

CURRICULUM VITAE

Alison Barnard, DPT, PhD

Research Assistant Professor

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EDUCATION AND TRAINING

- 2014 – 2018 **Doctor of Philosophy, Rehabilitation Science**
University of Florida – Gainesville, FL
Department of Physical Therapy
Mentor: Krista Vandeborne, PT, PhD
- 2010 – 2012 **Doctor of Physical Therapy (DPT)**
University of Alabama at Birmingham - Birmingham, AL
- 2005 – 2009 **Bachelor of Science in Earth, Atmospheric, and Planetary Sciences**
Massachusetts Institute of Technology - Cambridge, MA

POSITIONS

- 2020-present **Research Assistant Professor**
Department of Physical Therapy, University of Florida – Gainesville, FL
- 2019-2020 **Post-Doctoral Research Fellow**
Department of Physiology and Functional Genomics, University of Florida – Gainesville, FL
Mentor: Glenn Walter, PhD

RESEARCH EXPERIENCE

- Aug 2014-2018 **Graduate Research Fellow**
Vandeborne Laboratory, University of Florida – Gainesville, FL
Mentor: Krista Vandeborne, PT, PhD
- 2011 – 2012 **Part-time Research Assistant**
University of Alabama at Birmingham Department of Physical Therapy – Birmingham, AL
Advisor: Matthew Ford, PT, PhD
- 2009 **Full-Time Research Assistant**
Center for Injury Research and Policy, The Research Institute at Nationwide Children's Hospital – Columbus, OH
Advisor: Lara McKenzie, PhD

CLINICAL EXPERIENCE

- 2013 – 2014 **Full-time Inpatient Pediatric Physical Therapist**
Arkansas Children's Hospital – Little Rock, AR

LICENSURE/CERTIFICATION

2014 – present	Licensed Physical Therapist, Florida (PT29896)
2013 – 2015	Licensed Physical Therapist, Arkansas (inactive)
2009 – 2018	CPR Certified

PROFESSIONAL MEMBERSHIP

2018 – 2019	International Society for Magnetic Resonance in Medicine
2014 – 2020	Florida Physical Therapy Association
2013 – 2015	Arkansas Physical Therapy Association
2009 – 2012	Alabama Physical Therapy Association
2009 – 2020	American Physical Therapy Association

PUBLICATIONS

1. Batra A; **Barnard AM**; Lott DJ; Willcocks RW; Forbes SC; Chakraborty S; Daniels MJ; Arbogast J; Triplett WT; Henricson E; Dayan Y; Schmalfuss C; Sweeney HL; Byrne BJ; McDonald CM; Vandeborne K; Walter GA. The natural history of cardiac disease progression in the Duchenne muscular dystrophy population as measured by magnetic resonance imaging. (In Review - *Journal of Cardiovascular Magnetic Resonance*)
2. **Barnard AM**,* Senesac CS,* Lott DJ, Nair KS, Harrington AT, Willcocks RJ, Zilke KL, Rooney WD, Walter GA, Vandeborne K. Magnetic resonance imaging studies in Duchenne muscular dystrophy: linking findings to the physical therapy clinic. *Physical Therapy*. 2020;100(11):2035-2048. *Indicates co-first authorship.
3. Rooney WD, Berlow YA, Triplett WT, Forbes SC, Willcocks RJ, Wang DJ, Arora H, Senesac C, Lott DJ, Finkel R, Russman BS, Finanger EL, Chakraborty S, O'Brien E, Moloney B, **Barnard AM**, Sweeney HL, Daniels MJ, Walter GA, Vandeborne K. Modeling Disease Trajectory in Duchenne Muscular Dystrophy. *Neurology*. 2020;94(15):e1622-e1633. (PMID: 32184340)
4. Forbes SC, Arora H, Willcocks RJ, Triplett WT, Rooney WD, **Barnard AM**, Alabasi U, Wang DJ, Lott DJ, Senesac CR, Harrington AT, Finanger EL, Tennekoon GI, Brandsema J, Daniels MJ, Sweeney HL, Walter GA, Vandeborne K. Upper and lower extremities in Duchenne muscular dystrophy evaluated with magnetic resonance imaging and proton MR spectroscopy in a multicenter cohort. *Radiology*. 2020;295(3):616-625. (PMID: 32286193)
5. **Barnard AM**,* Willcocks RJ,* Daniels MJ, Chakraborty S, Triplett WT, Forbes SC, Lott DJ, Senesac C, Harrington AT, Wang DJ, Finanger E, Rooney W, Sweeney HL, Walter GA, Vandeborne K. MR biomarkers predict clinical function in Duchenne muscular dystrophy. *Neurology*. 2020;94(9):e897-e909. *Indicates co-first authorship. (PMID: 32024675)
6. **Barnard AM**, Riehl SL, Willcocks RJ, Walter GA, Angell AM, Vandeborne K. Characterizing Enrollment in Observational Studies of Duchenne Muscular Dystrophy by Race and Ethnicity. *Journal of Neuromuscular Diseases*. 2020;7(2):167-173. (PMID: 31929119)
7. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl SL, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Imaging Respiratory Muscle Quality and Function in Duchenne Muscular Dystrophy. *J Neurol*. 2019 Nov;266(11):2752-2763. (PMID: 31350642)
8. **Barnard AM**, Willcocks RJ, Finanger EL, Daniels MJ, Triplett WT, Rooney WD, Lott DJ, Forbes SC, Wang DJ, Senesac CR, Harrington AT, Finkel RS, Russman BS, Byrne BJ, Tennekoon GI, Walter GA, Sweeney HL, Vandeborne K. Skeletal Muscle Magnetic Resonance Biomarkers Correlate with Function and Sentinel Events in Duchenne Muscular Dystrophy. *PLoS ONE*. 2018 13(3): e0194283. (PMID: 29554116)

