

# The Effects of a Low Volume Physical Training Program on Functional Movement and Strength in Dancers


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## ABSTRACT

This research aimed to evaluate the effect of 20 low-volume remotely-guided training sessions within the daily life of dancers with different routines who practice different dance modalities. The experimental research investigated 10 female individuals chosen for convenience who volunteered to participate in the “I Festival Dance comCiência.” As a research instrument, functional and physical tests adapted explicitly for this study were performed remotely by physical therapists and body conditioners. Afterwards, the dancers were instructed to carry out twenty 10-minute daily training sessions. Data were collected individually by video calls with a physiotherapist and a body conditioner. The comparison between the pre- and post-training test results was performed using paired t-test. It is possible to assume that remotely oriented low-volume training seems to be a viable and effective alternative for implementing physical conditioning in dance, but further studies with larger samples would help to state more solid answers.

## KEYWORDS

Best Performance and Movement, Body Conditioning, Dance, Dancers, Low-Volume Training, Physical Capacities, Physiotherapy, Training

## INTRODUCTION

Dance demands include agility, strength, flexibility, and resistance from the dancer's body, among other physical capacities. However, to improve these abilities, it is necessary to conduct a structured training prescription that is coherent with the proposal to be developed for the dancer, allocating the stimuli volumes and intensities adequately (Araújo, 2017). Regular technical classes are essential for mastering the dance technique; however, it does not satisfactorily load the tissues to generate

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adaptations of strength, muscular and cardiorespiratory endurance (Krasnow; Chatfield, 1996; Wyon, 2005; Rafferty et al.; 2007; Hamilton, 2015). All body segments must be correctly exerting their functions when facing a physical task, and if something interferes with the natural mobility of the joint or its stability, a postural compensation and physiological change could happen, which can cause fatigue and later result in injuries (Dore & Guerra, 2007).

Dance related injuries can be caused by excessive training load, which often result from intense rehearsals (usually on the eve of shows), or during extensive class hours with too many movement repetitions, associated with a low capacity of the musculoskeletal system to support such demands for effort, compromising its function. Therefore, implementing a supplementary training program can help improve the dancer's performance and physical conditioning, physical abilities and reduce the risk of injury (Souza et al., 2016).

## **BACKGROUND**

### **Physical Preparation**

Physical preparation is a training process containing a sequence of structured training sessions, which follows the principles of periodisation to achieve the best performance through a well-developed general base (Minikovski & Portela, 2021). Many people, mainly dancers, still consider technical dance training a complete and sufficient stimulus to develop all desirable skills required in dance, although Wyon (2002) disproved it. In addition, science has demonstrated for decades that this belief is limited and that other stimuli are needed to fully develop the dancer's desirable characteristics (Koutedakis, 1996; Koutedakis, 2004). Physically conditioning the dancer refers to developing aerobic and anaerobic conditioning, strength, power, endurance, flexibility, agility, and personal/psychological development (Koutedakis; Jamurtas, 2004; Rafferty, 2010; Wyon, 2018) to provide a healthier and long-lasting dance practice, in addition to facilitating progress with a lower risk of injury (Dantas, 2014). The professional who works with physical preparation in dance should have some knowledge of the art since, with no technical foundation, it is hard to achieve goals successfully (Bittar, 2004).

### **The Problem**

There is, however, an important challenge in this scenario: implementing supplementary training in dancers' routines. Health professionals in this area face barriers such as 1) lack of information about the benefits that specific physical training provides, 2) limiting beliefs (such as "the more, the better" or the belief that technical training is sufficient), 3) financial difficulty in affording this service, 4) obstacles in adding more tasks to their routines and even the fact that physical preparation can set an extra load which can be the "last straw" for an injury.

According to Pessali-Marques et al. (2018) and Simas and Guimarães (2002), there is an aesthetic pattern, historically imposed, in which dancers, mainly female, need to have thin and slender bodies. This fact can justify the resistance of dancers and teachers to join physical preparation programs in conjunction with the class routine and rehearsals. Arguments such as fear of excessive hypertrophy or loss of flexibility are commonly reported and disseminated in the field of dance, despite being scientifically unfounded (Pessali-Marques et al.2018).

This study aimed to evaluate the effect of 20 low-volume training sessions (approximate duration: 10-15 minutes) as part of the "Best Performance and Movement" training method specific for dancers, with remote guidance within the daily life of dancers with different routines and who practice different dance modalities. If low-volume training affects the dancers' performance, it will be possible to implement short programs, which might neither impose a financial burden nor substantially increase the hours of dedication.

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