

# Orthopaedic Section of the APTA Grant Program Annual Progress Report Form

Date: July 6, 2016

Name of Investigators: Gretchen B. Salsich, PT, PhD (Principal Investigator); Linda R. Van Dillen, PT, PhD (Consultant); Catherine E. Lang, PT, PhD (Consultant)

Name of Grant: Task-specific Movement Pattern Training for Treatment of Patellofemoral Pain  
(Supplement to project funded by Washington University Institute of Clinical and Translational Sciences)

Award Period: 6/1/14 to 5/31/16 (Initial award date – date on contract as start date)

Current Year of Award completed (circle one): 1<sup>st</sup>, 2<sup>nd</sup>, no-cost extension year (3<sup>rd</sup>)

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:

**Specific Aim 1.** To determine if it is feasible to conduct a task-specific movement pattern training rehabilitation program.

- 25 subjects will be enrolled and 85% will be retained over the study period.
  - Status: 17 subjects have been enrolled. All subjects have been retained (100% retention)
- Subjects will demonstrate 75% adherence (self-report) to the corrected movement pattern during daily activities.
  - Status: Average daily adherence for 15 subjects who have completed treatment is 79% (range: 44-99%)

**Specific Aim 2.** To characterize the effect of task-specific movement pattern training on kinematics, pain, function, and activity participation.

- Using a repeated measures model, subjects will be evaluated at multiple time points on measures related to kinematics, pain, function, and activity participation.
  - Status: 16 subjects have completed the study. One subject is in the intervention phase. Pain, function, and activity participation data from Baseline #1, Baseline #2, and midpoint assessments have been processed for 16 subjects; Data from the Post-intervention assessment have been processed on 14 subjects; Data from the 4-wk post-intervention assessment have been processed on 13 subjects. Kinematic data have been processed for 12 subjects (Baseline #1, Baseline #2, Post-intervention)
- Kinematics will improve between pre- and post-intervention assessments. Kinematics will remain improved 4 weeks post-intervention.
  - Status: At Post-intervention, subjects had decreased hip adduction, hip internal rotation, and contralateral pelvic drop (i.e. improved dynamic knee valgus) during a single limb squat compared to baseline. Data from the 4-wk post intervention assessment is undergoing analysis.
- Subjects will report meaningful changes in pain, function and activity participation between pre- and post-intervention assessments. Measures will remain improved 4 weeks post-intervention.
  - Status: At Post-intervention, Pain, function (self-reported), and activity participation improved compared to baseline. Both measures remain improved at the 4-wk post-intervention assessment.

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

Chronic patellofemoral joint pain (PFP) is common, persistent, and potentially debilitating. Emerging evidence links a faulty movement pattern (dynamic knee valgus), where the lower limb moves inward during weight bearing, to pain in females with PFP. This study is testing the feasibility and potential efficacy of a novel physical therapy intervention focused on training people to move correctly while performing daily activities. Preliminary results indicate that the intervention is feasible (recruitment and retention goals are being met, and participants have high adherence to the prescribed program). Additional early findings suggest that dynamic knee valgus, pain, function and activity participation improve following task-specific movement pattern training.

**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 Orthopaedic Section funding.**

- \*Salsich GB, Yemm B, Reitenbach A, Lang CE, Van Dillen LR. "Feasibility and Acceptability of a Task-Specific Movement Pattern Training Program for Treatment of Patellofemoral Pain" (abstract submitted for platform presentation to the Combined Sections Meeting of the American Physical Therapy Association, Anaheim, CA, Feb 17-20, 2016).
- \*Yemm B, DiStaulo A, Van Dillen LR, Lang CE, Salsich GB. "Knowledge and demonstration of key concepts following one movement pattern training session in females with patellofemoral pain" (abstract submitted for platform presentation to the Combined Sections Meeting of the American Physical Therapy Association, Anaheim, CA, Feb 17-20, 2016).
- \*Salsich GB, Yemm B, DiStaulo A, Reitenbach A, Lang CE, Van Dillen LR. "Task-specific Movement Pattern Training for Treatment of Patellofemoral Pain" (accepted for poster presentation at the APTA Section on Research Retreat: "Piecing together the pain Puzzle: The Biopsychosocial Model", Bryant University, Smithfield, RI, July 26-30, 2015).
- \*DiStaulo A, Reitenbach A, Yemm B, Salsich GB. The Effect of Movement Pattern Training on Hip and Knee Angles, Function and Pain in Females with Patellofemoral Pain. (Poster: presented by DiStaulo A at the Saint Louis University Senior Legacy Symposium, Saint Louis, MO, April 22, 2015)

**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.**

EXPENSE CATEGORY	Budgeted Amount for Year 1	Actual Amount Spent in Year 1	Amount Remaining in Year 1 budget	Budgeted for Year 2	Projected Expenditure In Year 2
Personnel: Salsich	0	0	0	0	0
Personnel: Yemm	0	0	0	\$2,795	\$2,795
Personnel: Research Assistant	0	0	0	\$8,202	\$9,569
Personnel: Student	\$5,000	\$1,070*	\$3,930*	\$3,500	\$6,000
Supplies	0	0	0	470	470
Outpatient care costs	0	0	0	775	775
Other: software, equipment	\$3,170	\$3,168	\$2	0	0
<b>TOTAL</b>	<b>\$8,170</b>	<b>\$4,238</b>	<b>\$3,932</b>	<b>\$15,742</b>	<b>\$19,609</b>

\*Rationale for >25% deviation: Student labor was budgeted at 10 hrs/wk. Student averaged 5 hrs/wk in Year 1 and did not start working until 9/1/14. It is estimated that effort for student labor will increase in Year 2 to 12 hrs/wk and effort for research assistant will increase to 7 hrs/wk from 6 hrs/wk.

**5. Objectives for the next year:**

- Complete data collection for all 25 subjects
- Complete data processing for all tasks, at all study time points
- Conduct statistical analysis on primary measures
- Submit 2-3 additional abstracts for presentation at professional conferences
- Draft 1-2 manuscripts based on the study data
- Develop and refine specific aims for NIH grant (R01 or R15)

  
Your Signature

7/15/15  
Date

**Return to:**

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