

Comparative Balance Analysis Between Indoor Climbing Individuals And Controls Through Posturography Test.

Sá, C.S.C. ^(1, 2, 3); Boffino, C.C. ⁽³⁾; Tsurumaki, A.M. ⁽²⁾; Durigon, O.F.S. ⁽²⁾; Tanaka, C. ⁽²⁾; Ramos, R.T. ⁽³⁾.

(1) Curso de Fisioterapia – IMES; (2) Curso de Fisioterapia – FMUSP; (3) Instituto de Psiquiatria - FMUSP

Introduction

The balance control is needed when an specific skill learning is developed. This is truth when you work with sports techniques learning that needs the refined postural and balance control to optimize the motor performance. So, it could be thought that the sports technique learning would develop a better postural control in the individual that practice those activities. The sportive indoor climbing make the athlete be exposed to certain unusual postural conditions as lower visual inputs defined by the high he is positioned; irregular feet support and the need of an horizontal force avoiding the posterior fall. Those conditions make occur a continuous postural instability during the activity and demand a bigger motor control (reflex, automatic and conscious motor behaviors) developing beside the technique learning, a better balance control. This could be seeing in a posturography test. In the present study, we analyze the equilibrium, the strategy and the sensory analyses score (for somatosensory, visual and vestibular systems) during four stand quietly posturography conditions in indoor climbing individuals and controls.

Methods

Forty normal individuals of both sex and mean age of 23,67 years, divided between two groups according to their sports practice (indoor climbing group – G1 and controls – G2) were called as voluntaries. This two groups were sex and mean age matched. The balance test used was the modified sensory organization test (mSOT) from the Pro Balance Master posturography developed by NeuroCom[®] and that presents four defined test conditions: (1) eyes open and fixed platform; (2) eyes closed and fixed platform; (4) eyes open and sway referencing platform; (5) eyes closed and sway referencing platform. The statistics was done as t student-test for independent samples.

Results and Discussion

The results were indicative to a significant difference ($p < 0,05$) in the number 4 mSOT's condition ($p=0,04$) and in the visual system sensorial analyses ($p = 0,01$). Showing the indoor climbing group, G1, to have better performance than controls when the visual system is the biggest responsible for balance control, and the

somatosensory and vestibular system are for somewhat being mistaken. This is different to the prevalence of the support surface dependence balance control that is found in controls, when the individual goes better in the test when the support surface is fixed. We can state yet that was found a tendency analyses in the somatosensory system score indicating better balance performance in the G1.

The strategy scores analyses (hip and ankle strategies) didn't show any differences between G1 and G2 in any posturography's condition. As the postural and balance control strategy is specific of standing posture perhaps it's not available during climbing and so it's not learned or developed during this sports practice.

Conclusion

This study has concluded that due to their daily training, climbers presented an increase in the activity in their visual and somatosensory systems. This phenomenon either improved their postural control explaining the large difference in the analysis score of the visual system and a tendency to a significant difference between the groups in the analysis score of the somatosensory system.