with a CD4 count of >200 cells/uL to enroll in the study. After signing the informed consent and collecting demographic data, a member of the research team placed a lumbar accelerometer on each subject. Each participant was instructed to quiet stand in a static bi-pedal posture on a firm surface or a thick foam pad. Each task took 15 seconds to be performed. The first task was to stand on a firm surface (baseline), the eight remaining balance tasks were performed with a thick balance foam mat (four single and four dual cognitive tasks). For the cognitive dual tasks participants were instructed to count backward 3 numbers at a time.
RESULTS: Postural control was measured with Body-worn accelerometers (ACC). The two variables of interest in this study were jerk sway acceleration in an anterior-posterior (A-P) and mediolateral direction (M-L), m^2/s^5. A MANOVA analysis was used to compare the variables of interest, between baseline (BL) (firm surface eyes open) and single/double tasks. AP sway increased significantly during single (BL 0.020 ± .01 m^2/s^5 versus single task 0.20 ± 0.02 m^2/s^5 P< 0.005) and dual tasks (BL 0.020 ± .01 m^2/s^5 versus dual task 0.23 ± 0.03 m^2/s^5 P< 0.005) when visual input was canceled.
CONCLUSIONS: Single and dual tasks showed a similar challenge and results regarding increased acceleration and instability. It appears that the vestibular and proprioceptive systems could be impaired in HIV diagnosed people. Because there is no fall history among the participants of this study and these findings, it seems that patients with HIV rely on the visual system to a higher degree to attain postural control.

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Age-associated Decline In Directional Dynamic Balance In Community-dwelling Older Women

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PURPOSE: To determine whether there is an age-associated decline in leaning directions of DB in community-dwelling older women. **METHODS**: DB was determined in 558 older women. DB was characterized by limits of stability (LOS) that measured end-point excursion (EXE) and maximum excursion (MXE) of the body's center of pressure, reaction time (RT), mean velocity (MVL), and directional control (DLC). LOS consisted of 8 leaning tests around a center square at 0, 45, 90, 135, 180, 225, 270, and 315 degrees. Average (composite) values for each variable in all directions, as well as for each variable in the forward (0 degrees), backward (180 degrees), right (45 degrees), and left (270 degrees) directions, were analyzed.
RESULTS: For overall composite scores and the 4 directions, relationships existed between age and RT (r= 0.18 to 0.34, p< 0.001), between age and MVL (r= -0.13 to -0.30, p< 0.001), age and EPE (r= -0.27 to -0.49, p< 0.001), age and MXE (r= -0.27 to -0.43, p< 0.001), and age and DLC (r= -0.11 to -0.38, p< 0.001). Although age had a significant effect on all balance parameters, there was a higher correlation coefficient with age and composite values compared to the directional results. The influence of age on forward, backward, right, and left directions was not clear. **CONCLUSIONS**: Age had a significant main effect on all balance measures. Balance ability declined in all directions but it is not clear if certain directions are affected differently. Not only was the distance that one can lean without losing balance (EPE and MXE) negatively affected by age, the rate of decline in RT and MVL were also large in all directions. Balance exercise should be designed to address each of these parameters when leaning in the forward, backward, and lateral directions in order to prevent falls.

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Is Wobble Board Balance Performance Influenced by Sex and Anthropometric Characteristics?

