

## **Baseline Range of Motion of the Lower Limb in Parkinsonian Gait is Consistent Among Treatment and Control Groups**

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### **Introduction/Background:**

Tens of thousands of people are diagnosed with Parkinson's disease (PD) each year, making PD the second most common neurodegenerative disorder. The overarching goal for this project is to examine the efficacy of osteopathic manipulative treatment (OMT), and osteopathic cranial manipulative medicine (OCMM) particularly, in improving parkinsonian gait.

### **Objective:**

The purpose of this study is to serve as a preliminary analysis and comparison of the baseline joint angle data across experimental PD groups. We hypothesize that no significant differences will be found in the baseline range of motion (ROM) of each joint across randomly-assigned treatment and sham PD groups.

### **Methods:**

An 18-camera motion analysis system was used in conjunction with 54 reflective markers on the body to capture three-dimensional position data in a short treadmill walking trial before the application of a whole-body (including OCMM techniques), neck-down, or sham OMT protocol. Ankle, knee, and hip joint ROM in the sagittal plane during the gait cycle was compared across treatment and control groups.

### **Results:**

Baseline ROM at the hip, knee, and ankle joint across experimental groups (two treatment groups and one sham group) was comparable within one standard deviation of the mean of each group. 5.4, 11.4, and 5.7-degree variations in mean ROM were found between groups at the hip, knee, and ankle respectively.

### **Discussion/Conclusion:**

The results of this preliminary analysis show that experimental groups are not likely to significantly differ in baseline range of motion. These results validate the randomization of participants in our research design.