

Progress Report:

1. Summary of accomplishments in the past year (6 months):

In the past 6 months, we collected data on 12 subjects in the control group and 10 subjects in the OA group. We have an additional 5 control and 8 OA group subjects scheduled for the next month, so far. In addition, all supplies have been ordered and an ad is currently running in the newspaper. Two abstracts have been submitted and accepted for CSM of 2016 and 1 abstract was submitted to the Orthopedic Research Society based on such preliminary data.

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

Knee osteoarthritis is a leading cause of physical disability and functional limitations in middle to older adults. Pain from knee osteoarthritis can result in knee buckling, falls, and, even fractures, which are all related to functional decline. Unfortunately, there are currently few treatment options known to combat this detrimental outcome. Nevertheless, we do know that people with knee osteoarthritis walk and use their muscles differently than those without knee osteoarthritis. Muscles are required for movement during daily activities, including walking or getting out of a chair. However, with knee arthritis, turning muscles on and off is not consistent, and muscles can simultaneously fire, which is known as co-contraction. Some believe that co-contraction observed with knee osteoarthritis is a way people deal with pain, but it can increase the compressive forces in the knee, which might make the osteoarthritis worse. Co-contraction in young, healthy knees is important in activities such as running, cutting, and jumping. Perhaps, individuals with knee osteoarthritis find many daily activities to be more demanding and, as a result, require co-contraction. Our preliminary data shows that co-contraction is related to self-reported measures, and an adequate amount of co-contraction is necessary in order to maximize performance during functional testing in our subjects with knee osteoarthritis.

3. Abstract accepted (CSM 2016)

- i. Clinical Predictors of Co-Activation in Knee OA
- ii. Walking Complaints May Identify Co-Activation in Knee OA.

b. Abstract submitted (Orthopedic Research Society 2016)

- i. Poor Knee Stabilization Strategies Accompany Walking Difficulty in Knee Osteoarthritis.

4. Budget

Expense Category	Budgeted Amount for 6 months	Actual Amount Spent for first 6 months	Amount Remaining in 6 months	Budgeted for 6 -12 months	Projected expenditure in months 6-12
Supplies*	\$2785.00	\$ 1532.96	\$1252.04	\$1250	\$2502.04
Personnel*	\$3783.00	\$1688.10	\$2094.90	\$ 3782	\$5876.90
Misc	\$1750.00	\$1832.83	\$-82.83	\$1650	\$1567.17
Total	\$8318.00	\$4673.89	\$3644.11	\$ 6682.00	\$9946.11

Supplies* - Recruitment and data collection are primarily scheduled in November and December. Not all individuals in the OA group have received knee X-rays, but they are all scheduled.

Since supplies include x-rays and honorarium we expect projected expenditure for the next 6 months to balance out.

Personnel*: We spent the first 6 months training undergraduate assistant to process and collect data, which was allocated as observation and training time. For the second 6 months we will be paying them to assist with collecting and processing data. With increased data collection for the second half, we believe the allocated amount will be appropriate for the next 6 months.

5. Objectives for the next year: (for the next 6 months)
 - a. Complete all recruitment and collection within the next 2 months.
 - b. Move undergraduate assistance from volunteer hours to paid time to complete all data analysis within the next 6 months.
 - c. Begin manuscript write up of data within the next 6 months.