

RELATIONSHIPS BETWEEN ILIOTIBIAL BAND LENGTH AND FRONTAL PLANE PELVIC TILT

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INTRODUCTION

The position of the pelvic bone is the key for the postural alignment [1]. Both structural and functional factors may be associated with lateral pelvic tilt [2], one of them being the length of the iliotibial band [1,3]. A lateral pelvic tilt could modify the position of several body structures, overload them, and, thus, causing compensations, dysfunctions and pain [1,3].

Therefore, the aim of this study was to investigate the degree of association between the length of iliotibial band and the frontal plane pelvic tilt.

METHODS

Healthy individuals with no leg-length differences and without pelvic torsion were included in the study. The modified Ober test, performed with a pelvic level and an inclinometer, was used to assess the iliotibial band length. Before data collection, a test-retest pilot study was conducted to determine the reliability of the measurements.

Measures of pelvic alignment were obtained with an anthropometer with the individual positioned on standard support equipment.

Intra-class correlation coefficients were used to investigate intra-rater reliability. The Pearson correlation coefficient was calculated to determine the degree of association between the measure of pelvic alignment in the frontal plane and that of the iliotibial band length. Pelvic alignment was determined by differences in height between the anterior superior iliac spines, whereas the length of the iliotibial band was established by differences between the higher and lower anterior superior iliac spines. The level of significance was set at $\alpha < 0.05$.

RESULTS AND DISCUSSION

Thirty-two subjects, 19 women and 13 men (mean age: 22.5 ± 2.6 years) were included in the study. The means, standard deviations, and the intraclass correlation of the measures obtained during the test-retest are presented in Table 1 and demonstrated adequate intra-rater reliability ($ICC > 0.99$).

Descriptive values of the variables obtained to investigate the degree of association between the iliotibial band length and pelvic alignment are presented in the Table 2. No significant correlation was found ($r = 0.12$; $p = 0.53$).

The assumption that pelvic biomechanical disorders lead to pelvic positioning asymmetries is still not completely understood. A possible explanation relies on soft tissue dysfunctions [4], mainly of iliotibial band [1,3]. However, the present findings did not provide evidence of significant correlations between pelvic alignment and length of iliotibial band.

These results suggest that alterations in length of the iliotibial band, measured by the modified Ober test, alone does not appear to directly influence pelvic alignment and, thus, might not be a relevant outcome measure for assessment and treatment of pelvic dysfunctions. However, these results should be interpreted cautiously, since only healthy subjects were included.

CONCLUSIONS

Although measures of iliotibial band length showed to be highly reliable, they showed no functional relationship. The present findings indicated that iliotibial band length alone does not appear to influence frontal plane pelvic alignment and that other factors may be involved that still need to be identified.

REFERENCES

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Table 1: Means (\pm SD) and intraclass correlation (ICC) values of the measures obtained during the test-retest (n=20)

Variable	Measure 1 (cm)	Measure 2 (cm)	ICC
Leg Length	87.23 \pm 4.23	87.25 \pm 4.27	0.999
Modified Ober test	24.32 \pm 4.18	24.3 \pm 4.27	0.995
Iliac spine height	96.66 \pm 5.27	97.27 \pm 5.72	0.994

Table 2: Means (\pm SD) and range values of the variables used to investigate the correlation (n=32)

Variable	Mean (\pm SD)	Range
Differences in height between the anterior superior iliac spines	0.54 \pm 0.44	0 – 2.0
Differences between the length of iliotibial band	0.88 \pm 4.54	-8.00 – 11.75