

THE RELATION BETWEEN HEIGHT AND BALANCE IN YOUNG FEMALES

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ABSTRACT

Balance test for right lower limb came out to be 0.08 and the correlation between height and left lower limb came out to be 0.03 suggesting no correlation between height and balance in young females. The objective of the study was to correlate balance and height in the young adult females.

Methodology: A total of 40 females were included in the present study. The females included were in the age group 18-24 years with BMI in the normal range. Females with a history of ankle instability in past 6 months, subjects with neurological conditions or lower limb injury in past 6 months which may affect participation in the present study were excluded. Subjects involved in any training protocol were excluded. The height of the subjects were measured with the help of the stadiometer and the balance was measured with the help of a Y Balance test.

Discussion: The results in the present study suggest that there is no correlation between height and balance in the young female group which could be attributed to the limited sample size. Also Kristen Jaledis et al reported that greater knee strength is associated with better balance, the females in the present group were young adults with a good dynamic balance. Also it was observed by Angélica Castilho Alonso et al that height correlated with balance in male population but not in the female population. Also it has been observed that more the body mass more is the balance affected and as the sample included in the present study had a normal BMI the balance range. Balance is the ability to maintain the body's center of gravity within the base of support with minimal sway. This requires integration of visual, vestibular, and somatosensory inputs with motor control system output which coordinates muscle contraction. Balance is considered to be one of the major risk factors for falls in older age and it has been reported that females have a higher incidence of falls in the same age group (1). There is limited literature if anthropometric measures such as height affects balance in young adult females and hence the present study was done to see if the height and balance measured by Y test are correlated in young.

METHODOLOGY

The present study evaluated 40 females who were in the 18-24 years age group with normal BMI. Females with a history of ankle instability in past 6 months, subjects with neurological conditions or lower limb injury in past 6 months which may affect participation in the present study were excluded. Subjects involved in any training protocol were excluded. The height and balance measures of the subjects were recorded. The height was measured with the help of a stadiometer in centimetres. Weight of the subjects were also recorded to calculate the BMI. Balance of the subjects was measured with a Y test.

The subjects were informed in detail about the study and explained about the Y test. After the subjects were given 6 trials for the Y balance test for anterior reach, poster medial reach and poster lateral reach for right and left leg, the data for balance was collected. The subjects performed 3 trials in all three directions. The subjects were asked to balance on the stance leg and reach as far as they could with the reach leg and then return to the starting point maintaining their balance. The maximum reach distance was recorded for each trial. The data collected was correlated with the help of Karl Pearson's correlation.

RESULTS

The data was analysed by using Karl Pearson correlation. The mean value for Y test for right leg came out to be 75.32 cms whereas for the left leg it was 79.46 cms. The mean value for the height was 158.2 cms. The correlation between height and Y Balance test for right lower limb came out to be 0.08 and the correlation between height and left lower limb came out to be 0.03 suggesting no correlation between height and balance in young females.

DISCUSSION

The objective of the present study was to see if the height is correlated to balance in young females. A total of 40 females 18-24 years within the normal BMI range were included in the present study. Females with a history of ankle instability in past 6 months, subjects with neurological conditions or lower limb injury in past 6 months which may affect participation in the present study were excluded. Subjects involved in any training protocol were excluded. The height of the subjects was measured with the help of a stadiometer and the balance was measured with the help of a Y Balance test. In the present study it was observed that there is no correlation between balance and height in young females. It has been observed that the ankle displacements and gait response increases with increased height indicating the greater the height the worse is the balance as the average height in the present study sample was not much the balance was not affected by it. Also it has been reported that ectomorphs have greater postural sway than the endomorphic or geomorphic individuals which is due to the higher position of centre of mass and the subjects included in the present study had BMI in the normal range. Researchers have reported that height affects male population more as compared to females. Angelico et al observed that body mass is one of the anthropometric measures that

