

CURRICULUM VITAE

Scott N. Drum, Ph.D., FACSM, ACSM CEP, CSCS

Associate Professor – Exercise Physiology
Undergraduate Sports Science Coordinator
 School of Health and Human Performance
 College of Health Sciences and Professional Studies
 Northern Michigan University
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ACADEMIC EMPLOYMENT

- 2014- **Associate Professor, Undergraduate Sports Science Coordinator**, Sports and Exercise Science Division, School of Health and Human Performance, Northern Michigan University, Marquette, MI.
- 2012-2014 **Assistant Professor, Undergraduate Sports Science Coordinator**, Sports & Exercise Science Division, School of Health and Human Performance, Northern Michigan University, Marquette, MI.
- 2009-2012 **Associate Professor (tenured)**, Exercise & Sport Science, Western State Colorado University, Gunnison, CO.
- 2004-2009 **Assistant Professor**, Exercise & Sport Science, Western State Colorado University, Gunnison, CO.

EDUCATION

- 2008 **Ph.D., Sport & Exercise Science, University of Northern Colorado**, Greeley, Colorado.
 Concentration: Exercise Physiology
 Doctoral Minor: Applied Statistics/Research Methods
 Dissertation: Physiological differences between cancer and non-cancer participants during exercise training
- 1995 **M.S., Health & Exercise Science, Wake Forest University**, Winston-Salem, North Carolina.
 Concentration: Cardiac Rehabilitation
 Thesis: The influence of home-based cardiac rehabilitation on physical activity patterns
- 1993 **B.S., Physical Education, University of Wisconsin-La Crosse**, La Crosse, Wisconsin.
 Concentration: Fitness Emphasis/Exercise Physiology

RESEARCH INTERESTS

- ✓ Hypoxia and human performance in clinical (e.g., overweight, obese) and endurance sport populations; clinical exercise prescription, training, and testing in cancer survivors, cardiac exercisers, other chronic disease persons, and sedentary healthy adults; physiological and psychological performance parameters in non-traditional sport athletes (e.g., rock climbers, ultra-runners, fat bikers); and in-class or worksite activity (e.g., cycling, standing, slow treadmill walking) and cognitive/ physical enhancement.

TEACHING PHILOSOPHY

- ✓ To develop and implement hands-on, research-based, and up to date content oriented experiences in kinesiology/exercise science. To consistently utilize varied teaching formats and provide timely and evidence-based feedback.
- ✓ To encourage, conduct, and complete student research projects in a timely fashion to bolster student marketability in the work place and for graduate (e.g., M.S., Ph.D.) or allied health school (e.g., Doctor of Physical Therapy, Physician Assistant, Occupational Therapy) admission.
- ✓ To cultivate an all-inclusive classroom environment that is innovative, fun, and strives to utilize progressive teaching applications. Ultimately, to perpetuate student preparedness beyond the classroom, university, and immediate geographic region.

REFEREED PUBLICATIONS – PUBLISHED | IN PRESS | UNDER REVIEW

(note, undergraduate name italicized, graduate student name underlined)

- 2016 Matthew A. Kilgas, **Scott N. Drum**, Randall L. Jensen, Kevin C. Phillips, Phillip B. Watts. (under review). The Effect of Magnesium Carbonate (Chalk) on Geometric Entropy, Force and EMG During Climbing. *Journal of Applied Biomechanics*.
- 2016 Sarah B Clarke, Mitchell L Stephenson, **Scott N Drum**, and Randall L Jensen. (under review). Changes in gait parameters during a 161 km trail race. *International Journal of Sports Physiology and Performance*.
- 2015 **Drum, S.N.**, Swisher, A., Buchanan, C.H., and Donath, L. (in press). Effects of a custom bite-aligning mouth guard on performance in college football players. *Journal of Strength and Conditioning Research*.
- 2015 P.B. Watts, **S.N. Drum**, M.A. Kilgas, K.C. Phillips. (in press). Geometric entropy for lead vs top-rope rock climbing. *International Journal of Exercise Science*.
- 2015 Nick Draper, Volker Schöffl, Franz Konstantin Fuss, Phillip B. Watts, Peter Wolf, Jiří Baláš, Vanesa España Romero...**Scott N. Drum** et al. (in press). Comparative grading scales, statistical analyses, climber descriptors and ability grouping: International Rock Climbing Research Association Position Statement. *Sport Technology*.
- 2015 **Scott N. Drum**, Oliver Faude, Emilie de Fay du Lavallaz, Remo Allemann, Gilles Nève, and Lars Donath. (under review). Acute Effects of walking at moderate normobaric altitude on gait and balance performance in healthy community-dwelling seniors: A randomized controlled crossover study. *Gait and Posture*.
- 2015 **Drum, S. N.**, Klika, R. J., Carter, S. M., Sprod, L. K., and Donath, L. Adaptability to aerobic exercise training of inactive and overweight/obese cancer survivors compared with non-cancer controls. (under review). *Journal of Sports Science and Medicine*.
- 2015 Bridget E. Durocher, **Scott N. Drum**, Phillip B. Watts, Marguerite T. Moore, Lars Donath, John J. Durocher. (under review). Hypotension and arterial stiffness after competitive long distance running. *International Journal of Sports Medicine*.
- 2015 Scott N. Drum, FACSM; Bryanne N. Bellovary; Randall L. Jensen, FACSM; Maggy T. Moore; Lars Donath. (under review). Perceived demands and post-exercise physical dysfunction in Crossfit® compared to an ACSM based training session. *Journal of Sports Medicine and Physical Fitness*.
- 2011 Klika, R. J., Golik, K. S., **Drum, S. N.**, Callahan, K. E., and Thorland, W. G. (2011). Comparison of physiological response to cardiopulmonary exercise testing among cancer survivors and healthy controls. *European Journal of Applied Physiology*, 111, 1167-1172. (Epub 2010 Dec 3).
- 2009 Klika, R. J., Callahan, K. E., and **Drum, S. N.** (2009). Individualized 12-week training programs enhance aerobic capacity of cancer survivors. *The Physician and Sportsmedicine*, 37, 68-77.

