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CHARACTERIZATION OF THE KINEMATICS RESPONSE AND ELECTROMIOGRAPHIC DYNAMICS OF WALKING AND RUNNING SHOES WITH DIFFERENT LEVELS OF WEAR

Alberto Graziano[(*)]

The Pedagogical University, Faculty of Physical Education and Sport, Maputo-Mozambique.
[(*)]*Email:* albertograziano06@gmail.com.

ABSTRACT

The study was not completed, aims to analyze the influence of wear sports shoes in cinematic patterns, dynamic and electromyography gait and running. The study will develop in four areas: (1) analysis of the distribution of ground reaction force, (2) evaluation of plantar pressures, (3) evaluation of the electromyography activity of the flexor and extensor muscles of the femoral-thigh joints, knee and ankle and (4) evaluation of kinematic parameters (angle, velocity and displacement). The parameters associated with plantar pressure and ground reaction force will be obtained from the F-Scan system (Tekscan). For collecting the electrical activity of muscles is used a telemetry system with bipolar electrodes surface. For the registration of kinematic parameters during walking and running, it will appeal to 3 cameras with digital video technology. To verify the effect of wear sports shoes will apply ANOVA - F.

Keywords: Footwear, march, run, pressure, insoles.

INTRODUCTION

One of the areas of study of biomechanics has been growing increasingly, is the sports shoes. The objectives of the research related to this area relate to research on the model, material used, different types of comfort footwear and improvement of footwear for walking and running.

Several of these studies show the benefits of using sports shoes, among which the absorption capacity of impact, which provides comfort to the wearer, besides an important role in injury prevention and performance. The footwear industry has been keen to create special models for practicing different sports. The use of counterfeit sports shoes and with different levels of wear can bring a negative influence to the musculoskeletal system, such as an increase in plantar pressure variables and some of the ground reaction force that relate to monitoring the impact (SERRÃO et al. BIANCO 2001 and 2005).

Several studies are being developed to better understand the characteristics of gait patterns (Santos et al., 2007; PATINO et al., 2007) and race (BIANCO, et al., 2001) with sport shoes. The few studies that have investigated the mechanical responses of sports shoes (VERDEJO & MILLS, 2004) and evaluated its interaction with the locomotor system throughout its lifetime (BIANCO, 2005; SERRAO, AMADIO, SA, AVILA, 1999), yet are insufficient for understanding the influence that wear sports shoes can exercise on gait and race (BIANCO, 2005). Therefore, considering the possible harm that may be imposed on the locomotor system when using sport shoes with different levels of wear and the scarcity of data on this topic, justifies the need for this study.

RESULTS AND CONCLUSIONS

Since the empirical part of this study is still in a very early stage, it is not possible to present data related to the design of the proposed study.

However, in accordance with the information available in the literature on the subject under study, it is expected that there is influence of wear sports shoes in the kinematic parameters, dynamic and electromyography.

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