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It has been demonstrated that balance can be influenced by anthropometric characteristics and sex. However, controversial findings are reported, mainly due to the large variability in subjects tested and methodologies adopted. Therefore, new hi-tech approaches, able to limit this variability, are needed to accurately evaluate balance control. **PURPOSE:** To assess the influence of anthropometric characteristics and sex on computerized wobble board (WB) balance measures. **METHODS:** Forty-eight (women=24; men=24) young (age=24.0±3.0years) adults were selected to cover a wide range of anthropometrics (mass=64.6±11.5kg; height=167.3±8.5cm; body mass index [BMI]=23.0±3.2kg·m^{-2}). Subjects performed three 30-second trials per limb on a WB equipped with a triaxial accelerometer. Time (s) spent on the platform keeping it flat at 0° was collected for subsequent analysis. Pearson's correlation was used to evaluate the relationships between WB values and the anthropometrics (height, mass, BMI). ANOVA was used to examine WB performance differences between sex for dominant and non-dominant limbs (p<0.05). **RESULTS:** The measured anthropometrics did not significantly correlate with the WB performance. Although women (dominant limb=19.2±4.6s; non-dominant limb=19.8±4.9s) presented better balance than men (dominant limb=18.8±3.5s; non-dominant limb=19.1±4.1s), no significant sex differences were observed for both dominant (p=0.73) and non-dominant (p=0.60) limb. **CONCLUSIONS:** Interestingly, anthropometrics and sex did not affect the WB performance. Due to the close relationship previously reported between WB training and ankle muscles activity, it could be hypothesized that the WB performance is affected by their strength, stiffness or activity. WB improvements after training protocol using WB exercises, can be understood as consistent change in performance not affected by other source of variability such as variation in body mass. Therefore, trainable neuromuscular factors should be targeted during training protocols to gain postural control improvements, without controlling the anthropometrics, independently from the sex. From a clinical point of view, during preventive and rehabilitative programs a special attention should be given to the ankle muscles.

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Adults Diagnosed with HIV Report Decreased Balance Confidence Compared to Non-Faller Older Adults

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Individuals diagnosed with HIV often experience balance impairments caused by the virus or medication. These deficiencies due to compensation of the postural control systems might be unperceived for years until the impairments are to advance.
PURPOSE: Assess perceived balance confidence in people with HIV compared to a group of older adults without an HIV diagnosis.
METHODS: The study was conducted in San Juan, Puerto Rico at an HIV Rehabilitation Clinic (La Perla de Gran Precio) for the HIV group (HIVG). 24 subjects (13 male and 11 female) participated in the study (age 59.2± 1.7 years). To enroll in the study, participants needed an HIV diagnosis with a CD4 count of > 200 cells/uL. The control group (CG) was recruited from the Community Center Complejo Deportivo Carcaño Alicea, Bayamon, Puerto Rico. A total of 25 subjects in the control group (5 males and 20 females) with an age average of 71.5 ± 3.6 years old participated in the study. A member of the research team verbally asked the subjects 16 questions that involved a variety of daily functional activities from the Activities-specific Balance Confidence (ABC) Scale. Each participant was instructed to give a percentage (0-100%) on how confident their balance is while attempting to do these specific functional activities.
RESULTS: A MANOVA analysis was used to compare ABC scale data between groups. HIVG exhibited significantly reduced balance confidence in six out of sixteen subsets of the ABC scale. Chair and Reach (CG 81.20 +/- 22.651, HIV group 55.67 +/- 19.680, P ≤ 0.05), Sweep (CG 93.60 +/- 9.631, HIV group 76.67 +/- 12.660, P ≤ 0.05), Crowded Mall (CG 87.40 +/- 21.704, HIV group 66.67 +/- 12.873, P ≤ 0.05), Mall (CG 84.40 +/- 12.189, HIV group 68.00 +/- 17.264, P ≤ 0.05), Escalator (CG 77.40 +/- 23.722, HIV group 52.40 +/- 11.995, P ≤ 0.05), and Icy Sidewalks (CG 74.40 +/- 26.900, HIV group 43.67 +/- 15.880, P ≤ 0.05).
CONCLUSIONS: These results indicate that adults with HIV are likely to have less confidence in their balance with those tasks, which may result from decreased proprioception and also may result in increased fall risk. Clinicians should make an effort to identify perceived balance confidence in early stages of the condition to reduce the risk of fall in these population.

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Effect Of The Modified Broström-Gould Surgery On Balance In Chronic Ankle Instability

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Purpose: Chronic ankle instability (CAI) has a high incidence and impacts individuals ranging from young athletes to sedentary adults. CAI can result from a single ankle sprain or from repeated ankle sprains at the lateral ankle. The main deficits associated with CAI are balance impairments, poor postural control, and recurrent sprains. The modified Broström-Gould surgery is considered when conservative treatment has been ineffective at addressing CAI. This procedure involves the reattachment of the ruptured anterior talofibular and calcaneofibular ligaments, with reinforcement through the