

OPTA RESEARCH IN ACTION

A NEWSLETTER BROUGHT TO YOU BY THE OPTA'S RESEARCH COMMITTEE

VOL. 4, ISSUE 2

NOV. 2021

WHO ARE WE?

RESEARCH COMMITTEE LEADERSHIP

Co-chair(s):

Abraham Lee, PT, PhD

Andrew Raschke, PT, DPT, OCS

RESEARCH COMMITTEE MEMBERS

Steve Becka, PTA

Edie Benner, PT, PhD, MA, OCS

Cathy Bieber Parrot, PT, MS

Cindy Bouillon, PT, MPT, PhD

Amu DeSilva, PT, DPT, MS, GCS

Krima Kalolia, PT, DPT

Jane Keehan, PT, PhD

Gina Laufman, PTA

Liz Narducci, PT, DPT, PhD

Katie Pantano, PT, PhD

Mitchell Selhorst, PT, DPT, OCS

Ashley Simons, PT, DPT, PhD

Dawn Westfall, PT, DPT

Maureen Whitford, PT, PhD, NCS

Rick Wickstrom, PT, DPT, CPE

Board Liaison - Gregory Kline, PT, DPT, EdD, MBA

RESEARCH IN ACTION: CONTENTS

Research Grant Recipient 2021: *The Effects of Attentional Focus on Brain Behavior and Biomechanics in Individuals following ACLR: A Pilot Study*

Research Grant Recipient 2021: *Applying Pain Adaptability to Manual Therapy Practice*

Research Grant Recipient 2021: *Development of a Valid and Reliable Patient Reported Outcome Measure to Assess Function in Adolescent Low Back Pain*

In this issue of OPTA RESEARCH IN ACTION, we are pleased to present an overview of the three research projects awarded funding this year. Recipients were recognized during LEAP Fall 2021 on Sept. 24.

THE EFFECTS OF ATTENTIONAL FOCUS ON THE BRAIN BEHAVIOR AND BIOMECHANICS IN INDIVIDUALS FOLLOWING ACLR: A PILOT STUDY

INVESTIGATORS

Adam Culiver, PT, DPT, SCS (Jameson Crane Sports Medicine Institute, The Ohio State University Wexner Medical Center)

Laura Schmitt, PT, PhD (School of Health and Rehabilitation Sciences, The Ohio State University)

Jimmy Onate, PhD, ATC, FNATA (School of Health and Rehabilitation Sciences, The Ohio State University)

ABSTRACT

Individuals after ACLR have persistent gait abnormalities; gait abnormalities are documented immediately after surgery, throughout all phases of rehabilitation and years after ACLR. Improving gait after ACLR is a major focus throughout rehabilitation due to the association of abnormal gait patterns with poor long term knee health and knee related disability. Physical Therapists frequently provide cues to alter an individual's gait pattern, among other movements. Cueing techniques which promote an external focus of attention are proposed to promote better motor pattern re-learning, but how cueing techniques affect an individual's gait biomechanics after ACLR is not well understood. Promoting motor pattern re-learning and improved motor control has a theoretical influence on the central nervous system, but the brain's differential response to internal versus external focus of attention during basic rehabilitation exercises is also unknown. The objective of this study is to determine how various cueing techniques may positively or negatively impact gait biomechanics and brain behavior.

Cueing techniques which promote an external focus of attention are proposed to be superior for improving motor learning and movement patterns. However, evidence to support this is limited in individuals after ACLR. Understanding how cues influence gait biomechanics and brain behavior can allow for more targeted, individualized, cueing for patient motor re-learning. This information will equip clinicians with the knowledge needed to more strategically apply internal or external focus of attention cues in their daily practice.

APPLYING PAIN ADAPTABILITY TO MANUAL THERAPY PRACTICE

INVESTIGATORS

Damian Keter, PT, DPT (Cleveland VA Medical Center)

Chad Cook, PT, PhD, MBA (Duke University)

David Griswold, PT, PhD (Youngstown State University)

Ken Learman, PT, PhD (Youngstown State University)

ABSTRACT

Objective: to evaluate the association between pain adaptability mechanism and the associative clinical response with a posterior to anterior (PA) spinal mobilization. Furthermore, this study looks to establish the prognostic value of Pain Pressure Threshold and PA mobilization response at first visit as it relates to manual therapy outcome.

Design: Observational Proof of Concept

Subjects: n=28 individuals with low back pain from a convenience sample recruited from outpatient orthopedic clinics and university sites across a geographically diverse segment of the United States.

Interventions: Established means of quantitative sensory testing will be utilized to assess pain adaptability phenotype. Pain pressure threshold values as a form of mechanical quantitative sensory testing will be utilized at sites which have been well established to assess local and systemic pain thresholds. Established pragmatically applied mobilizations will be utilized at the lumbar spine to address the subject's primary complaint. Pain levels during and post adaptability testing and manual therapy intervention will be recorded and assessed for correlation.

