

Summary

Title: Kinesiological analysis of locomotion by shoulder girdle during Nordic Walking

Aim: The purpose of this work is to subscribe kinesiological coordination between shoulder and trunk muscles during uphill Nordic Walking and free walking.

Methods:The study has the character of primary analytical study of two evaluation in the form of inter- and intra-individual analysis. The group of ten Nordic Walking instructors measurements were carried out using surface electromyography synchronized with video. The data were processed in Matlab and DartFish. From the processed outputs could be visible the timing of muscles and its changes in specific movements. And also is visible the range of movement in the shoulder and elbow. The outputs were compared with expert knowledge in a field of physiotherapy.

Result: Results showed that the timing of muscles during Nordic walking and free walking uphill is different. It showed a certain regularity in the muscle involvement, mainly in Nordic Walking and greater individuality in the involvement of individual probands during free walking.

Conclusion: Conclusions describe a muscle coordination during the activity of Nordic Walking and free walking. Nordic Walking is recommended as an appropriate physical activity for human musculoskeletal system.

Keywords: walking, Nordic Walking, shoulder girdle, surface electromyography