

Oral presentation

Foot loading asymmetry in patients with scoliosis

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Background

Feet contact the ground first thereby transmitting the body weight to the ground. Deformities of the trunk induced by idiopathic scoliosis can interfere with the symmetry of loading of the feet.

Purpose

To assess the loading of both feet in patients with scoliosis and to observe the influence of therapy on the distribution of loading.

Methods

Twenty-three girls with idiopathic scoliosis, double thoracic (Cobb 35.9 +/- 9.7 degrees) and lumbar (Cobb 34.1 +/- 10.3 degrees), aged 13.8 +/- 1.5 years were examined with a digital platform to assess the loading of the feet. The examination was repeated after 14-days intensive in-patient rehabilitation according to FITS method, which included (apart from the correction of scoliosis) the training of the "short foot", comprising correction of the valgus of the rear foot and a three-points foot loading.

Results

After therapy, the initial symmetry of loading changed to the asymmetry with the advantage to the right foot (54.7 +/- 3.7% of body weight transmitted via the right foot versus the initial value of 50.9 +/- 3.3%, $p = 0.0002$). When the forefoot and the rear foot loading was assessed separately, the distribution of loading of the right foot revealed increased loading of the forefoot after therapy (27.5 +/- 3.9% of the total body weight versus the initial 23.4 +/- 3.6%, $p = 0.00025$). Also, the measurements taken with

the feet actively corrected confirmed the transposition of loading to the forefoot of the right foot (29.1 +/- 4.5% versus the initial 24.9 +/- 6.7%, $p = 0.0005$). These results encourage a discussion of the potential influence of the soft tissue therapy by relaxation of the deep fascial line and the superficial back line.

Conclusion

Intensive in-patient FITS therapy changed the pattern of loading of the feet by increasing the loading of the forefoot of the right foot.

References

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