9. **Barnard AM**, Nelson NG, Xiang H, McKenzie LB. Pediatric mobility aid-related injuries treated in US emergency departments from 1991 to 2008. *Pediatrics*. 2010 Jun; 125 (6):1200-7. (PMID: 20498179)

CONFERENCE ABSTRACTS

1. Coppens S, Puusepp S, Ounap K, **Barnard A**, Donkervoort S, Maroofian R, Houlden H, Deconinck N, Alkuraya F, Alsaif H, Macke E, Lusakowska A, Hahn A, Straub V, Topf A, Vilain C, Rivera-Zengotita M, Bonnemann C, Walter G, Kang P. A novel form of muscular dystrophy associated with mutations in JAG2. World Muscle Society (virtual conference), Sept 2020. *Neuromuscular Disorders*. 2020;30:S166. (PLATFORM – presented by S Coppens)
2. Vandeborne K, Kim S, Willcocks R, Morales J, Lingineni K, **Barnard A**, Schmidt S, Daniels M, Triplett T, Larkindale J, Walter G, Rooney W, D. MR Biomarker Steering Committee. Development of clinical trial simulation tools for Duchenne muscular dystrophy using magnetic resonance biomarkers. World Muscle Society (virtual conference), Sept 2020. *Neuromuscular Disorders*. 2020;30:S93-S94. (POSTER)
3. Willcocks RJ, Forbes SC, Lott DJ, Senesac CR, **Barnard AM**, Lehman K, Nease C, Church K, Sahenk Z, Sweeney HL, Rodino-Klapac LR, Walter GA, Mendell J, Vandeborne K. rAAVrh.74.MHCK7.micro-dystrophin gene therapy in children with Duchenne muscular dystrophy: A quantitative MR biomarker study. World Muscle Society (virtual conference), Sept 2020. *Neuromuscular Disorders*. 2020;30:S171. (POSTER)
4. **Barnard AM**, Lott DJ, Batra A, Forbes SC, Triplett WT, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Longitudinal MRI of expiratory respiratory muscles in Duchenne muscular dystrophy. Combined Wellstone Centers Meeting. Rochester, NY. Nov 2019. (POSTER + PLATFORM)
5. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl S, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Characterizing respiratory muscle composition and function in Duchenne muscular dystrophy using dynamic MRI and chemical shift-encoded imaging. International Society for Magnetic Resonance in Medicine conference. Montreal, Canada. May 2019. (POSTER)
6. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl S, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Dynamic MRI during breathing and accessory respiratory muscle health in Duchenne muscular dystrophy. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. March 2019. (POSTER)
7. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl S, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. An imaging study of the diaphragm and accessory respiratory muscles in Duchenne muscular dystrophy. *New Directions in Biology and Disease of Skeletal Muscle*. New Orleans, LA. June 2018. (POSTER)
8. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl S, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Imaging inspiratory muscle pathology and function in boys and young men with Duchenne muscular dystrophy. School of Public Health and Health Professions Research Day. Gainesville, FL. April 2018. (POSTER)
9. **Barnard AM**, Lott DJ, Batra A, Triplett WT, Forbes SC, Riehl S, Willcocks RJ, Smith BK, Vandeborne K, Walter GA. Imaging respiratory muscle pathology and function in Duchenne muscular dystrophy. 13th Annual Neuromuscular Plasticity Symposium. Gainesville, Florida, March 2018. (POSTER + PLATFORM)
10. **Barnard AM**, Lott DJ, Batra A, Willcocks RJ, Forbes SC, Triplett WT, Riehl S, Smith BK, Vandeborne K, Walter GA. Respiratory muscle composition and breathing dynamics assessed by MRI in Duchenne muscular dystrophy. *Imaging in Neuromuscular Disease*. Berlin, Germany. Nov 2017. *Journal of Neuromuscular Diseases*, vol. 4, no. s1, pp. S1-S63, 2017. (POSTER)
11. **Barnard AM**, Lott DJ, Willcocks RJ, Forbes SC, Triplett WT, Riehl SL, Batra A, Smith BK, Vandeborne K, Walter GA. A novel MRI study of diaphragm and chest wall dynamics in Duchenne muscular dystrophy. School of Public Health and Health Professions Research Day. Gainesville, FL. April 2017. (POSTER + PLATFORM)
12. **Barnard AM**, Lott DJ, Willcocks RJ, Forbes SC, Triplett WT, Riehl SL, Batra A, Smith BK, Vandeborne K, Walter GA. The effects of failed muscle regeneration on trunk and respiratory muscle composition and function in