- 2009 *Slaby, D., Drum, S. N., and Buchanan, C. A. (2009). Physiological characteristics of 2008 Leadville Trail 100 Mile Run and Mountain Bike champions - a case study. Journal of Undergraduate Kinesiology Research, 4, 1-8.*
- 2008 *Brennan, T., Drum, S. N., and Kinkema, K. (2008). Oxidative stress markers in collegiate female basketball players before and after supplementation with antioxidants. Journal of Undergraduate Kinesiology Research, 3, 105-111.*
- 2005 *Sprod, L. K., Drum, S. N., Bentz, A. T., Carter, S. D., and Schneider, C. M. (2005). The effects of walking poles on shoulder function in breast cancer survivors. Integrative Cancer Therapies, 4, 287-293.*
- 2003 *Carter, S. D., Drum, S. N., Hayward, R., and Schneider, C. M. (2003). A case study: prescriptive exercise intervention after bilateral mastectomy. Integrative Cancer Therapies, 2, 34-38.*

REFEREED MANUSCRIPTS IN PREPARATION

- 2016- Max W. Adolphs, **Scott N. Drum**, Bryan J. Dixon, Phillip B. Watts, Lanae Joubert, Randall L. Jensen. The metabolic effects of hypoxic high intensity intermittent exercise on sedentary, overweight, and obese adults. In preparation to *International Journal of Sports Physiology and Performance*.
- 2016- Kevin C. Phillips, Phillip B. Watts, Randall L. Jensen, and **Scott N. Drum**. Exercise intensity and performance aspects of fat biking on dirt vs snow. In preparation to *Journal of Strength and Conditioning Research*.

REFEREED PRESENTATIONS AND ABSTRACTS

(note, undergrad name italicized, grad student name underlined)

- 2015- Scott N. Drum, FACSM, Phillip B. Watts, FACSM, Randall L. Jensen, FACSM, Kevin C. Phillips. (under review). Exercise intensity and performance aspects of fat biking on dirt vs snow. Submitted to National ACSM Conference, Boston, MA 2016.
- 2015 Eastham, A., Joubert, J., Jensen, R. L., and **Drum, S. N.** (November 2015). The effect of yoga on growth hormone secretion in young men and women. Midwest American College of Sports Medicine (MWACSM) Conference, poster presentation, Fort Wayne, IN.
- 2015 Jones, A., Mann, P., **Drum, S. N.** (November 2015). 12 day adventure run training at altitude improves sea level 5km performance. Midwest American College of Sports Medicine (MWACSM) Conference, poster presentation, Fort Wayne, IN.
- 2015 *Cousineau, SA*, Clarke, SB, Guseman, EH, **Drum, SN.** (March 2015). Factors associated with NCAA Division I cross-country team rankings. Rocky Mountain American College of Sports Medicine Conference, poster presentation, Denver, CO.
- 2015 Matt Kilgas, **Scott Drum**, Randall Jensen. (summer 2015). Transitioning from road running to trail running. International Society of Biomechanics in Sports presentation, Poitiers, France.
- 2015 Carl Wozniak, **Scott N. Drum, FACSM**, Benjamin Hugus, Erica Wozniak, Phillip B. Watts, FACSM. (May 2015, accepted). “Clumping” in cross country skiing: how men and women finish races. *In review* for National American College of Sports Medicine Conference – San Diego, 2015.
- 2015 **Scott N. Drum**, Max W. Adolphs, Bryan J. Dixon, Phillip B. Watts, Lanae Joubert, Randall L. Jensen. (May 2015, accepted). The metabolic effects of hypoxic high intensity intermittent exercise on overweight and obese sedentary adults. National ACSM conference – San Diego, 2015.
- 2014-2015 *Amy E. Hoeh*, Brian J. McGowan, *Brenna J. Sellman*, *Samantha M. Bussey*, *David J. Cleveland*, **Scott N. Drum, FACSM**. Decrements in VO₂max and heart rate max in normobaric hypoxia. Poster presentation, Midwest American College of Sports Medicine Conference (November 2014), Merrillville, IN, and National ACSM Conference, San Diego, CA (May 2015).

