

Relation Between Functional Ankle Instability and Physiotherapy in Ballet Dancers

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Background

The practice of ballet presents a high incidence of injuries and the most frequent traumatic injury in dancers is lateral ankle sprain (LAS) (1-2).

The possible negative effects of LAS and sequelae, is functional ankle instability (FAI). Previous sprains is a risk factor for new sprains and repetitive sprains may lead to chronic ankle instability (CAI) (3, 5-9).

The inadequate rehabilitation of LAS is a risk factor for new sprains and the initial treatment of a sprain allows to decrease the risk of progression to CAI (10).

Simon, Hall and Docherty (4) found a prevalence of CAI in dancers, students of modern dance and ballet at a university, of 53%. This study reveals a higher prevalence of CAI in this population compared with other athletes, in which the prevalence of CAI is between 28% and 47% (11).

In the literature we did not find studies that determine the prevalence of CAI, functional instability or mechanical instability in ballet dancers in Portugal.

We believe that Physiotherapy plays an extremely important role in the prevention, treatment and reduction of complications of injuries resulting from ballet practice, especially in LAS (4).

Paradoxically, dancers often continue to dance even injured and only seek treatment when they can not dance (4).

Methods

The FAI evaluation was done through the Cumberland Ankle Instability Tool (CAIT), a self-completion questionnaire.

A characterization questionnaire sample was used to determine if there was a physical therapy intervention for the last LAS, as well as the type of intervention and the number of sessions.

Participants read and signed an informed consent form before starting the study.

Results

Fifteen professional ballet dancers with history of LAS were included in the study. Ten were female and 5 male, mean age was 31.1±6.9 years old, and they have been practicing dance for 23.6±8.7 years, with 7.2±1.1 hours per day.

73% of dancers have suffered a LAS.

From those, 81,8% seek for health professional after LAS and received physiotherapy intervention.

Of all dancers surveyed, 66,7% had FAI.

Only two dancers did not seek a health professional after LAS and both developed bilateral FAI.

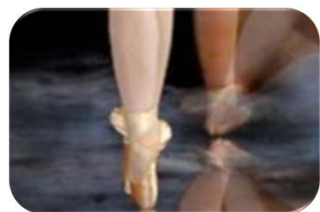
The reasons for not seeking a health professional after LAS were the dancer's believe that he could treat LAS on his own and the believe that the LAS was not a significant injury.

There was no relation between the intervention of Physiotherapy after ankle sprain in the development of FAI

There was a negative correlation between the LAS number and the CAIT score.

Purpose

This study is aimed to determine the prevalence of functional ankle instability (FAI) in dancers of Companhia Nacional de Bailado (CNB) and the relation between the intervention of Physiotherapy after LAS in the development of FAI. We also want to explore the reasons why dancers do not seek a health professional after LAS.



Methods

This is an observational descriptive correlational study. Data collection is transversal and was done at CNB. The form of data processing is quantitative.

The target population consists of professional ballet dancers and the reporting population will be dancers of CNB who speak Portuguese or English. The location of the sample selection was done for convenience. The sampling method was random.

Conclusion

The prevalence of FAI in CNB is high, especially when compared to other athletes. The dancer's believes of LAS as being a simple injury, might prevent them from not seeking treatment. Although there was no correlation between the intervention of Physiotherapy after LAS and the development of FAI, those dancers who did not received Physiotherapy treatment, both developed bilateral FAI.

References

1. Ramkumar, P. N., Farber, J., Arnouk, J., Varner, K. E., & McCulloch, P. C. (2016). Injuries in a Professional Ballet Dance Company. *Journal Of Dance Medicine & Science*, 20(1), 30-37.
2. Cairne D, Goodwin BJ, Cain, CG, Bergeron G. Epidemiological Review of Injury in Pre-Professional Ballet Dancers. *Journal Of Dance Medicine & Science*, 2015;19(4):140-148
3. Hiller CE, Refshaug KM, Bundy AC, Herbert RD, Kilbreath SL. The Cumberland Ankle Instability Tool: A Report of Validity and Reliability Testing. *Arch Phys Med Rehabil* 2006;87(September):1235-1241.
4. Simon J, Hall E, Docherty C. Prevalence of chronic ankle instability and associated symptoms in university dance majors: an exploratory study. *Journal of Dance Medicine & Science : Official Publication of the International Association for Dance Medicine & Science*, 2014;18(4):178-84.
5. Kobayashi, T., & Gamada, K. (2014). Lateral Ankle Sprain and Chronic Ankle Instability -A Critical Review. *Foot & Ankle Specialist*, 7(4), 298-326. <http://doi.org/10.1177/1938640014539813>.
6. Cribble, P. A., Detahant, E., Bleakley, C., Caulfield, B., Docherty, C., Fourchet, F., ..., Wikstrom, E. (2013). Selection Criteria for Patients With Chronic Ankle Instability in Controlled Research : A Position Statement of the International Ankle Consortium. *Journal of Orthopaedic & Sports Physical Therapy*, 43(8), 585-592. <http://doi.org/10.2519/jospt.2013.0303>.
7. Anandacomasamy, A. & Barnsley, L. (2005). Long term outcomes of inversion ankle injuries. *British Journal of Sports Medicine*, 39(3), e14; discussion e14. <http://doi.org/10.1136/bjsm.2004.011676>
8. Rijn, R. M., van Os, A. G., Bernsen, R. M. D., Lujstburg, P. a, Koes, B. W., & Bierma-Zeinstra, S. M. A. (2008). What Is the Clinical Course of Acute Ankle Sprains? A Systematic Literature Review. *The American Journal of Medicine*, 121(4), 324-331. <http://doi.org/10.1016/j.amjmed.2007.11.018>
9. Hertel, J. (2002). Functional Anatomy, Pathomechanics, and Pathophysiology of Lateral Ankle Instability. *Journal of Athletic Training*, 37(4), 364-375.
10. McCriskin, B. J., Cameron, K. L., Orr, J. D., & Waterman, B. R. (2015). Management and prevention of acute and chronic lateral ankle instability in athletic patient populations. *World Journal of Orthopedics*, 6(2), 161-171
11. Attenborough, A. S., Hiller, C. E., Smith, R. M., Stuelcken, M., Greene, A., & Sinclair, P. J. (2014). Chronic Ankle Instability in Sporting Populations. *Sports Medicine*. <http://doi.org/10.1007/s40279-014-0218-2>