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Prevention of ankle sprains by proactive training of evertor muscles

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Summary

Ankle sprains are the most common traumatisms in sports. Studies based on the static Hoffman reflex and dynamic test settings conclude that reflexes are too late to prevent an ankle sprain (Hoffman et al, 2004). Therefore, reflex training is not a good solution for primary prevention of these traumatisms. However in view of the neuromuscular injury after an inversion trauma of the ankle, a secondary proprioceptive prevention is certainly efficient as a treatment.

Research shows that patients have less muscle power after a sprain, which may end as a chronic instability of the ankle. The present authors did not find any data on the effect of muscle training used as primary prevention. For that reason, a pilot study was performed to explore this subject.

After approval by the University of Hasselt Medical-Ethical Committee, 17 young gymnasts without any neurological or orthopedic injury underwent a pre-intervention measurement during which they

preformed the single-leg standing balance on board (Tunturi[®]), all in the same position. Next, they were randomly classified in a control group and intervention group. The gymnasts in the intervention group did special exercises to strengthen m. tibialis anterior and especially the anti-ankle sprain evertor muscle m. peroneus longus, during 4 weeks, 4 times a week. The control group was not allowed to perform these specific exercises during this period. After 4 weeks both groups underwent post-intervention measurements.

The control group as well as the intervention group showed an increase in time during which the gymnasts could remain standing on the balance board in the correct position. Compared to the control group, the increase in time of the intervention group was higher, although this difference was not significant at the 5% significance level.

It is concluded that there is no significant improvement of the intervention group in relation to the control group after a time span of 4 weeks. Proactive training of the evertor muscles may nevertheless be a useful method to prevent ankle sprains.

Reference: Hoffmann et al. (2004) Journal of Athletic Training, 39 (3): 268-277.

Valorization

Possibly, there will be a significant increase of time during which gymnasts can remain standing on the balance board in the correct position, after a longer training period. Proactive training of the evertor muscles might be a useful method to prevent ankle sprains. This can be achieved by exercising the evertor muscle m. peroneus longus, by means of a Theraband[®]. Specially designed warming-ups, like single-leg jumps and sideward jumps should be performed. Our pilot study strongly suggests such an approach. Further research to confirm this hypothesis may be helpful to proactively prevent ankle sprains in a broader population as well.