- 2014 Matthew A. Kilgas, Alexandrea M. Holley, Lanae M. Joubert, **Scott N. Drum, FACSM**. (November, 2014). Low intensity cycling throughout a semester-long lecture course does not interfere with student test performance. Poster presentation, Midwest American College of Sports Medicine Conference, Merrillville, IN.
- 2014 Alexandrea M. Holley, Matthew A. Kilgas, Lanae M. Joubert, **Scott N. Drum, FACSM**. (November, 2014). Student perceptions of using a cycle desk during a semester-long university lecture course. Poster presentation, Midwest American College of Sports Medicine Conference, Merrillville, IN.
- 2014 Watts, PB, **SN Drum**, M Kilgas, K Phillips. Geometric Entropy During Rock Climbing – Lead vs Top-Rope Ascents. (Sept., 2014). Oral presentation at the 2nd International Rock Climbing Research Congress, Pontresina, Switzerland, September, 2014.
- 2014 Breen, S., *Stephenson, M. L.*, Jensen, R., and **Drum, S.N.** (July 2014). Changes in running gait parameters during a 161 km trail race. Oral presentation, International Society of Biomechanics in Sports 2014, East Tennessee State University, Johnson City, TN.
- 2014 Bridget E. Durocher, Morton H. Harwood, Jenna C. Edwards, **Scott N. Drum**, John J. Durocher. (April 2014). Influence of intensity on acute aortic pulse pressure and central arterial stiffness in long-distance runners. Poster presentation, Experimental Biology Conference 2014, San Diego, CA.
- 2014 Bridget E. Durocher, Morton H. Harwood, **Scott N. Drum, FACSM**, Phillip B. Watts, FACSM, Marguerite T. Moore, and John J. Durocher. (May 2014). The acute cardiovascular and inflammatory responses to ultra-marathon and marathon. Poster presentation, National American College of Sports Medicine Conference 2014, Orlando, FL.
- 2014 Bellovary, B., and **Drum, S.N.** (May 2014). A performance profile related to building elite fitness in male competitors. Poster presentation, National American College of Sports Medicine Conference 2014, Orlando, FL.
- 2013-2014 *Denherder, A.*, and **Drum, S.N.** (November 2013). Efficacy of self-myofascial release interventions on recovery between acute, maximal bouts of exercise: a pilot study. Oral presentation, Midwest American College of Sports Medicine Regional Conference 2013, Merrillville, IN.
- 2013 **Drum, S.N.** and Clark, H.M. (May 2013). Physiological change in experienced adolescent distance runners after 12-days of training and living at altitude. *Poster presentation*, Rocky Mountain American College of Sports Medicine Regional Conference, Colorado Springs, CO.
- 2013 Weatherwax, R., and **Drum, S.N.** (April 2013). Increased ejection fraction during and after chemotherapy in a breast cancer survivor: a case study. Poster presentation, Rocky Mountain American College of Sports Medicine Regional Conference, Denver, CO.
- 2012 **Drum, S.N.**, Baysden, S., and Haley, M. (May 2012). Physiological characteristics of a co-ed cross country running team living and training at altitude. *Poster presentation*, National American College of Sports Medicine Conference, San Francisco, CA.
- 2011 **Drum, S. N.**, and Klika, R. J. (June 2011). The exercise habits of a young female breast cancer survivor prior to and after diagnosis. *Poster presentation*, National American College of Sports Medicine Conference, Denver, CO.
- 2011 Shim, A. L. and **Drum, S. N.** (June 2011). Stair ramp leg power validation study. *Poster presentation*, National American College of Sports Medicine Conference, Denver, CO.
- 2011 *Wenner, L.*, Sears, B., and **Drum, S. N.** (Feb. 2011). Balance disturbances in females during various phases of their menstrual cycle. *Poster presentation*, Rocky Mountain American College of Sports Medicine Regional Conference, Fort Collins, CO. (*awarded BEST undergraduate poster*)
- 2011 *Bakkie, D.*, and **Drum, S. N.** (Feb. 2011). The economy of effort when running with barefeet vs. Vibram FiveFingers® vs. training shoes. *Poster presentation*, Rocky Mountain American College of Sports Medicine Regional Conference, Fort Collins, CO.

- 2011 **Curry, T., and Drum, S. N.** (Feb. 2011). Effects of three distinct cycling cadences related to performance in elite mountain bikers. *Poster presentation*, Rocky Mountain American College of Sports Medicine Regional Conference, Fort Collins, CO.
- 2011 **Courtney, C., and Drum, S. N.** (Feb. 2011). Oxygen consumption, heart rate, and rating of perceived exertion when walking with and without poles on an oversized treadmill. *Poster presentation*, Rocky Mountain American College of Sports Medicine Regional Conference, Fort Collins, CO.
- 2010 Shim, A.L., Crider, D. A., and **Drum, S. N.** (Dec. 2010). Improving proprioception through the use of Tai Chi Chaun. *Journal of Science and Medicine in Sport*. Vol. 13 (6), December 2010 supplement.
- 2010 **Drum, S. N.,** and Busing, J. K. (June 2010). Running and carrying various loads cause change in subjective and objective physiological variables. *Oral presentation*, National American College of Sports Medicine Conference, Baltimore, MD.
- 2009 **Drum, S. N.,** and Buchanan, C. A. (May 2009). No change in muscular endurance, flexibility, anaerobic power, and recovery after ingesting oxygen enhanced water. *Poster presentation*, National American College of Sports Medicine Conference, Seattle, WA.
- 2009 **Smith, A., Drum, S. N.,** Shim, A. and Wescott, W. (Feb. 2009). Effects on RMR of one day per week strength training in senior adults. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference at the US Olympic Training Center, Colorado Springs, CO.
- 2009 **Curry, T., and Drum, S. N.** (Feb. 2009). Biomechanical analysis of upper body movement in endurance mountain bikers – a qualitative case study. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference at the US Olympic Training Center, Colorado Springs, CO.
- 2009 **Slaby, D.,** Buchanan, C. A., and **Drum, S. N.** (Feb. 2009). Physiological capacities of 2008 Leadville Trail 100 Mile champions. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference, Colorado Springs, CO and Celebration of Scholarship at Western State Colorado University Of Colorado, Gunnison, CO.
- 2008 **Quiggle, A., Porter, M.,** Buchanan, C., **Dayton, J. and Drum, S. N.** (Feb. 2008). A physiological Comparison of NCAA division II endurance athletes. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference, Estes Park, CO.
- 2008 **McCarthy, M., Slaby, D., Dayton, J. and Drum, S. N.** (Feb. 2008). Anaerobic power and muscular Endurance in Division II athletes at altitude. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference, Estes Park, CO.
- 2007 **Drum, S. N.,** and Schneider, C. M. (May 2007). The physiological differences between cancer and non-cancer participants undergoing an 8-week exercise training program. *Poster presentation*, National American College of Sports Medicine Conference, New Orleans, LA.
- 2005 **Drum, S. N., Borrego, A., and Callahan, D.** (Feb. 2005). The eating, training, and racing habits of the Montrail/Patagonia ultrarunning team. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference, Colorado Springs, CO.
- 2005 **Drum, S. N.,** and **Cameron, B.** (Feb. 2005). Nutritional intake and performance in ultra endurance mountain bike racers. *Poster presentation*, Rocky Mountain ACSM Conference, Colorado Springs, CO.
- 2003 **Drum, S. N.,** Carter, S. D., Hayward, R., and Schneider, C. M. Exercise intervention and the effect on cancer patients. *Oral presentation* (May 2003), National American College of Sports Medicine Conference, San Francisco, CA; and *Poster presentation* (Feb. 2003), Rocky Mountain Region ACSM Conference.
- 2003 Hydock, D. S., Carter, S. D., **Drum, S. N.,** Roozeboom, M. A., Shaffer, J. R., Hayward, R., and Schneider, C. M. (Feb. 2003). The Exercise response is patient specific not cancer specific. *Poster presentation*, Rocky Mountain American College of Sports Medicine Conference, Denver, CO.

