The Effect of a Resistance Training Program on Passive and Active En Dehors: A Multiple Case Study

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ABSTRACT

This article evaluates the effect of a supplementary resistance training program on passive and active hip external rotation on a ballet group. Fifteen Brazilian ballet dancers participated in the study. The passive hip external rotation was evaluated by a hip articular mobility test and the active hip external rotation in the first position en dehors in a self-selected angle. The resistance training protocol was based on The Best Performance Movement exercise method. Four 20-minute sessions per week were performed for three months. The paired t-test was performed to compare the passive and active hip external rotation pre- and post-training, with a significance level of 0.05. The paired t test showed that hip active external rotation improved after the resistance training, suggesting that the hip external rotation is muscle strength dependent.

KEYWORDS
Ballet, Best Performance and Movement, Dancers, Hip Anatomy, Hip External Rotation, Performance, Range of Motion, Screening Tests, Strength, Supplementary Training, Training Method, Turn Out
INTRODUCTION

Due to the difficulties in improving the hip external rotation (HER) during practice among ballet dancers, the aim of the present study was to evaluate the effect of supplementary resistance training on passive and active HER on a ballet group. This study hypothesises that, due to the strength dependency characteristics of the active HER and the skeletal anatomy dependency characteristics of the passive HER, the supplementary resistance training would improve the active HER but not the passive HER.

Fifteen Brazilian ballet dancers participated in the study. The passive hip external rotation was evaluated by a hip articular mobility test and the active hip external rotation in the first position en dehors in a self-selected angle. The resistance training protocol was based on The Best Performance Movement exercise method. Four 20-minute sessions per week were performed for three months.

BACKGROUND

Dance is an art, formed through body language, communication, and expression that becomes a possibility for the establishment and development of motor skills, with specialized aesthetic and artistic qualities, feelings, and ideas (Trevisan & Schwartz, 2012). Classical ballet is one of the most complex dancing styles, requiring specific skills which are dependent on the development of strength, flexibility, and resistance (Misigoj-Durakovic et al., 2001). The complexity is enlarged by the necessity of performing all movements in the en dehors position (Santos, 2017).

The en dehors, or hip external rotation (HER), is required in the majority of classical ballet movements (Aquino et al., 2010). The five basic initial positions in classical ballet are based on the en dehors (Sutton-Traina et al., 2015) (Figure 1), in addition, jumps, pirouettes or balance are also performed in the en dehors, despite the support of one or two feet (Bennel et al., 1999; Lin et al., 2011).

The en dehors is a posture in which the dancer performs an external rotation of the hips, whilst positioning the feet 180º from each other (Aquino et al., 2010; Bennel et al., 1999; Bennel et al., 2001; Hamilton et al., 2006; Sutton-Traina et al., 2015). Due to this position, the degree of HER is considered an important physical demand for ballet dancers, and a requirement for dancers who aspires professionalization. The literature concerning the capacity of performing the en dehors, however, is scarce.

The Problem

The en dehors must be executed exclusively through the external rotation of the hip joint, with little or no participation of tibia and feet (Hamilton et al., 2006). Compensatory movements such as anterior pelvic tilt, increased lumbar lordosis, pronation of the feet, torsion of knees and lower joints are often noticed in dancers whom are not able to perform the desirable 180º of HER (Bennel et al., 1999; Gupta et al., 2004; Hamilton et al., 2006; Lin et al., 2011). These compensations in order to achieve the “perfect” en dehors may predispose the dancers to either acute or
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