Duchenne muscular dystrophy. 12th Annual Neuromuscular Plasticity Symposium. Gainesville, FL. Mar 2017. (POSTER + PLATFORM)

13. Batra A, Lott DJ, Willcocks RJ, Forbes SC, **Barnard AM**, Triplett WT, Schmalfluss CM, Byrne BJ, Vandeborne K, Walter GA. Cardiac MRI to assess cardiac remodeling in Duchenne Muscular Dystrophy. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. March 2017. (POSTER)
14. Arora H, Willcocks RJ, Forbes SC, Rooney WD, Triplett WT, Wang DJ, Lott DJ, Senesac CR, **Barnard AM**, Harrington AT, Zilke KL, Finanger EL, Tennekoon GI, Russman BS, Finkel RS, Byrne BJ, Sweeney HL, Walter GA, Vandeborne K. MRI muscle T₂ correlates with upper extremity functional ability in boys with DMD. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. March 2017. (POSTER)
15. Alabasi U, Willcocks RJ, Forbes SC, Triplett WT, Rooney W, Wang DJ, Lott DJ, **Barnard AM**, Senesac CS, Finanger E, Tennekoon GI, Finkel R, Russman B, Byrne BJ, Walter GA, Sweeney HL, Vandeborne K. Natural Disease Progression of Upper Extremity Muscles in Boys with Duchenne Muscular Dystrophy, Cross-sectional Study. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. March 2017. (POSTER)
16. **Barnard AM**, Lott DJ, Willcocks RJ, Forbes SC, Triplett WT, Batra A, Smith BK, Vandeborne K, Walter GA. An MRI Investigation of Trunk Muscle Involvement and Effects on Expiratory Function in Duchenne Muscular Dystrophy. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. March 2017. (POSTER + PLATFORM)
17. **Barnard AM**, Lott DJ, Willcocks RJ, Forbes SC, Triplett WT, Batra A, Smith BK, Vandeborne K, Walter GA. Preliminary Investigation of Trunk Muscle Involvement in Duchenne Muscular Dystrophy using Magnetic Resonance Imaging. Combined Sections Meeting of the APTA. San Antonio, TX. Feb 2017. (POSTER)
18. Batra A, Lott DJ, Abrogast J, Chrznowoski S, Willcocks RJ, Forbes SC, **Barnard AM**, William T, Schmalfluss C, Vandeborne K, Walter GA. Relationship between cardiac muscle involvement and lower limb muscle composition in DMD. *New Directions in Biology and Disease of Skeletal Muscle Conference*. Orlando, FL. June 2016. (POSTER)
19. **Barnard AM**, Willcocks RJ, Finanger EL, Triplett WT, Rooney WD, Lott DJ, Wang DJ, Senesac CR, Forbes SC, Harrington AT, Daniels MJ, Finkel RS, Russman BS, Byrne BJ, Tennekoon GI, Walter GA, Sweeney HL, Vandeborne K. Muscle magnetic resonance measures correlate with functional ability in DMD. *School of Public Health and Health Professions Research Day*. Gainesville, FL. April 2016. (POSTER)
20. **Barnard AM**, Willcocks RJ, Finanger EL, Triplett WT, Rooney WD, Lott DJ, Wang DJ, Senesac CR, Forbes SC, Harrington AT, Daniels MJ, Finkel RS, Russman BS, Byrne BJ, Tennekoon GI, Walter GA, Sweeney HL, Vandeborne K. Skeletal muscle magnetic resonance measures are linked to function and sentinel events in Duchenne muscular dystrophy. 11th Annual Neuromuscular Plasticity Symposium. Gainesville, FL. Mar 2016. (POSTER + PLATFORM)
21. **Barnard AM**, Willcocks RJ, Finanger EL, Triplett WT, Rooney WD, Lott DJ, Wang DJ, Senesac CR, Forbes SC, Harrington AT, Daniels MJ, Finkel RS, Russman BS, Byrne BJ, Tennekoon GI, Walter GA, Sweeney HL, Vandeborne K. Magnetic resonance measures are correlated to functional ability in Duchenne muscular dystrophy. *Advances in Skeletal Muscle Biology in Health and Disease*. Gainesville, FL. Jan 2016. (POSTER)
22. **Barnard AM**, Willcocks RJ, Forbes SC, Rooney WD, Pham J, Hammers D, Triplett WT, Lott DJ, Senesac CR, Byrne BJ, Finanger EL, Russman BS, Wang DJ, Tennekoon GI, Finkel RS, Walter GA, Sweeney HL, Vandeborne K. Genetic polymorphisms modify intramuscular fat accumulation in Duchenne muscular dystrophy. 20th International World Muscle Society Congress. Brighton, UK. Oct 2015. *Neuromuscular Disorders* 2015; 25: S254-S255. (POSTER + PLATFORM)
23. **Barnard AM**, Willcocks RJ, Forbes SC, Rooney WD, Pham J, Hammers D, Triplett WT, Lott DJ, Senesac CR, Byrne BJ, Finanger EL, Russman BS, Wang DJ, Tennekoon GI, Finkel RS, Walter GA, Sweeney HL, Vandeborne K. Intramuscular fat is modified by genetic polymorphisms in Duchenne muscular dystrophy. 10th Annual