- 2002 **Drum, S. N.**, Dennehy, C. A., and Schneider, C. M. (Apr. 2002). Exercise intervention gender Differences in cancer patients. *Poster presentation*, University of Northern Colorado, Greeley, CO, Research Day.
- 1997 **Drum, S. N.** (Feb. 1997). The influence of home-based cardiac rehabilitation on physical activity patterns. *Poster presentation*, Northwest American College of Sports Medicine Conference, Spokane, WA.

BOOK CHAPTERS

- 2015 **Drum, S.N.**, Weatherwax, R., and Dixon, B. (Ed.). (*in press*). Book title: Muscular Injuries in the Posterior Lower Leg: Assessment and Treatment; **Chapter 2** – Physiology of Skeletal Muscle and **Chapter 3** – Structure and Organization of Skeletal Muscle. Publisher: Springer Science: Willowick, OH.
- 2014 Porcari, J. P. (ed) and **Drum, S. N.** (2014). Undergraduate exercise physiology text, Chapter 29 – The Effects of Altitude, Pollution, and Scuba Diving on Exercise Capacity. Publishers: F.A. Davis Company: Philadelphia, PA; and American Council on Exercise. (*invited chapter*)
- 2009 **Drum, S. N.** (2009). (Kidd & Hazelrigs, Eds.). Rock Climbing, Chapter 2 – Climbing into Fitness. Human Kinetics: Champaign, Ill. (*ISBN-13: 9780736068024*). (*invited chapter*)
- 2003 **Drum, S. N.** (2003). Authored “Appendix B—Exercises Featured in the Text,” from Exercise and Cancer Recovery, by Carole M. Schneider, Carolyn A. Dennehy, and Susan D. Carter. Human Kinetics: Champaign, Ill. (*book appendix*)

PROFESSIONAL LITERATUE PUBLICATIONS | NON PEER REVIEWED

- 2015 **Drum, S.N.** Adventure Running – Preparation & Indulgence – Start ‘em Young. *Michigan Association of Health, Physical Education, Recreation, & Dance Journal*, Spring 2015.
- 2011 Klika, R., and **Drum, S.** Surviving cancer: physical realities. *Clinical Exercise Physiology Association (CEPA) Newsletter* (April/May 2011) and ACSM’s Certified News (July-Sept, 2011, vol 21, issue 3).

POPULAR LITERATURE PUBLICATIONS

- 2013 **Drum, S. N.** (February 2013). Run the U.P. at the Marquette 50. **TrailRunner** magazine. Big Stone Publishers (#87): Carbondale, CO.
- 2011 **Drum, S.N.** (August 2011). Isle Royale 40 – Running the length of Isle Royale National Park (*personal account*). **TrailRunner** magazine. Big Stone Publishers (#74): Carbondale, CO.
- 2011 **Drum, S. N.** (May 2011). What’s that Thorn in My Shin? **TrailRunner** magazine. Big Stone Publishers (#72): Carbondale, CO.
- 2011 **Drum, S. N.** (March 2011). Heart stopping – potential for atrial arrhythmias in endurance athletes. **TrailRunner** Magazine. Big Stone Publishers (#71): Carbondale, CO.
- 2008 **Drum, S. N.** (December 2008). Making Tracks – Focused Ambition. **TrailRunner** magazine. Big Stone Publishers: Carbondale, CO.
- 2005 **Drum, S. N.** (November 2005). The Pros Exposed. **TrailRunner** magazine. Big Stone Publishers: Carbondale, CO.
- 2005 **Drum, S. N.** (August 2005). The Cross Training Conundrum. **Rocky Mountain Sports Magazine**. Rocky Mountain Sports Publishing: Denver, CO.
- 2005 **Drum, S. N.** (February 2005). Nutrition - High Octane. **TrailRunner** magazine. Big Stone Publishing: Carbondale, CO.

- 2003 **Drum, S. N.** (June 2003). No Boundaries in Sight—Catching up with the “Super Blind” Erik Weiheymayer. **Rocky Mountain Sports Magazine**. Rocky Mountain Sports Publishing: Denver, CO.

