

Comparison of Ankle Joint Range of Motion on Balance Score in Healthy Young and Adult Individuals

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Abstract

Background and Introduction: Flexibility at the ankle joints provides an important contribution to safe execution of many functional tasks in our day to day activities like walking, negotiating stairs, rising from a chair and added efficiency in the maintenance of postural stability. Lack of mobility at ankle joint leads to inefficient balance and frequent falls. A number of studies have been performed for falls in elderly and analyzed the composition of sway in adults and “healthy” elderly people. In this study comparison of ankle joint range of motion on balance score in healthy young and adult individuals is done. **Method:** 30 subjects were selected according to the inclusion and exclusion criteria. Subjects were measured for active and passive ankle dorsiflexion and plantar flexion in high sitting position to measure range of motion at ankle joint. Then subjects went through Functional reach test and Timed up and go test and score was measured and noted. **Results:** Analysis of the relation between balance score and joint range of motion showed that ankle joint range of motion and balance are mutually dependent. **Conclusion:** The result of study shows that there is decrease in ankle joint range of motion with increasing age and thus affects balance also.

Key Words: Ankle joint range of motion, balance score

Introduction

The ankle is a complex joint that connects the foot to the lower leg. A hinge joint formed by the articulation of the tibia and the fibula with the talus below also called mortise joint. It bears up to eight times the body weight when one runs. Normal ankle function is needed to walk with a smooth and nearly effortless gait. The muscles, tendons, and ligaments that support the ankle joint work together to propel the body (Chaurasia, 2012). Flexibility at the ankle joints provides an important contribution to safe execution of many functional tasks (e.g. walking, negotiating stairs, rising from a chair) and added efficiency in maintenance of postural stability (Nitz & Nancy, 2004). Consequently it is impossible to stand

motionless as even when standing quietly on both feet, the body sways over its base of support. The basic requirement for standing balance is that the position of the body's centre of mass is held within the boundaries of the base of support established by the feet (Maki & McIlroy, 1998). Flexibility at the ankle joint is directly related to the balance. Balance is defined as the ability to control body mass or centre of gravity to base of support (Gordon & Ghez, 1991). Balance is a complex process involving reception and integration of sensory inputs and the planning and execution of movements to achieve a goal requiring upright posture. The ability to control postural balance is a prerequisite to performing many of the