Measurements/Instruments: Demographic characteristics will be collected at baseline to assess for covariates. Evidence based questionnaires which have shown to directly influence a subject's pain phenotype (response to analgesic management) will be collected at baseline. The numeric pain rating scale is a psychometrically sound measure of pain and will be the primary tool for measuring changes in symptoms during adaptability testing and manual therapy intervention as well as at 2-week follow-up. Pain pressure threshold is an established and psychometrically sound means for collecting mechanical pain threshold. This study will utilize an algometer to obtain these measurements in a controlled and specific means outlined in previously well-established protocols

Data Analysis: Two-way repeated measures analysis of variance will be utilized to assess differences between the pain adaptive and non-adaptive groups. Pearsons correlation will be used to identify the relationship between responsiveness to manual therapy intervention and pain adaptability phenotype. A linear regression model will then be used to determine the associated prognostic value of PPT and PA at baseline as they relate to manual therapy outcomes.

Significance: Identification of an associative clinical response that reflects pain adaptive phenotypes could improve a clinician's treatment plan and provide the right care to the right patients at the right time. This study is significant for several reasons. First, we will be able to quantify whether the pain related outcomes seen with manual therapy are related to the patients' pain phenotype. This could evolve the practice of manual therapy application to be truly patient specific and be more in line with biopsychosocial application of intervention. Second, this would be the first study to correlate a clinical finding with a pain adaptive designation. At present, pain adaptive and non-pain adaptive designations have been limited to mechanisms research. Third, the associated clinical finding (PA) is a commonly used, easily applied assessment technique therefore this allows clinical applicability of the findings. The proposed study will innovate manual therapy clinical practice related to both how we assess patients, and how and to whom it is applied.

DEVELOPMENT OF A VALID AND RELIABLE PATIENT REPORTED OUTCOME MEASURE TO ASSESS FUNCTION IN ADOLESCENT LOW BACK PAIN

INVESTIGATORS

Mitchell Selhorst, PT, DPT, OCS, PhD (Nationwide Children's Hospital)

Shaun Coffman, PT, DPT, OCS (Nationwide Children's Hospital)

Todd Degenhart, PT (Nationwide Children's Hospital)

Alexander Rospert, PT, DPT, OCS (Nationwide Children's Hospital)

ABSTRACT

Background and Purpose: Low back pain is not only limited to the adult population; 40% of adolescents experience significant low back pain. Currently, there is no method to adequately measure the functional ability of

adolescents with low back pain. The purpose of the proposed research is to create a valid and reliable patient-reported outcome measure to assess functional ability in adolescents with low back pain.

Study design: Observational psychometric study.

Participants: 300 adolescents (10-18 years) with low back pain will be recruited using a sample of convenience.

Measurements: Demographic information will be collected on each participant including age, sex, diagnosis, and duration of symptoms. Novel Outcome Measure: In its current form, our Youth Back Outcome Measure is a 34 item (Activities of daily living: 23 items, Sport: 11 items) self-report questionnaire. Ratings range from 0 (No pain or difficulty) to 5 (Unable/not allowed) with higher scores indicating greater levels of disability. Measures used to establish concurrent validity: The Modified Oswestry Disability Index, the Micheli Functional Scale, and the Numeric Pain Rating Scale.

Data Analysis: Reliability of the novel outcome measure will be assessed using Rasch model analyses. To assess the concurrent validity of our novel outcome measure, Spearman's correlation coefficients will be used. The minimal clinically important difference of the novel measure will be derived using receiver operating characteristic (ROC) analyses representing point estimates on ROC curves.

WERE YOU UNABLE TO ATTEND LEAP FALL 2021 IN PERSON?

LEAP Fall 2021 featured seven LEAP Talks, two platform lectures and seven poster presentations. You can earn six CEUs by watching the recorded conference. For more information, visit the [OPTA on-demand catalog](#).

Additionally, the poster presentations will be available for viewing until Dec. 31; visit the [OPTA website](#) to watch these five-minute presentations.

OTHER RESEARCH RESOURCES – WEBINARS TO ASSIST YOU WITH YOUR RESEARCH PROJECT

This year, the Research Committee hosted two webinars to assist clinicians and researchers develop research projects; additional webinars will be held in 2022; watch for information in the May newsletter.

[Formulating A Researchable Question: Where do I Begin?](#)

[How to Win An OPTA Research Grant and Influence Practice!](#)

WANT TO CONTRIBUTE AN ARTICLE TO OUR NEWSLETTER?

Submissions for upcoming newsletters can be [submitted online](#) – all topics welcome – article reviews, research projects, case reviews, etc.

UPCOMING RESEARCH COMMITTEE MEETINGS

Email opta.research.committee@gmail.com for connection information; all meetings are held from 7-8 PM.

Thursday, January 13

Thursday, March 10

Thursday, May 12

Thursday, July 14

Thursday, September 8

Thursday, November 10

RESEARCH GRANT APPLICATIONS TO BE ACCEPTED

The Research Committee will be accepting grant applications for the 2022-2023 funding cycle from June 1 – July 31.

For more information about the Grant Application, contact the Research Committee at opta.research.committee@gmail.com.

Ohio Physical Therapy Association (OPTA): Research Committee
1085 Beecher Crossing North,
Suite B - Gahanna, OH 43230
Tel: (614) 855-4109
opta.research.committee@gmail.com