INVITED PEER REVIEWS

- 2015 **Manuscript ID** IJSPP.2015-0120, *A time motion analysis of lead climbing in the 2012 men’s and women’s world championship finals*, International Journal of Sports Physiology and Performance (review completed April 2015).
- 2014 Chapter 8- *Acute Chronic Cardiorespiratory Responses to Exercise* in Exercise Physiology (undergrad text book) by Porcari, Bryant, and Comana. Publishers: F.A. Davis Company: Philadelphia, PA; and American Council on Exercise.
- 2012 Wardlaw’s Perspectives in Nutrition, A Functional Approach, 1/e, Chapter 14 – Fluid Balance and Blood Health, and Chapter 15 – Bone Health and Antioxidant (**review** completed May 21, 2012).
- 2012 ACSM/NCPAD Resources for the Certified Inclusive Fitness Trainer (1st edition), Chapter 24 – Cardiopulmonary Disorders (**review** completed March, 2012).
- 2011 **Manuscript ID** 11-03--PHY-07, *Changes in performance and quadriceps muscle contractility in sprinters*, Research Quarterly for Exercise and Sport (**review** completed fall, 2011).

INVITED PROFESSIONAL PRESENTATIONS

- 2016- “*Sitting is the New Smoking*” lecture. Invited speaker for UP4 Health Summit - Empowering Communities to Improve Health. Mackinaw Island, Michigan, June 14-16, 2016.
- 2016 “Exercise is Medicine” lecture. Invited speaker for Munising School District, Upper Peninsula, Michigan. Spoke to 400 students, grades 6-12, about the importance of physical activity and health on January 21, 2016. Invited by Michigan State University Extension and Munising Memorial Hospital Diabetes Educators.
- 2015 “*Exercise is Medicine*” lecture. Invited speaker for UP4 Health Summit - Empowering Communities To Improve Health. Mackinaw Island, Michigan, September 14-16, 2015.
- 2015 *The physiological response of cancer survivors during exercise training*. Invited lecture at Rocky Mountain American College of Sports Medicine Conference, Inaugural Past President’s lecture. March 28, 2015, Denver, CO.
- 2014 *Prevention and management of cancer with exercise training*. Upper Michigan Brain Tumor Center Lectureship Series as part of Brain Tumor Awareness Week, Marquette, MI, Northern Michigan University. (presented October 31, 2014).
- 2010 Invited webinar speaker for enduranceplanet.com on *Racing at High Altitude* (April 7, 2010).

SUPERVISED GRADUATE STUDENT RESEARCH/THESIS PROJECTS

Northern Michigan University, Marquette, MI | School of Health and Human Performance
(note, graduate student name underlined)

THESIS DIRECTOR

- 2015- Whitham, K., Drum, S., Watts, P., and Jensen, R. Double-poling in cross country female skiers and the relationship to lean body mass and performance. Current, approved thesis project, October 2015.
- 2015- Jones, A., Drum, S., Mann, P., Watts, P., Jensen, R. Running performance profile changes after a 12-day adventure running trip at altitude. Current, approved thesis project, summer-fall 2015.
- 2014-2015 Adolphs, M., Drum, S., Watts, P., Jensen, R. The metabolic effects of hypoxic high intensity intermittent exercise on overweight and obese sedentary adults. Completed thesis 4/2015.
- 2014-2015 Phillips, K., Drum, S., Jensen, R., and Watts, P. The physiological demands of snow biking through the use of a fat bike. Completed thesis 8/2015.

2013-2014 Bellovary, B., Drum, S., Jensen, R.A., and Moore, M. The perceived demands of CrossFit®. Completed thesis 5/2014.

2013-2014 Durocher, B., Durocher, J., Drum, S., Watts, P., and Moore, M. Acute effects of long distance running on C-reactive protein and arterial stiffness. Completed thesis 5/2014.

THESIS READER

2015 Holley, A., Jensen, R. (director), Drum, S. N., Moore, M. Assessing and reporting normative data and correlations in adolescent non-professional dancers. Proposed fall 2015.

2015 Ernst, A., Jensen, R. (director), Drum, S. N., and Newgard, V. The influence of yoga training on speed and power during Olympic lifts. Proposed fall 2015.

2015 Kilgas, M., Jensen, R., Watts, P. (director), and Drum, S. The effect of magnesium carbonate (chalk) on geometric entropy, force and EMG during rock climbing. Completed thesis project, 8/2015.

2014-2015 Eastham, A., Joubert, L. (director), Jensen, R., and Drum, S. Yoga's effect on growth hormone secretion. Completed thesis project, 8/2015.

2013-2014 Frieseke, L., Moore, M. (director), Jensen, R., and Drum, S.N. The effect of winter versus summer running on lower extremity musculoskeletal injury rate in recreational runners. Completed 5/2014.

SUPERVISED UNDERGRADUATE STUDENT RESEARCH

2012- **Northern Michigan University, Marquette, MI** | School of Health and Human Performance
Student Name
 Alicia Denherder | Amy Hoeh | David Cleveland | Sam Bussey | Brenna Sellman | Megan Jenkins
 Mitch Stevenson | Sarah Cousineau | Bailey Hagner | Emily Ballard

2004-2012 **Western State Colorado University, Gunnison, CO** | Exercise and Sport Science Department
Student Name
 Katelyn Hughes | Joni Viles | Tim Curry | Michael McCarthy | David Simoens | Tom Rhoades
 Ben Lokie | Anna Haughwout | Josh Dayton | Cally Foo | Molly Clauss | Ablazah Swofford
 Brennan Roper | Mike Westover | Dustin Bakkie | Daniel Slaby | Tara Brennan | Ashley Quiggle
 Kirky Olsen

TEACHING EXPERIENCE

2012- **Associate and Assistant Professor**, Sports & Exercise Science Division, School of Health and Human Performance, Northern Michigan University, Marquette, MI (*started fall 2012*).

