

Effects on postural stability through Kinesio Tex Tape application for the proprioceptive stimulation of the foot

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Abstract

The present study is designed to assess the efficacy of using Kinesio Tex Tape on dynamic postural stability in one-foot standing. The study was carried out on 36 subjects, 18 males and 18 females aged between 13 and 36, all of them agonists. Criteria for exclusion were: injuries during the three months before the test, preventing the correct performance of the sport's specific training; previous functional limitations affecting the tibio-tarsal and knee joints; previous knowledge and use of Delos Postural System; previous use of KTT application on the foot or the tibio-tarsal joint. Patients were divided into two groups: teenagers from 13 to 16 years old, and older teenagers and adults over 17. All the patients went through a brief training in one-foot standing (barefoot), to prepare for and become familiar with the machine and the test execution modalities. After that they took the 8 parts of the test (4 with left foot standing and 4 with right foot standing) on Delos electronic proprioceptive and postural board (DEB), using the "follow-up evaluation" protocol. We assessed two parameters which we consider fundamental for postural stability control: 1) precautionary strategy - the subject's ability, expressed in percentage, to maintain balance, without leaning on the infrared recording bar, placed before him/her, 2) the overall instability, calculated in degrees, resulting from the sum of the average oscillation of the DEB and the average oscillation of the body detected by a sensor for body oscillations (Delos Vertical Controller - DVC), placed on the sternum and calibrated to zero position on each subject at the beginning of the test. We applied the KTT only on the NON dominant limb (indicated by the subject) and repeated the test. We then assessed and compared the results of the two tests, before and after the application, to show whether the application itself had been able to guarantee a better performance of the limb being treated than that of the untreated limb.

The application of KTT proved capable of offering improvements both on the precautionary strategy and on the overall instability in subjects of the second age group, who had a higher proprioceptive "maturity", whereas the same results were not confirmed in the younger age group.

Introduction

The clinical evaluation of many dysfunctions of the locomotive apparatus shows how the deficiency of postural and proprioceptive control has a very important or even fundamental role in the subject's ability to regain functional and permanent control of his/her own movement with regard to the treatment of the specific dysfunction and the prevention of relapses. The international market offers many different solutions for the assessment and treatment of postural deficiency, such as proprioceptive and baropodometry boards. The Delos rehabilitative and postural proprioceptive system combines the use of an electronic tilting and translating proprioceptive board (DEB - Delos equilibrium board with the use of a chest sensor to record the body's oscillations (DVC - Delos vertical controller). The combination of these two types of assessment allows both the patient and the physiotherapist to monitor the postural deficiency directly through a