Neuromuscular Plasticity Symposium. Gainesville, FL. March 2015. School of Public Health and Health Professions Research Day. Gainesville, FL. April 2015. (POSTER + PLATFORM)

24. Romero de Mello Sa SA, **Barnard AM**, Willcocks RJ, Forbes SC, Rooney WD, Pham J, Hammers D, Triplett WT, Lott DJ, Harrington AT, Wang DJ, Tennekoon GI, Finanger EL, Finkel RS, Byrne BJ, Walter GA, Sweeney HL, Vandeborne K. Genetic modifiers affect disease progression in Duchenne muscular dystrophy. 10th Annual Neuromuscular Plasticity Symposium. Gainesville, FL. March 2015. (POSTER)

INVITED AND SEMINAR PRESENTATIONS

1. **Respiratory muscle changes in Duchenne muscular dystrophy: Results from four years of prospective observation.** University of Florida Neuromuscular Plasticity Nines Seminar Series. Gainesville, FL. July 2020.
2. **Imaging the respiratory muscles in Duchenne muscular dystrophy.** University of Florida Neuromuscular Plasticity Nines Seminar Series. Gainesville, FL. June 2019.
3. **ImagingDMD natural history study.** Parent Project Muscular Dystrophy Healthcare Professionals Conference. Fort Meyers, FL. Jan 2019.
4. **The state of research in DMD.** Parent Project Muscular Dystrophy End Duchenne Tour. Birmingham, AL. June 2018.
5. **Preliminary investigation of trunk muscle involvement in Duchenne muscular dystrophy.** University of Florida Neuromuscular Plasticity Noons Seminar Series. Gainesville, FL. July 2016.
6. **Magnetic resonance imaging and Duchenne muscular dystrophy.** Physical therapy continuing education course - Addressing Life Long Physical Therapy Needs In DMD. Gainesville, FL. Oct 2015.
7. **Relationship between function and magnetic resonance biomarkers in Duchenne muscular dystrophy.** University of Florida Neuromuscular Plasticity Noons Seminar Series. Gainesville, FL. July 2015.