Courses Taught (Exercise Science, ES; Recreation, RE)

ES 571A – VO_{2max} Administration with portable and non-portable gas analysis (grad)

ES 571B – Indirect Calorimetry with portable and non-portable gas analysis (grad)

ES 571C – Lactate and ventilation threshold assessment (grad)

ES 521 Advanced Exercise Physiology (grad)

ES 498 Directed Study (undergrad + grad)

ES 495 Special Topics: Clinical Exercise Physiology – ECG Interpretation (undergrad + grad)

RE 495 Introduction to Ice Climbing (undergrad)

ES 476 Exercise and Fitness for Special Populations (undergrad + grad)

ES 475 Theory of Strength and Conditioning (undergrad + grad)

ES 315 Exercise Physiology (undergrad)

ES 295 Sport Physiology for Endurance Training (undergrad; ONLINE only summer course)

- ES 110 Introduction to Sports Science (undergrad)
RE 212 Beginner Rock Climbing (undergrad)
- 2004-2012 **Associate (with tenure) and Assistant Professor** of Exercise & Sport Science, Western State Colorado University, Gunnison, CO.
- Courses Taught** (Exercise and Sport Science, ESS, undergraduate)
- ESS 185 Lifetime Wellness | ESS 201 Anatomy & Physiology
 - ESS 280 Biomechanics
 - ESS 330 Exercise Physiology | ESS 331 Exercise Physiology Lab
 - ESS 360 Sport Nutrition and Supplementation
 - ESS 397 Science of Strength and Endurance Training (special topic)
 - ESS 397 ACSM Health Fitness Specialist Certification prep course (special topic)
 - ESS 397 Essentials of Strength Training and Conditioning (new course)
 - ESS 410 Assessment & Exercise Prescription
 - ESS 430 Topics in Clinical Exercise Physiology/ECG Interpretation
- 2005-2012 **Director and Co-Founder**, High Altitude Performance Lab (HAPLab), Western State Colorado University, Gunnison, CO.
- 2000-2004 **Doctoral Student/Grad Assistant**, University of Northern Colorado, Greeley, Colorado.
- Lecturer** (Sport and Exercise Science or SES)
- SES 410 Cardiac Rehabilitation (2 sections, smart classroom)
 - SES 322 Exercise Physiology I (1 section)
- Lab Instructor**
- SES 322 Exercise Physiology Lab (10 sections)
 - SES 321 Biomechanics Lab (2 sections) | SES 220 Anatomical Kinesiology Lab (24 sections)
- Activity Course Instructor**
- SES 125 Backpacking & Hiking (6 sections, smart classroom)
 - SES 129 Downhill Skiing (1 section)
 - SES 153 Weight Training (4 sections) | SES 148 Exercise & Weight Control (2 sections)
- 1996-1997 **University of Great Falls**, Great Falls, Montana.
- Lecturer** (Physical Education/Recreation or PE/R)
- PE/R 485 Exercise Physiology
 - PE/R 415 Kinesiology and Applied Anatomy
 - PE/R 330 Tests & Measurements in P.E. and Exercise Science
- 1993-1995 **Wake Forest University**, Winston-Salem, North Carolina.
- Activity Course Instructor** (Physical Education or PE)
- PE 100 Personal Exercise & Conditioning | PE 120 Weight Training

Internship, Wake Forest University

University-based Cardiac Rehabilitation Program (2-years); supervised phase I, II, III, and IV cardiac patient exercise therapy sessions; performed clinical exercise testing; and case managed patient care.

RELATED PROFESSIONAL WORK EXPERIENCE

- 1997-2000 **Seattle Veterans Hospital, VA Puget Sound Health Care System, Seattle, WA. | Supervisory Physiologist**, Cardiology Department
Conducted ECG, diagnostic treadmill testing and supervised/managed the non-invasive cardiology testing labs; worked closely with Cardiologists and other hospital personnel to ensure safe patient care.
- 1995-1997 **Benefis Healthworks, Great Falls, MT | Hospital-based Injury Prevention/Exercise Specialist**
Planned and implemented hospital-wide injury prevention/exercise-based programs for healthcare staff; worked closely with cardiac rehabilitation, physical therapy, and general fitness programs.
- 1993 **Virginia Mason Sports Medicine, Virginia Mason Hospital, Seattle, WA.**
Exercise Physiology Internship (summer 1993; requirement for UW-La Crosse B.S. degree)
Worked in cardiac rehab, physical therapy, athletic training, and health-fitness settings.

PROFESSIONAL CERTIFICATIONS

- 2012- **Certified Strength & Conditioning Specialist (CSCS)**, National Strength & Conditioning Association.
- 1993- **Basic Life Support Healthcare Provider**, American Heart Association.
- 1996- **Clinical Exercise Physiologist (CEP) certified**, American College of Sports Medicine.
- 2010- **Fellow of the American College of Sports Medicine (FACSM)**, awarded April 23, 2010.
- 2010- **USA Weightlifting Level 1 Sports Performance Coaching certified.**
- 1998 **Mountaineering Oriented First Aid**, the Mountaineers, Seattle, Washington.
- 1996-1999 **Advanced Cardiac Life Support Provider**, American Heart Association.

