

Academy of Orthopaedic Physical Therapy, APTA, Inc.

Grant Program

Annual Progress Report Form

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| Date: 7/14/21 |
| Name of Investigators: Travis Gunderson, PT, DPT, OCS, FAAOMPT, Terese Chmielewski, PT, PhD, SCS, Haley Russell, PhD, Jason Beneciuk, PT, DPT, PhD, MPH, FAAOMPT, Joel Bialosky, PT, PhD, OCS, FAAOMPT |
| Name of Grant: Physical Therapists Readiness for Change in the Management of Fear of Re-injury after ACL Reconstruction |
| Award Period: 6/3/2020 to 6/3/2022 (Initial award date – date on contract as start date) |
| Current Year of Award completed (circle one) <u>1st</u> , 2 nd , no-cost extension year (3 rd) |
| Progress reports are due no later than 1 year plus 10 days after the initial award date. Failure to submit a timely progress report may result in the termination of your award. |
| 1. Summary of accomplishments in the past year: Over the past year progress has been made in all aspects of the study. Activities completed to date are detailed below. It is anticipated that the study will continue to progress according to the 18-month timeline described in the grant submission. A. SURVEY DEVELOPMENT – May 2020 through October 2020 IRB approval was obtained in May 2020. Shortly after IRB approval, Dr. Chmielewski (Primary Mentor) was placed on furlough secondary to the COVID-19 pandemic. Funding from the Academy of Orthopaedic Physical Therapy (AOPT) was received on 7/14/20. Soon after, Dr. Gunderson worked with members of the study team on RedCap survey development. Pilot testing of the RedCap survey link and survey questions began in August after Dr. Chmielewski came back from furlough. RedCap survey optimization and pilot testing were conducted through October 2020. B. STUDY RECRUITMENT—October 2020 through present At the end of October 2020, study recruitment was initiated at 3 clinics located in Wisconsin, Delaware, and Florida through professional contacts of Dr. Gunderson and Dr. Chmielewski. After confirming satisfactory responses, pilot testing was complete. In November of 2020, the survey link was distributed through AOPT email blast and social media distribution. Additionally, the survey link was distributed to other physical therapists in our professional network. In January we began working on data management procedures and data analysis algorithms, starting with a subset of the participants and eventually extending to all participants. In February 2021 it became evident that the RedCap survey link had been hacked by nefarious computer/robot software based on open-ended responses that were verbatim of multiple choice questions, names that could not be verified by the FSBPT as licensed and active, and nonsensical email addresses. Hundreds of invalid survey entries were discovered. The survey link was broken while manual inspection of the data was undertaken. A Captcha was added to the survey link to mitigate future problems. Recruitment re-commenced in April of 2021. An email distribution was sent to the membership of the American Academy of Orthopaedic Manual Physical Therapists (AAOMPT) in April 2021 and members of American Academy of Sports Physical Therapy (AASPT) in May 2021. As of June 29, 2021, 381 surveys have been completed by participants that meet study inclusion criteria. Initial data analysis has been completed on 178 surveys (see Section D). |

C. STUDY TEAM MEETINGS

Dr. Gunderson and Dr. Chmielewski maintained twice monthly live video meetings during March and April 2020 and again in August 2020 through the present to coordinate and complete survey development, pilot testing, study recruitment strategies, data management and data analysis algorithms.

Drs. Beneciuk, Bialosky, and Russell have provided extensive input and feedback during survey development via email correspondence. Following this, Dr. Gunderson provided them with quarterly updates. A live video meeting with the study team was conducted in March 2020 to discuss and plan data analysis algorithms.

D. PRELIMINARY DATA ANALYSIS

Demographic characteristics (Table 1)

Table 1. Demographic characteristics of 178 participants.

| | | |
|------------------------------------|-------------|----|
| Age (n) | 20-29 years | 46 |
| | 30-39 years | 57 |
| | 40-49 years | 38 |
| | 50-59 years | 26 |
| | 60-69 years | 8 |
| | 70+ years | 2 |
| Gender (n) | Male | 88 |
| | Female | 89 |
| | Other | 1 |
| Practice Region (n) | Midwest | 40 |
| | West | 42 |
| | South | 33 |
| | Northeast | 51 |
| | Undeclared | 2 |
| ACLR Patients Treated Per Year (n) | 5-10 | 94 |
| | 11-20 | 38 |
| | >20 | 46 |
| Additional Training (n) | None | 99 |
| | Residency | 50 |
| | Fellowship | 11 |
| | Both | 2 |
| | Other | 18 |
| Board Certification (n) | None | 74 |
| | Orthopedic | 79 |
| | Sports | 15 |
| | Both | 10 |

Aim 1: Elucidate physical therapists' awareness and beliefs about using a PIP approach to manage fear of re-injury after ACLR.

