

# Relationship between clinical and dynamic methods in the assessment of the leg length of lower limbs for the efficiency of chiropractic diagnosis

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## Purpose and Background

The present study aimed to evaluate the relationship between *clinical* and *dynamic* methods in the assessment of *leg length* for the efficiency of the *chiropractor diagnosis*.

The assessment of leg length is a practice long held by chiropractors and is based on that assessment that some choices are made about treatment. The difference in the length of the lower limbs is associated with a higher incidence of back pain, muscle shortening, capsular and ligamentous hypermobility and degenerative joint disease.

## Results

Derifield test may be accompanied by Palpation of the PIIS and Correction Impulse, as they collaborate for a more accurate diagnosis. There were no significant difference ( $p < 0.05$ ) in the evaluation of Plantar Pressure for static position variables, *medium pressure*, *contact area*, *distribution of the body weight* between *short and long leg*, *distribution of body weight* in the *anterior and posterior* region, and for the gait assessment, the variables: *contact time*, *average pressure* and *contact area*.

## Methods

The study included 22 women, with a mean age of 31.8 years old. To collect the data it was used the following procedures: *Anamnesis*; clinical evaluation through *Derifield Test*, the finding from Derifield test were compared with: *Static Palpation* of the Posterior Inferior Iliac Spine (PIIS) and *Correction Impulse*. Based on the results of Derifield, the lower limbs of the subjects were classified into *Short Leg (SL)* and *Long Leg (LL)* and thus were held to analyze: *Plantar Pressure Distribution* in static position and dynamic during the gait, performed through a *pressure mat Ecowalk®* composed by resistive sensors (acquisition rate 50 Hz).

## Discussion

The results of the clinical assessment showed that the *Derifield test* can be confirmed with *Static Palpation* of PIIS and *Correction Stimulus*, because plus than 80% of the subjects obtained the same findings from Derifield Test, thus completing the diagnosis regarding the length difference of the lower limbs and changes in the pelvis and sacrum. The results should be associated with the data reported in the anamnesis.

Even without significant differences, the variable *average pressure* and *contact area* were higher for the *long leg* and the variable *distribution of the body weight* was greater in the short leg, and increased *distribution of the body weight* in the shortest leg was due to the increased body weight in the forefoot region, thereby compensating showing a *strategy* for maintaining *postural balance* due to the *functional difference* of the lower limbs. These results show a trend related to the results found in Derifield test.

## Conclusion

It was not possible to prove that the short and long legs have distinct characteristics in static standing and dynamics behavior during the gait. There were two factor that may have influenced these results, due to the *slight difference* in leg length the subject was able to *compensate* by adopting *compensatory postures* masking the difference, not being possible to verify significant differences between the short and long leg, the other factor that may have affect the results was the *resolution* and *accuracy* of the equipment used in the evaluation of plantar pressure, which was not appropriate or sensitive enough to detect such compensatory changes.

## References

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