PROFESSIONAL MEMBERSHIP AND DEVELOPMENT

- 2013-2014 **Past-President**, Rocky Mountain American College of Sports Medicine Region.
- 2012-2013 **President**, Rocky Mountain American College of Sports Medicine (RMACSM) Region.
- 2012- **Midwest** American College of Sports Medicine member.
- 2012- **Michigan** American College of Sports Medicine member.
- 2011-2012 **President-Elect**, Rocky Mountain American College of Sports Medicine (RMACSM) Region.
- 2011 **Attended International Altitude Training Symposium**, Colorado Springs, CO, sponsored by Dr. Randy Wilbur, Lead Sport Scientist as part of the US Olympic Committee (October 5-7, 2011).
- 2000- **RMACSM** member.
- 1993- **National American College of Sports Medicine (ACSM)** member.
- 2002-2014 **RMACSM Western Slope Representative/Board** member.
- 2004-2010 **American Physiological Society** member.
- 2006- **National Strength and Conditioning Association** member.
- 2008-2010 **Member of Team Prep USA staff.** Conduct sport physiology testing on young endurance athletes (runners) through the Western human performance lab and lecture during summer camps.
- 2010-2012 **Editor** for Journal of Undergraduate Kinesiology Research (www.jukr.org).

2010-2014 **Clinical Exercise Physiology Association (CEPA)** member.

2010-2012 **Board member**, Acli-Mate® Mountain Sports Drink, Gunnison, CO. (www.acli-mate.com)

GRANTS AND AWARDS

- 2015 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Co-Investigator
Awarded: \$5,000 - fall 2015
Research Project: The effects of an eight week highly cushioned shoe intervention on various dynamic force measurements in adult runners.
- 2015 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Co-Investigator
Awarded: \$5,000 - fall 2015
Research Project: Muscle fatigue with repeated effort during normoxia and normobaric hypoxia conditions in trained rock climbers.
- 2015 **Fulbright Scholar Award**
Submitted August 3, 2015; not accepted.
Proposed Project: teach one academic year and foster research collaborations in Finland at Haaga Helia Applied Sciences University and The Finland Sports Institute.
- 2015 **PRIME Grant (internal)**, Grants and Sponsored Programs Office, Northern Michigan University.
Co-Investigator; PRIME is intended to gather pilot data for external funding proposals.
Amount: \$20,000 – Not Awarded
Proposed Research Project: Give-a-Watt – Using exercise harvesting bicycles to give back energy and improve exercise adherence and fitness outcomes.
- 2014-2015 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Primary Investigator
Awarded: \$5,000 - fall 2014
Research Project: Geometric entropy, anthropometry, and psychophysiological assessment during lead rock climbing ascents.
- 2013-2014 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Co-Investigator
Awarded: \$5,000 - fall 2013
Research Project: Rock climbing and geometric entropy of top rope vs. lead rock climbing Protocols.
- 2013-2014 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Co-Investigator
Awarded: \$5,000 - fall 2013
Research Project: College classroom cycling workstation and in-class test performance.
- 2012-213 **Internal grant**, College of Health Sciences and Professional Studies, Northern Michigan University
Primary Investigator
Awarded: \$5,000 - fall 2012
Research Project: Racing techniques during a 100 mile trail foot race in Houston, TX.
- 2012 **Internal grant**, Western State Colorado University, Gunnison, CO; Center for Teaching Excellence
Primary author
Awarded: \$1,100 - April 2012
Project: Present research at the National ACSM Conference in San Francisco, CA, May 28 – June 2.
- 2011-2012 **Internal grant**, Western State Colorado University, Gunnison, CO; Center for Teaching Excellence
Primary Investigator
Awarded: \$1,739 - December 2011

- Research Project: Effects of live high/train low (via breathing supplemental oxygen during high intensity training in a lab) while residing at elevation (i.e., 7,700 feet above sea level).
- 2010-2011 **Internal grant**, Western State Colorado University, Gunnison, CO; Center for Teaching Excellence
Co-Investigator
Awarded: \$1,050 - December 2010
Research Project: Efficacy of mouth guard use to enhance power, agility, and endurance
- 2005-2012 **Capital Request Fund**, Western State Colorado University, Gunnison, CO.
Primary Author
Awarded: \$75,000
Project: Written request and purchase of human performance lab equipment, including ParvoMedics TrueOne® 2400 with Trackmaster treadmill (\$30,000), Fitnexus Bionex Treadmill with 5' x 8' treadmill, Lode Excalibur Sport cycle ergometer, and Accutrend® lactate analyzer.
- 2008 & 2011 **Alumni Award for Teaching Excellence**, Western State Colorado University, Gunnison, CO.
- 2007 **Internal grant (\$500) awarded**, from Center for Teaching Excellence (CTE), Western State Colorado University, Gunnison, CO.
- 2005 **Math & Science Teaching Institute Grant** (\$700), University of Northern Colorado, Greeley, CO.
- 2005 **Graduate Student Association Grant** (\$600), University of Northern Colorado (UNC), Greeley, CO.
- 2004 **Campus Foundation Committee Grant** (\$500), Western State Colorado University. Paid for students to attend a Regional American College of Sports Medicine Conference.
- 2003 **Graduate Student Association Grant** (\$450), UNC, Greeley, CO.
- 2003 **National Institutes of Health Academic Research Enhancement Award (R15)** (\$150,000), (*not granted—submitted as part of Ph.D. written exam at UNC-Greeley*).
- 2003 **Graduate Student Association Grant** (\$400), UNC, Greeley, CO.
- 2002 **American Cancer Society Grant** (\$5,000), **not funded**; UNC, Greeley, CO.
- 2002 **Summer Research Fellowship**, UNC, Greeley, CO.
- 2000-2004 **Graduate Teaching Assistantship**, UNC, Greeley, CO.
- 1993-1995 **Graduate Fellowship Award**, Wake Forest University, Winston-Salem, NC.