Most (97%) of the participants believe that it is within their scope of practice to both assess and treat fear of re-injury. In addition, 85% of participants perceive that more than 25% of their patients experience fear of re-injury after ACLR (Figure 1). These findings indicate that participants recognize the prevalence of fear of re-injury and believe that physical therapists are qualified to assess and treat it.

Aim 2: Describe the current clinical behaviors that physical therapists use to manage fear of re-injury after ACLR in relation to a PIP approach.

A total of 58% of participants indicate that they assess fear of re-injury, and 72% indicate that they treat patients with ACLR (Figure 1). Of the study sample, 35% use the ACL-RSI or TSK-11 to assess fear of re-injury (Figure 2).

Survey participants that currently assess for fear of re-injury were then asked: "What methods do you use to assess for fear of re-injury in patients who have had ACL Reconstruction?". Of those that assess for fear of re-injury, 60% report using ACL-RSI or TSK-11, while 70% report using some type of fear assessment questionnaire (e.g. FABQ, STarT Back, AFABQ, ACL-RSI, TSK-11). Another 10% report using a questionnaire to assess for fear of re-injury that does not measure fear (e.g. IKDC, KOOS, LEFS) (Figure 2). Survey participants that administer treatment for fear of re-injury were then asked: "What methods do you use to treat fear of re-injury in patients who have had ACL reconstruction?" Patient education and behavior change strategies were the most frequently cited interventions at 40% and 42%, respectively. Over a third of the participants who currently manage fear of re-injury use exercise as an intervention for fear of re-injury and less than 5% of participants use cognitive-behavioral techniques for fear of re-injury (Figure 3). Participants report engaging in some behaviors that align with psychologically informed practice, while a significant proportion treat fear of re-injury without assessing the patient's status.

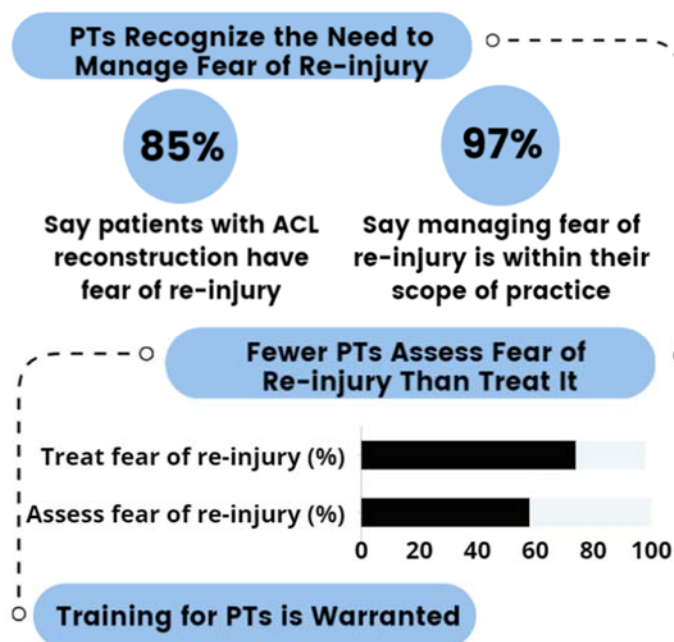


Figure 1. Participant Awareness, Beliefs, and Clinical Behaviors about Managing Fear of Re-Injury.

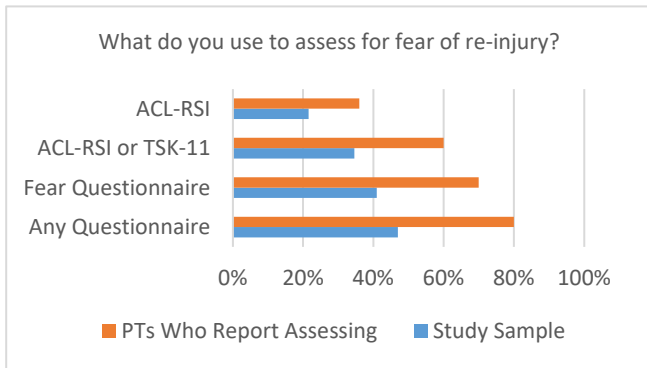


Figure 2. Questionnaire use by participants for assessment of fear of re-injury.

