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2016 Oklahoma Research Day

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## 12. Kinesiology

Northeastern State University

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## **Abstracts from the 2016 Oklahoma Research Day**

### **Held at Northeastern State University**

#### **05. Mathematics and Science**

#### **12. Kinesiology**

##### **05.12.01 Hemispherectomy: The Progression of Motor Skills with Physical Therapy Intervention**

**Markwardt, Kelly** *Tulsa Community College*

Hemispherectomy: The Progression of Motor Skills with Physical Therapy Intervention Purpose: To determine the effect of physical therapy and the progression of motor skills in patients with a history of a hemispherectomy. Methodology: Observe a patient who has had a left hemispherectomy and track the patient's motor skill progress for approximately 24 months while he undergoes physical therapy interventions. The researcher will attend therapy appointments to track progress as well as have access to physical therapy records and other pertinent medical records. His progress will be compared to typical developmental milestones. The patient's progress will also be compared to other patients of various ages who have had a hemispherectomy. Results: The patient is a two year old male who was born with Tuberous Sclerosis and began having uncontrollable seizures at three weeks of age. At two months of age he had a left hemispherectomy, which entailed the left side of his brain being removed. This resulted in decreased control and coordination of his right upper and lower extremities. In October 2014, patient's motor skills are delayed for his age when compared to the Centers for Disease Control developmental milestones chart. As of January 2016, the patient is walking.

## **05.12.02 Acute Effect of Self-Myofascial Release of the Rectus Femoris on Vertical Jump**

**Seale,Jeremy** *University of Central Oklahoma*

**Clark,Jamie** *University of Central Oklahoma*

**Redus,Brady** *University of Central Oklahoma*

Self-myofascial release (SMR) is the process of applying pressure to the soft connective tissues that encase muscles (fascia) in order to relax them. Fascia tightness can have adverse effects on performance. Common ways to apply the pressure are foam rollers, lacrosse balls and the newly designed MobilityWOD Supernova. They have recently been included in many pre and post-workout plans due to their usefulness in increasing range of motion (ROM) without decreasing power. The ability to increase power without using energy can be vital in competition. The purpose of this study is to measure the effects of self-myofascial release of the rectus femoris on a vertical jump. Two groups of athletes (one control, one experimental) will be tested after a standardized dynamic warm up. Both groups will jump twice on a Just Jump mat, which will calculate their vertical jump, and then another two times after a 10 minute rest period. The experimental group will be using the Supernova for self-myofascial release during this 10 minute rest period. Results will be compared between the control and experimental group. A significant increase in power output and performance should be witnessed due to self-myofascial release.

## **05.12.03 Static Vs. Dynamic Stretching**

**Mendoza,George** *Northwestern State University*

**Mahieu,Jennifer** *Northwestern State University*

**Collins,Leslie** *Northwestern State University*

**Little,Stephanie** *Northwestern State University*

Stretching is a big part in preventing the body from injury while performing exercises. Since elementary school, it has been taught to perform a certain stretch for fifteen to thirty seconds then release. Well, according to our article, certain stretches must be performed depending on the type of goal one is trying to achieve. Static and dynamic stretching are two different forms of stretches designed to accomplish two different goals. Research shows that the traditional static stretching, which involves holding a stretch for a certain amount of time and releasing, is more goal oriented to increasing flexibility. If static stretching is performed before some sort of athletic event, research shows that it decreases performance. Dynamic stretching is more goal oriented to increasing performance. Dynamic stretching consist of flexing and extending a muscle slowly and gradually increasing speed until muscles are warmed up. Although both may have their advantages and disadvantages, both play a vital role in staying healthy and fit.