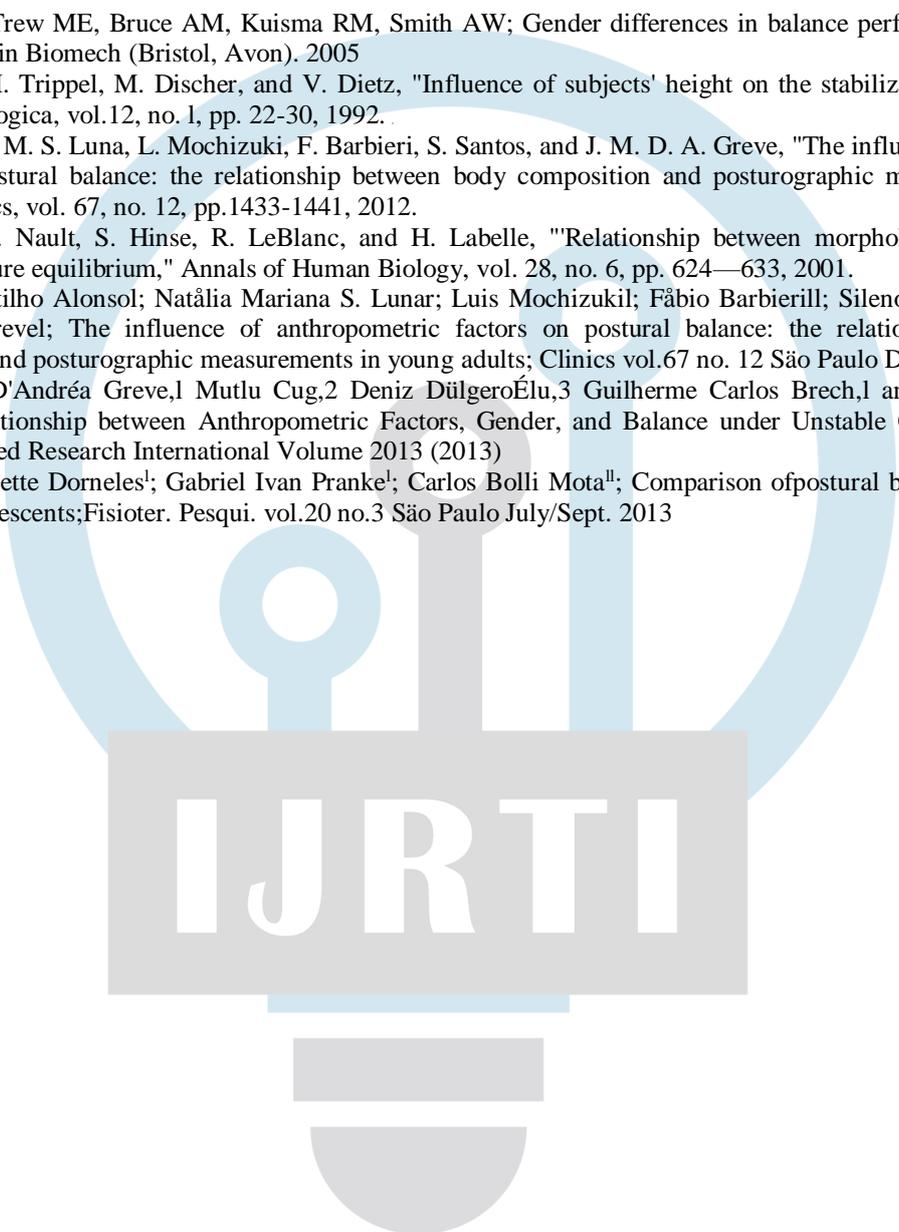
affects the balance the most as greater body mass requires more movement to maintain the balance. Patricia Paulette Dorneles et al reported that adolescent females had a better postural balance in comparison to male counterparts due to difference in the anthropometrics measurements such as the height and centre of gravity.

CONCLUSION

There was no correlation between height and balance in the present study though studies with larger sample sizes are required to ascertain the findings as there is limited literature available for the same.

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