ACL-RSI = ACL Return to Sport after Injury scale

TSK-11= Tampa Scale of Kinesiophobia

Fear Questionnaire = Uses a questionnaire that measures fear

Aim 3: Categorize physical therapists' readiness to use a PIP approach to manage fear of re-injury after ACL reconstruction.

Categorization was determined by an algorithm developed by the study team which integrates awareness, beliefs, and clinical behaviors within the Transtheoretical model of behavior change. Initial findings show that nearly 20% of participants are categorized as pre-contemplation regarding assessment of fear of re-injury. These participants are not thinking about integrating assessment of fear of re-injury into their practice and don't plan to change this behavior in the next 6 months. Additionally, 25% of participants are in the contemplation stage of change for assessment of fear of re-injury, indicating that they are weighing the pros and cons of changing this clinical behavior (Figure 4). In contrast, over 70% of participants are in the maintenance stage of treating fear of re-injury after ACL reconstruction, reporting engagement in those clinical behaviors for over 6 months (Figure 4).

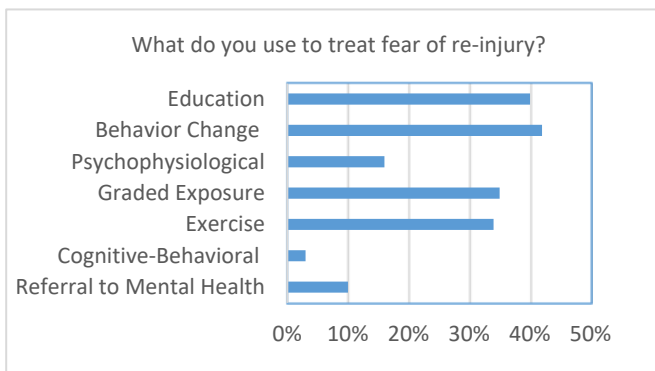


Figure 3. Treatment strategy use by participants for fear of re-injury.

