

9-4-2014

# Comparison of Therapeutic Exercise Accuracy During Completion of a Home Exercise Program Using the Exercise Tutor Versus a Written Home Exercise Program

James Flis  
*Cleveland State University*

Riana Stanko  
*Cleveland State University*

Megan Stang  
*Cleveland State University*

Ann Reinthal  
*Cleveland State University, A.KARAS@csuohio.edu*

Deborah Espy  
*Cleveland State University, D.ESPY@csuohio.edu*

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## Recommended Citation

Flis, James; Stanko, Riana; Stang, Megan; Reinthal, Ann; and Espy, Deborah, "Comparison of Therapeutic Exercise Accuracy During Completion of a Home Exercise Program Using the Exercise Tutor Versus a Written Home Exercise Program" (2014). *Undergraduate Research Posters 2014*. 11.

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# ***Comparison of therapeutic exercise accuracy during completion of a home exercise program using the Exercise Tutor versus a written home exercise program***

College of Sciences and Health Professions

**Student Researchers:** James Flis, Riana Stanko, and Megan Stang

**Faculty Advisors:** Ann Reinthal and Debbie Espy

## **Abstract**

Exercise is powerful in rehabilitation and prevention of disability; however, patient adherence to home exercises is difficult, learning new movements requires a great deal of practice, and incorrectly performed exercises are ineffective or even dangerous. We have developed a system comprised of a Kinect device with wearable inertial sensors to capture, record, and process the exerciser's movement while concurrently providing targeted feedback to guide correct exercise completion. This pilot study allowed us to perform initial testing of this system, specifically, the effectiveness of this system in improving exercise accuracy, with and without the addition of inertial sensors to the Kinect camera feedback, as compared to a traditional written home exercise program. Twenty-four participants (18-48 years old, 14 female) completed one of three training types: a written exercise program, Kinect feedback only, or combined inertial sensor and Kinect feedback. All subjects completed a pre-test, three training sessions, and a post-test with the assigned feedback type, with movement accuracy as the outcome. These data are in analysis; therefore, previous data from the pilot for this project are presented here. Initial analysis indicates that kinect and inertial sensor feedback are better for different movement types, and are superior to a written program.