

**Members involved in the research:**

Michael Weiner (principle investigator), Dr. Brent Russell, and Annie Bishop.

**Title of the research:**

Motion capture analysis of students performing side posture set up and thrusts on a mannequin: a pilot study

**Dates of research project:**

04/13/2015 – 09/15/2015

**Abstract of what the research project is about:****Objective:**

A chiropractic adjustment is a physically demanding skill. Improper adjusting technique has been linked to injury in chiropractic practitioners. Because instruction can be subjective, this pilot study investigates motion capture as an objective assessment of postures and movement patterns during an adjustment.

**Methods:**

Three chiropractic students were recorded during lumbosacral side posture mock adjustments on a mannequin utilizing MyoMotion inertial measurement unit sensors. (Noraxon, Scottsdale Arizona, USA). The postures before and during the maximal thrust were recorded and interpreted in terms of lumbar and thoracic flexion, extension, lateral bending, and axial rotation as well as roll, pitch, and yaw.

**Results:**

Differences and similarities of adjustment postures and movements for the three participants were successfully documented for most measures. Yaw values suffered from magnetic interference and were deemed invalid.

### **Conclusion:**

This pilot study suggests motion capture as a feasible approach for assessment of posture and movement patterns of chiropractors performing adjustments. These methods may contribute to a further understanding of adjustment mechanics, injury prevention, and objectivity in student instruction.

### **Quote on why conducted research and results:**

The literature explains that chiropractic students and chiropractors in the field injure themselves while adjusting patients/students in class due to improper adjusting mechanics. Chiropractic adjustment instruction is almost entirely subjective and because of this, there needs to be more objectivity in the teaching of adjustment mechanics. On top of proper biomechanics of adjusting and injury rates of improper form, it was the author's hopes that the feasibility of this study can lead to future projects in a desire to accumulate normative data on the postures of adjusting. Our results indicate that with the use of motion tracking devices, such as MyoMotion, the postures and angular kinematics of the adjustment can be measured. – Michael Weiner (DC Student)