Behavior change = Motivational Interviewing, reinforcement, goal setting

Psychophysiological = Visualization, relaxation, mindfulness

Cognitive-Behavioral = CBT, thought challenging, coping statement

Exercise = Movement interventions not targeting fear

Graded exposure = Movement interventions targeting fear

Mental Health = Psychologist or Counselor

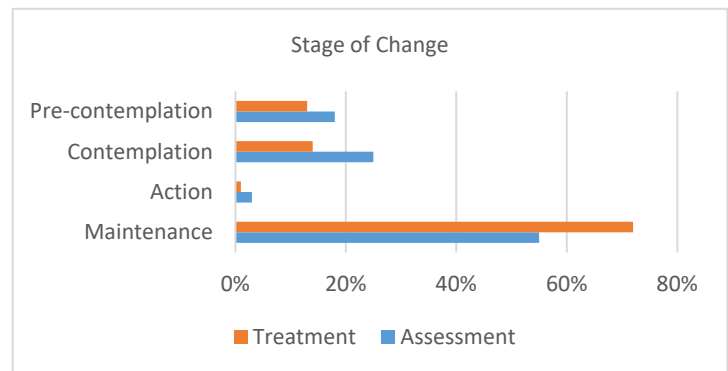


Figure 4. Categorization of participant readiness using Transtheoretical model

Pre-contemplation = Not changing behavior

Contemplation = Considering behavior change

Action = Changed behavior < 6 months ago

Maintenance = Changed behavior > 6 months ago

2. Provide a one-paragraph summary of results or abstract suitable for posting on the Academy website.

Purpose/hypothesis: Fear of re-injury deters a return to sport after ACL reconstruction (ACLR). It is unclear how this is managed in rehabilitation, and if physical therapists are ready to assess and treat fear of re-injury. The objectives of this study were to describe the awareness, beliefs and clinical behaviors of physical therapists in managing fear of re-injury after ACLR, and then to categorize physical therapist stage of change for managing fear of re-injury using the Transtheoretical Model. The central hypothesis is that most physical therapists are in a pre-contemplation stage for managing fear of re-injury after ACLR due to a lack of formal training, biomedically based beliefs and clinical behaviors. **Subjects:** A cross-sectional cohort of 178 licensed physical therapists in the United States who have treated at least 5 patients with ACLR in the past year. **Materials/methods:** A brief (~ five minutes) online survey with items related to awareness, beliefs, and clinical behaviors for managing fear of re-injury after ACLR was distributed between November 2020 and February 2021. **Results:** Nearly all (97%) participants believe that management of fear of re-injury is within physical therapist scope of practice, and 85% believe that more than 25% of their patients exhibit fear of re-injury. Fifty-eight percent of participants report assessing fear of re-injury in their patients, while 72% report providing treatment for fear of re-injury. Of those that report assessing fear of re-injury, 60% report using the ACLR-RSI or TSK-11. The most frequently reported treatments for fear of re-injury were educational strategies (40%) and behavior change strategies (42%). Of those that treat fear of re-injury, exercise and cognitive-behavioral techniques were reported by 35% and 3% of participants, respectively. Based on this data, 43% of participants are in the Pre-contemplation or Contemplation stages of assessing fear of re-injury, while over 70% are in the Maintenance stage for treating fear of re-injury. **Conclusions:** Physical therapists have some beliefs and behaviors that align with a psychologically informed practice approach. However, many participants treat fear of re-injury without performing assessment and there is a significant proportion who are resistant to changing their clinical behaviors. **Clinical Relevance:** Almost half of physical therapists who care for patients post-ACLR do not assess for fear of re-injury, and one fifth of them are not interested in changing this behavior. Education and training based on physical therapist stage of behavior change is warranted.

3. Attach a list of your publications published or accepted during the past year, or currently being written. Send reprints when available. List presentations made and abstracts accepted for presentation based on this work. Indicate with an asterisk (*) those publications supported by Academy of Orthopaedic Physical Therapy funding.

N/A

4. Provide a budget, using the original approved budget. Indicate total funds spent to date per major categories. If there was > 25% deviation (greater or less spent) of use of funds for any of the budget category, please BRIEFLY indicate the rationale. (See example below)

Funds have been expended according to the study budget and in alignment with participant recruitment.

A. Study Personnel

| Name | Role | Effort | Paid | In-Kind |
|-----------------------|------------------------|----------|------|---------|
| Travis Gunderson, PT | Principal Investigator | 5.00% | x | |
| Terri Chmielewski, PT | Primary Mentor | 5.00% | | x |
| Jeanette Zeigenfuss | | 20 hours | | x |
| Hayley Russell | Mentor | 20 hours | | x |
| Jason Benueciuk | Mentor | 20 hours | | x |
| Joel Bialosky | Mentor | 20 hours | | x |
| Michael Obermeier, AT | Study Coordinator | 5.00% | x | |
| Megan Reams | Project Manager | 50 hours | | x |

B. Year 1 Budget Report

| Category | Year 1 Budgeted | Year 1 Actual | Year 1 Differential |
|---------------------------------|--------------------|--------------------|---------------------|
| Personnel Budget | | | |
| Travis Gunderson | \$9,738.00 | \$9,195.63 | \$542.37 |
| Research Coordinator | | | |
| Materials & Supplies | | | |
| APTA Ortho Section Email Blast | \$200.00 | \$300.00 | (\$100.00) |
| AASPT Email Blast | \$0.00 | \$250.00 | (\$250.00) |
| Postage (stipends) | \$275.00 | \$0.00 | \$275.00 |
| Consultant Costs | | | |
| REDCap database development | \$4,000.00 | \$1,804.16 | \$2,195.84 |
| Equipment | | | |
| | \$0.00 | \$0.00 | \$0.00 |
| Stipends¹ | | | |
| Stipends | \$5,000.00 | \$3,810.00 | \$1,190.00 |
| Total direct costs | \$19,213.00 | \$15,359.79 | \$3,853.21 |
| Total indirect costs | --- | --- | --- |
| Total costs | \$19,213.00 | \$15,359.79 | \$3,853.21 |

¹ these funds have been accrued in year 1 and will be paid out early in year 2. This delay is due to the issue identified in the study report and the desire to batch this work.

5. Objectives for the next year:

Recruitment

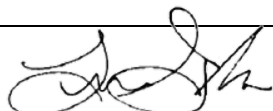
To meet the target of 500 completed surveys, Dr. Gunderson and Dr. Chmielewski will reach out to their professional network of physical therapists and physical therapy departments/clinics throughout the country to recruit the final 120 participants. Anticipated completion date: **Summer 2021**

Data Analysis and Study Team Meetings

Dr. Gunderson and Dr. Chmielewski will have twice monthly meetings and email correspondence to finalize data analysis. Results will be presented to the study team at the next quarterly meeting. Anticipated completion date: **Fall 2021**

Manuscript Writing and Submission

After study recruitment has been finalized and analysis completed, Dr. Gunderson will continue with manuscript writing and submission as well as submission of final results for CSM 2023. Anticipated completion date: **Winter 2022**



Your Signature

7/14/2021

Date

Return to:

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