA
* 2015 Level 1: Functional Dry Needling, Provo, UT
* 2015 OCS Preparation Course by EIM
* 2015 Cognitive functional therapy for managing disabling low back pain disorders (Peter O’Sullivan) at AAOMPT in Louisville, KY
* 2015 Fellowship program in Manual and Orthopedic Physical Therapy through Regis University: Management of the Lumbosacral Disorders; Denver, CO
* 2015 Fellowship program in Manual and Orthopedic Physical Therapy through Regis University: Management of Lower Extremity Disorders; Denver, CO
* 2014 Utah Chapter of the American Physical Therapy Association: Clinical Decision Making for Orthopedics; Layton, UT
* 2014 Fellowship program in Manual and Orthopedic Physical Therapy through Regis University: Management of Upper Extremity Disorders; Denver, CO
* 2014 Utah Chapter of the American Physical Therapy Association: Physical Therapy through the Ages; Provo, UT
* 2014 American Physical Therapy Association’s Combined Sections Meeting, Las Vegas, NV
* 2013 Utah Chapter of the American Physical Therapy Association: The Shoulder; Layton, UT
* 2012 Utah Chapter of the American Physical Therapy Association: The Spine; Layton, UT
* 2012 American Physical Therapy Association Annual Conference; Tampa, FL
* 2012 Advanced Manipulation Including Thrust of the Spine & Extremities; Denver, CO
* 2011 Utah Chapter of the American Physical Therapy Association: The Knee; Layton, UT
* 2011 World Congress for Physiotherapy; Amsterdam, The Netherlands
* 2011 ACSM annual meeting; Denver, CO
* 2010 Utah Chapter of the American Physical Therapy Association: Current Concepts in the Evaluation & Treatment of Foot and Ankle Problems; Layton, UT
* 2010 American Physical Therapy Association’s Combined Sections Meeting, San Diego, CA
* 2009 XVIII WFN World Congress on Parkinson’s Disease and Related Disorders in Miami Beach, FL
* 2009 American Physical Therapy Association Annual Conference; Baltimore, MD
* 2009 American Physical Therapy Association’s Combined Sections Meeting; San Diego, CA
* 2008 Utah Chapter of the American Physical Therapy Association: Richard Jackson Seminar: The pelvic girdle; Midway, UT

**Professional Development**

* 2016 Completed 2-year Fellowship program at the American Academy of Orthopedic and Manual Physical Therapists (AAOMPT)
* 2015 Completed education and certification as “Orthopedic Clinical Specialist”
* 2015 “Grant Writing Boot Camp” (offered by BYU)
* 2014 Four NIH Grant Writing workshops (offered by BYU)
  + - 2014 Started fellowship program at the AAOMPT through Regis university, Denver, CO
* 2011 Grant Development, Writing, and Funding (offered by BYU)
* 2010 Completed the Faculty Development Series offered by BYU
* 2009 Participated in “Publish, Don’t Perish” Workshop offered by the Faculty Center
* 2009 Participated in the Faculty Center’s “Writing Workshop”

**CITIZENSHIP**

**University**

* Faculty Affiliate of the Gerontology Program (2016 – present)
* Advised business students in their health-related project (2010, 2011)

**College**

* Review ORCA submissions for merit (2016)
* Review MEG submissions for merit (2014, 2015, 2017)
* Co-advisor in pre-allied health; mostly physical therapy (2010 – present)
* Guest lecture in Mechanical Engineering (2012)
* College committee to review applications for UCUR from university (2009)

**Department**

* Associate Chair (2017-2018)
* Department Advisory Committee member (2016-2018)
* Undergraduate Curriculum Committee member (2016-2018)
* Annual Stewardship Committee (2015)
* Ad-hoc faculty search committee (2013, 2014, 2016, 2018)
* Review faculties’ binders who go up for review
* Self-study committee for the external department review (2015)

**Professional Organization**

* Member of the American College of Sports Medicine
* Member of the American Academy of Orthopaedic Manual Physical Therapists
* Member of the American and Utah Physical Therapy Association (APTA, UPTA)
* 2010 elected and 2012 re-elected Research Chair in the UPTA, re-elected 2016
* Research Committee member at the AAOMPT (2016-present)

**Service to Church and Community**

* Work in pro-bono physical therapy clinic (2015-2018)
* Member of the Community Rehabilitation Center (CRC) Advisory Board (2015-present)
* Member of the Rocky Mountain University of Health Sciences Board (2015-present)
* Relief Society teacher (since 2017)
* Volunteer at the Family Odyssey Scout Camp for adult leader scout training (2012-2015)

**Invited Journal Reviewer**

* British Journal of Medicine and Medical Research
* Journal of Sport Rehabilitation
* Journal of Strength and Conditioning Research
* Journal of Parkinsonism & Restless Legs Syndrome
* Physical Therapy in Sport
* Physical Medicine and Rehabilitation (PM&R)
* International Journal of Radiation Biology
* Pediatric Physical Therapy
* Pediatric Exercise Science
* Behavioral Sleep Medicine
* Clinical Medicine and Research
* Complementary Therapies in Clinical Practice