METHODS:

Walking and standing balance was tested in 32 healthy women between 20 and 60 years old.

Three dimensional video motion analysis system (Peak Motus 8 Motion Measure System) was used to measure gait parameters. The women walked barefoot. They were asked to look straight forward and to walk as naturally as possible. Subjects walked with "eyes open" and "eyes closed", each condition was repeated 3 times and recorded.

We also had measured stability variables using Biodex Balance System. The BBI uses a circular platform that is free to move in the anterior-posterior and medial-lateral axes simultaneously, measuring the deviation of the center of pressures between static and dynamic conditions.

In this study, we assessed bilateral stance with eyes opened and eyes closed. Measures were obtained from 20-sec trials during which participants were asked to maintain an upright standing position on the stable or unstable surface of the BBS (see below).

Statistical analysis was performed using Student’s t-test for matched pairs. The results are expressed as mean and standard deviation of the mean (SD). P values are shown in the table where a significance was reached.

RESULTS:

Gait parameters (overall cadence, gait velocity, foot progression angle, stride width, stride length, walked on an instrumented walkway, giving us information about kinetic and kinematic analysis).

Classical posture variables (Global Center of Gravity (GCG) excursion, foot progression angle, foot first calculations).

Postural stability index: represents the variance of foot platform displacement in degrees, from the level, in all motions during a test performed over a free motion platform (not locked). A high number is indicative of a lot of movement during a test with static measures; it is the angular excursion of the patient’s center of gravity. (Schmitt, 1998)

Stance/swing ratio is the stance period divided by the swing period (Ounpuu, 1994, and Winter, 1995). The left foot first calculations for stance/swing ratio are identical to the right foot first calculations.

Foot progression angle is the vector angle between the Hall and 2nd Meta Head segment and the ZX plane that represents the gait direction.

Fall Risk Index represents the variance of foot platform displacement in degrees, from the level, in all motions during a test performed over a free motion platform (not locked). A high number is indicative of a lot of movement during a test with static measures; it is the angular excursion of the patient’s center of gravity (Finn, 1998)

CONCLUSIONS:

In this study, we set up the reference values in gait and balance parameters in healthy women walking eyes open and eyes closed.

We have seen that cadence and velocity are decreased in closed eye condition. The rest of variables measured do not have significant differences between the two conditions.

That suggest that the gait, in eyes closed condition, is slower, but structure of gait cycle don’t changes significantly.

As can be expected, the balance parameters are worse in eyes closed conditions, gait velocity and postural stability index are decreased.