TEACHING EXPERIENCE

Fall 2020 RSD6110: Rehabilitation Science Theory and Applications – Co Instructor
 Feb `19, `21 RSD6930: The Art of Scientific Dissemination – Guest lecturer (Data organization/visualization)
 Nov `19, `20 PHT6153: Human Physiology – Guest lecturer (Respiratory Muscle Weakness)
 April `19, `20 OTH3413C: Applied Kinesiology – Guest lecturer (2 lectures: Gait, Posture)

MENTORING

Sept `20 – Pres Daniel Chong – Undergraduate Honors Thesis
 June-Aug 2019 Veronika Schmalfluss – High school student volunteer
 May-July 2018 Sara Jorgenson – NSF Research Experiences for Undergraduates summer internship
 Completed an independent project: Predicting Lung Volumes Using Dynamic MRI in Duchenne Muscular Dystrophy and Unaffected Controls.
 Jan-Apr 2018 Joshua Uffer – Undergraduate internship
 Completed an independent project: Differential disease involvement of the paraspinal muscles along the spine in Duchenne muscular dystrophy.

AWARDS AND HONORS

NIH FELLOWSHIPS

2020 – present NIH K-12 Rehabilitation Research Career Development Program Scholar
 2019 – 2020 NIH T-32 Post-Doctoral Fellowship for Breathing Research and Therapeutics
 2014 – 2018 NIH T-32 Pre-Doctoral Fellowship for Interdisciplinary Training in Neuromuscular Plasticity

OTHER AWARDS

2020	University of Florida Rehabilitation Science Program Outstanding Publication
2019	Top poster award at the International Society for Magnetic Resonance in Medicine conference
2018	Top poster award at New Directions in Biology and Disease of Skeletal Muscle
2017	Frederick Family Scholarship (University of Florida)
2017	University of Florida College of Public Health and Health Professions Research Day top abstract and travel award
2016	Rehabilitation Science PhD program travel award
2015	Runner-up award for Best Oral and Poster Presentations at the 20 th International World Muscle Society Congress
2015	University of Florida Club Sports Professional Development Scholarship
2015	University of Florida College of Public Health and Health Professions Research Day top abstract and travel award
2012	University of Alabama at Birmingham Dept of Physical Therapy Student Service Award
2012	University of Alabama at Birmingham School of Health Professions Dean's Leadership Award
2012	University of Alabama at Birmingham Outstanding Woman Graduate Student
2012	Shirley A. Shaddeau Memorial Scholarship (University of Alabama at Birmingham)
2011	Therapy South Scholarship (University of Alabama at Birmingham)

MANUSCRIPT REVIEWS

Ad Hoc	<i>Muscle & Nerve</i>
Ad Hoc	<i>PLOS ONE</i>

PROFESSIONAL DEVELOPMENT

2020	Preparing Future Faculty semester long program; University of Florida
2020	Python Programming: audited 10-week course; University of Florida
2020	Neuromuscular Diseases: audited semester-long course; University of Florida
2019	Data Archiving for Rehabilitation Research and Related Clinical Trials short course; Gainesville, FL
2019	Int. Society for Magnetic Resonance in Medicine pre-conference courses; Montreal, CA
2015	Myology Course at Nationwide Children's Hospital and the Ohio State University; Columbus, OH
2013 – 2014	Cystic fibrosis inpatient council member; Arkansas Children's Hospital, AR
2012	APTA National Student Conclave; Washington DC

SERVICE ACTIVITIES

2011 – present	Muscular Dystrophy Association volunteer: Muscular Dystrophy Association summer camp counselor ('11, '13-'19) and young adult retreat volunteer ('11, '12)
2011 – present	Girls in Science and Engineering Day at UAB: Conceptualized, designed, and directed an annual event which aims to inspire and empower Birmingham-area middle school girls to achieve and excel in science and engineering. Co-director and creator ('11-'13), advisor and volunteer ('14-'15), workshop leader ('16-'20)
2010 – 2011	Children's Dance Foundation: Volunteer dance instructor for a dance class designed for children with Down syndrome, developmental delay, and autism spectrum disorder.
2009 – 2019	MIT Educational Counselor: Serve as a community resource and alumni interviewer for MIT applicants in Birmingham, AL (2009 - 2012), Little Rock, AR (2013 - 2014), and Gainesville, FL (2014 – 2019)