TACSM Abstract

3-Dimensional Biomechanical Comparison of Spinal Posture in Yoga Practitioners and Non-Practitioners during a Seated and Standing Position

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ABSTRACT

Yoga has been claimed to be beneficial for helping a series of clinical populations and improving ailments such as, but not limited to, stress, chronic back pain, muscle endurance, flexibility, balance, and posture. Whereas many of the above listed assertions have been scientifically investigated, there is a lack of objective evidence that supports the claim that yoga improves posture. **PURPOSE**: The purpose of this study is to compare a 3-D biomechanical analysis of spinal posture among yoga practitioners (YP) and Non yoga practitioners (NP) during seated and standing positions. **METHODS**: 10 yoga practitioners (M= 3, F=7) and 10 non-yoga practitioners (M= 3, F=7) between the ages of 18 and 40 participated in the study. 36 spherical reflective markers (B&L Engineering, Tustin, CA) were placed bilaterally according to the Plug-in Gait Model (Vicon Motion Systems Ltd., 2015). Four additional spinal markers were added to the model to allow further analyses (C3, C5, L1, and L4). Subjects were recorded using eight infrared cameras (SMART-DX 7000, BTS Bioengineering, Milano, Italy) for spinal posture analysis. Subjects started from a relaxed seated position on a backless chair and moved to a standing position, each position was held for 5 seconds. **RESULTS**: No significant difference was seen ($p > .05$) between groups in regard to head, neck, pelvis, or thorax angle during static sitting or static standing trials. **CONCLUSION**: From this study it can be concluded that no significant difference was detected in posture between YP and healthy NP during sitting and standing positions. To our knowledge, this was the first study comparing posture in Yoga-Practitioners and Non-Practitioners via quantitative means. Although there was no significant difference between groups during the static postures, further analysis may expose differences among postural patterns during the transition period from sitting to standing. Future research will use joint coupling analyses to analyze these kinetic chain of events during the transition from sitting to standing