COLLEGE SERVICE

- 2015 **Abstract reviewer and session moderator**, Midwest American College of Sports Medicine Conference, November 6-7, 2015.
- 2014-2015 **College of Health and Human Medicine, Michigan State University (MSU), Search Committee member** to hire two MSU researchers in the area of health and exercise science; researchers housed at Northern Michigan University (NMU) in the School of Health and Human Performance and College of Arts & Sciences. MSU researchers will collaborate with NMU and Michigan Technological University faculty on NIH and NSF grant writing proposals.
- 2013- **College of Health Sciences and Professional Studies faculty committee representative** at Northern Michigan University, Marquette, MI.
- 2012- **Institutional Review Board (IRB) member** at Northern Michigan University, Marquette, MI.
- 2012- **Faculty representative** for the Student Association in Sports Science at Northern Michigan.
- 2012-2013 **Outdoor Education and Recreation job search committee member** in the School of Health and Human Performance at Northern Michigan University in Marquette, MI.
- 2004-2012 **Advised** 45-50 ESS students (one-on-one consults) per semester, Western State Colorado University.

- 2005-2012 **Human Research Committee (HRC) member**, Western State Colorado University, appointed **Chair** fall 2007. Reviewed annual faculty, graduate, and undergraduate research proposals.
- 2005-2012 **Faculty Advisor**, Association for Students in Exercise & Sport Science (ASESS), Western State Colorado University, Gunnison, CO.
- 2005-2012 **Directed, High Altitude Performance Lab (HAPLab)** at Western State Colorado University.
- 2007-2012 **Sage Burner 50k/25k Trail Race Board of Director** and founding member, Western State Colorado University.
- 2008-2012 **Cancer and Exercise Program Board Member & Co-Founder**, Gunnison Valley Hospital, Gunnison, CO.
- 2008-2011 **Founded the Gunnison Endurance Project (GEP)** at Western State Colorado University as part of the performance lab that is education-based, student-centered, and athlete-driven; consult with sponsored, local ultra runners related to training, nutrition, and recovery; helped pace and coach the 2008, 2009, and 2010 Leadville 100 Mile Trail Run Champions (Duncan Callahan (x2) and Timmy Parr, respectively).
- 2009-2011 **Master's thesis committee member**, Adams State College, Alamosa, CO (student: Janine Pleau).
- 2009-2011 **Faculty Personnel Action Committee (FPAC) member**, Western State Colorado University.
- 2010-2012 **Center for Teaching Excellence invited/appointed board member**, Western State Colorado University.
- 2010 **National Search Committee member for Escalante Fitness Center**, Western State Colorado University.
- 2011 **Served as a reviewer** (random faculty selection) for Dr. Jay Helman, President of Western State College of Colorado, April 2011.
- 2011 **Recruited and sponsored guest speaker**, Dr. David Bassett, Professor/researcher at the University of Tennessee, Knoxville, TN, to speak to Western State Colorado University faculty and students about *The History of Physical Inactivity*. (secured funding from Western and the RMACSM)
- 2010 **Invited Exercise Science (ES) Program Reviewer** for Dakota State University in Madison, SD. Interviewed administrative personnel and ES faculty over two days and wrote a full report evaluating curriculum, staffing, applied experiences, and student retention and recruitment strategies.
- 2010 **Directed Cancer and Exercise 2-day Seminar** for Gunnison Valley Hospital Rehabilitation Department staff (physical therapy and occupational therapy) and Western undergraduate exercise and sport science student professional development. Invited cancer and exercise specialist, Dr. Barb Francis, and Registered Clinical Exercise Physiologist, Mark Patterson, to speak about exercise programming for cancer survivors before, during, and after treatment. Talk included information about appropriate insurance billing procedures and the development of a hospital-wide cancer exercise prog.
- 2008 **Invited independent/outside evaluator** for Dr. Andrew Subuhdi's tenure track review at the University of Colorado—Colorado Springs (UCCS). Invited by Dr. Jacqueline Berning, UCCS Biology Department Chair.
- 2007 **Cancer and Exercise Symposium Program Director**, Western State Colorado University. Raised over \$7,500 in sponsorship support. Brought in Keynote Speaker, Sean Swarner, two time cancer survivor and 1st cancer survivor to summit Mt. Everest and all "7 Summits."
- 2006-2012 **Information Technology Committee**, Western State Colorado University, appointed **Chair** fall 2008-2010.
- 2006-2008 **Tenure Track Search Committee Member**, Western State Colorado University, for Exercise & Sport Science (2006 & 2011), Chemistry (2007-2008), and Head Track Coach searches (summer 2009).

2005-2006 **Faculty Advisor**, Adventure Racing Team, Western State Colorado University, Gunnison, CO.

2005-2006 **Curriculum Committee member**, Western State Colorado University, Gunnison, CO.

ACTIVE HOBBIES | PERSONAL FUN FACTS

- ✓ Activity Passions: Trail ultra-running/racing, Nordic skiing, mountaineering, rock climbing, backpacking, adventure running, and consulting with endurance athletes
- ✓ 1987 **Wisconsin** state High School cross country champion
- ✓ 1988 and 1989 **Wisconsin** state H.S. 2-mile champion
- ✓ Collegiate cross country and track athlete
- ✓ 1st person to trail run Pictured Rocks National Lakeshore (42 miles) + *Isle Royale National Park (41.5 miles) consecutively in 24 hrs and 6 min. *Included a float plane ride + 1 mi canoe paddle.