

Academy of Orthopaedic Physical Therapy, APTA, Inc. Grant Program Annual Progress Report Form

Date: 20200616

Name of Investigators: Linda van Dillen, PT, PhD; Heidi Prather, DO; Quenten Hooker, MS (doctoral trainee)

Name of Grant: Impact of hip structure and function on the clinical presentation of low back pain

Award Period: May 2018 to May 2021 (Initial award date – date on contract as start date)

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

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: Impact of COVID-19: The progress report was submitted late due to suspension of the project because of the COVID-19 pandemic. Dr. van Dillen communicated with Dr. White, the Chair of the Research Committee, via email on 03/18/2020 to inform him of the suspension of all research at Washington University. Dr. van Dillen communicated again on 05/22/2020 to determine how to handle reporting on the 1st year. Dr. White indicated that there would be a no-cost-extension (NCE) year and the timing of the NCE would be made after Washington University made final decisions regarding resumption of human research, and that we should send the progress report in as is. Progress: The primary accomplishments in the first year of funding are related to recruitment procedures, training personnel, establishing and testing reliability of the experimental procedures and establishing procedures for conducting the imaging and billing the grant account. The initial IRB was approved 05/15/2020 and reapproved on 04/02/2020. Recruitment outlets were set up with through Volunteers for Health, a research participant registry and MyHealth in Epic, the electronic health record for the BJC Healthcare system in St. Louis. A database of potential participants (n=3162) developed from prior studies in the lab was reviewed to identify people to call to screen for the study. Flyers were posted in local clinics and the community. Equipment was purchased. Standard operating procedure manuals were developed for the experimental testing for the lumbar spine examination, motion capture tests, and hip tests (muscle strength, passive range of motion, provocative tests). Data collection, processing and billing procedures were set up for imaging. RedCap databases were developed for the clinical examination, motion capture and self-report measures. Autocalculation procedures for the self-report measures were established in RedCap. Data processing pipelines were built and tested for validity of motion capture data. Software pipelines include custom written software in Vicon Nexus, Visual 3D, and Matlab. Four research assistants who were to work part-time on the project were trained in all study procedures. Three were DPT students paid for by the Program in Physical Therapy. A fourth undergraduate student in biomedical engineering was hired using the AOPT grant funds. Ten participants were tested in two sessions (20 total visits) to examine test-retest reliability for the project measures. Analyses for internal consistency and intra-rater reliability were performed. Across all tests we have good reliability [ICC = 0.81 (0.79, 0.89)] and excellent internal consistency [Chronbach's alpha = 0.93 (0.90, 0.96)]. 197 potential participants were contacted to see if they were interested/qualified for the study. Fourteen participants were scheduled for March 2020. Two participants completed all testing. Two participants did not complete the imaging component due to COVID-19 restrictions. All other participants were contacted to inform them of suspension of the study. All were willing to be contacted when restrictions were lifted.

2. Provide a one-paragraph summary of results or abstract suitable for posting on the Academy website. Currently hip factors within the context of LBP are not well understood and not consistently assessed or treated. Our study is examining in a single cohort the extent that major categories of hip factors (strength, range of motion, findings with provocative hip tests and structural hip alterations) contribute to altered lumbar spine movement, lumbar spine loading, current LBP intensity and functional limitations. Test-test reliability and internal consistency of all major tests has been completed. There is good reliability [ICC = 0.81 (0.79, 0.89)] and excellent internal consistency [Chronbach's alpha = 0.93 (0.90, 0.96)] across all tests. Active recruitment and testing was initiated.
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. No abstracts or manuscripts were submitted because this was the first year of the study and (1) most of the time was devoted to set-up, standardization and finalization of testing and data processing procedures, piloting and reliability testing and (2) the study was suspended due to COVID-19 just at the time full-time recruitment and enrollment had gotten underway.
4. Provide a budget, using the original approved budget. Indicate total funds spent to date per major categories. If there was $\geq 25\%$ deviation (greater or less spent) of use of funds for any of the budget category, please BRIEFLY indicate the rationale. (See example below)

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
PI and Co-Investigators	Cost-shared	Cost-shared	NA	Cost-shared	Cost-shared
Research assistant salary (15%)	\$8,617	\$895.54	\$7721.46	\$8,617	\$8,617
Lab supplies	\$ 380	\$140	\$ 240.00	\$ 380	\$ 380
Radiographs	\$7,600	\$448.32	\$7151.68	\$7,600	\$7,600
Reading radiographs	\$ 570		\$ 570.00	\$ 570	\$ 570
Subject remuneration	\$1,900	\$160.00	\$ 1740.00	\$1,900	\$1,900
Subject parking/transportation	\$ 380		\$ 380.00	\$ 380	\$ 380
TOTAL	\$19,447	\$1643.86	\$17803.14	\$19,477	\$19,477

- Rationale for use of funds in the first year: A minimal amount of money from the AOPT grant was spent in the first year because we decided to first use funding obtained from the Program in Physical Therapy Pilot grant mechanism for piloting of procedures for the project. These funds were obtained prior to our AOPT grant award. To save funds we also used 3 DPT students to assist with pilot testing. These students are funded by the Program to work in our lab over their 3 years of DPT training. Pilot testing, reliability testing and development of operation manuals and various pieces of software took considerable time because this was done with part-time trainees (1 PhD trainee, 3 DPT students, 1 undergraduate BME). The process for setting up the administrative/coordination aspects of research-related imaging took longer than anticipated because of the switch to Epic EHR system for scheduling and billing the research grant. Because most of the AOPT funds were earmarked for the cost of running participants and we had pilot funding and support of personnel from the Program in Physical Therapy we have a large balance from year 1 that can be carried over. Our Year 2 projections were left as originally proposed because the cost to conduct the study is the

same. The timing of completing the study, however, is still unknown.

5. Objectives for the next year: Now that all procedures are in place and all pilot and reliability testing has been completed our objectives are to recruit, collect, process and conduct preliminary analyses on data. The activities, however, will be dependent on when the University allows resumption of human studies. Currently our study is classified as "non-beneficial, clinical research" because the study visits do not provide treatment or safety monitoring of the patient's condition. Resumption of activities for this type of research is not known at this time and dependent on COVID-19 activity in the region. We will keep in close communication with Dr. White as information re. human research activities is available.

_____ *Tara Fredrickson* _____ 20200616 _____
Your Signature Date

Return to:

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