Effects of the pilates method on recovery from injuries in dancers

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Bruna Batista de Faria Nogueira
Lara Azuil de Souza Pereira
Melissa Xavier Batalha
Christian Geórgea Spithourakis Junqueira
Stephan Pinheiro Frankenfeld

1 INTRODUCTION

Considered as a physical activity, dance is "an art that means gestural and facial expressions through body movements, emotions felt from a certain state of mind" (GUIMARÃES, 2016, p. 2). It can be used as well-being or as a professional activity, covering several modalities, such as: classical ballet, modern dance, contemporary dance, among others (ENUMO; SILVA, 2017). In the professional modality, dance requires intense physical training so that the dancer reaches a level of excellence in the performance of choreographic performance (ARAÚJO, 2017).

The classical ballet, central theme of this article, is an art composed of a rigorous technical training characterized by repetitive movements, requiring great physical preparation (SOBRINO et al, 2015; ALBISETTI et al., 2010). Since its inception, it has been changing and evolving in its methodologies, techniques and movements, due to a high demand for physical abilities and technical motor skills, in addition to the accuracy and lightness in the execution of movements (SALLES, 2008).

The ballet technique also requires great joint amplitude and precision of movements, being composed of several jumps, flexibility of lower limbs, turns, falls conducted, rotations, hyperextension of trunk, which can cause imbalances, pain and problems in the knees, hips, spine, feet and ankles (GREGO, 2002), becoming a practice that requires a lot of wear and tear and overload of the body and mind (SALLES, 2008).

With this, the training of a dancer is intense in search of technical perfection, and for this reason many steps are disrespected as the analysis of the characteristics of each individual, the age group and the technical progression (GREGO et al., 2006). To fulfill all these demands required as a professional activity, dancers are subjected to training loads that encompass aerobic endurance, neuromuscular coordination, power, muscular endurance, agility and flexibility (CARDOSO, et al., 2017). Based on this premise, during classes and choreographic rehearsals, injuries to the body structure are consequent to the extreme overload of this condition imposed on movements and causes fatigue at a high level of muscle oxidative stress and physical wear. In addition to these factors, some dancers from large dance

companies continue with their injuries due to the requirement and self-checking of perfectionism and aesthetics, to the point of submitting to constant pain and discomfort, without showing fragility to the public or for not wanting to renounce a character in a show (SALLES, 2008). There is a constant search for perfection that often exceed the physiological limits of the body causing serious problems.

According to Sobrino (2003), as well as in sport, in ballet there are basically two types of musculoskeletal injuries: traumatic injuries, of acute characteristic, which are usually caused by accidents; and non-traumatic or overuse injuries that appear slowly and progressively, caused by repetitive movements or microtrauma and / or accumulative actions.

According to Albisetti et al. (2010), the most common injuries occurring in dancers are linked to the lower leg (20%), ankle (15%) and foot (15%). The hip is also affected by excessive load on muscle fibers due to the realization of rotations, generating instabilities (MONTEIRO; GREGO, 2003). There is also a difference between men and women: men have more back, ankle and knee injuries due to high jumps; and in women the main injuries are more localized in the knees, ankles and feet due to the use of the top shoe (RABELO, 2012; NILSSON et al., 2001). Some specific movements and positions are also considered factors that contribute to a predisposition to injury. When performed excessively, they can cause chronic injuries, ankle fractures and tendonitis, caused by the excessive number of repetitions (MONTEIRO and GREGO 2003).

Therefore, it is noticeable that the repetitiveness of movements in classical ballet leads to a significant change in the biomechanics of the musculoskeletal and ligamentous system, thus increasing the chances of injury (KADEL et al., 1992). Therefore, it is essential to carry out an efficient strengthening and rehabilitation process in cases of injury, aiming at a quick return to body practices.

In this sense, the Pilates method has been defended by several authors for contributing to the recovery of dancers' injuries, as well as for an adequacy and improvement of physical condition, amplitude, speed of movement oscillation (GONTIJO 2017; LIMA 2015; BERNARDO 2007; BERTOLLA et al., 2007).

Gontijo (2017) points out in his research that the complementary routine to classical ballet with Pilates can result positively in the work of prevention and recovery, still contributing to the treatment of ligament ruptures, low back pain, among other injuries because it is linked to the anatomical, physiological and biomechanical conception whether in physical preparation, physical conditioning or in body rebalancing and the axis of the spine.

2 OBJECTIVE

Analyze the perception of the effects of the use of the Pilates method in the recovery of injuries in dancers, identifying the prevalence of possible injuries caused by the systematic practice of classical ballet, their causes and respective treatments.

3 METHODOLOGY

This is an applied research, with a quantitative approach, based on the application of a semi-structured questionnaire (GIL, 2008), applied to 40 dancers, from 18 years old, practicing classical ballet systematically, aiming to obtain information about the possible injuries caused by the systematic practice of ballet, its causes and respective treatments.

The questionnaire was applied online, using Google Forms® as a tool, by sending the link through the dancers' WhatsApp. The research participants gave their consent to participate through the form itself, in a specific field, with mandatory response.

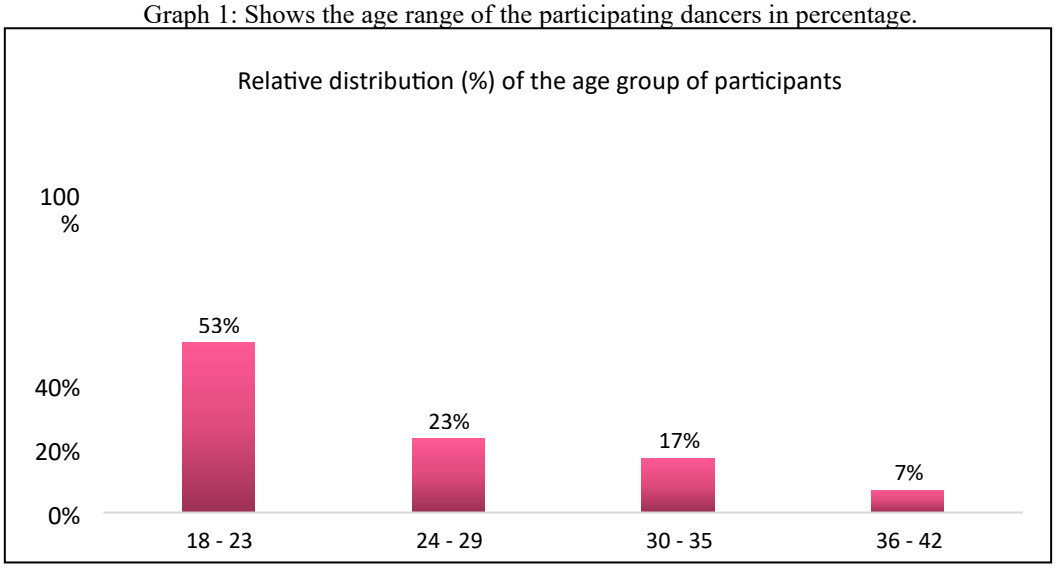
For the analysis of the collected data, the simple descriptive statistics technique was used, using the Excel for Windows® program, to generate graphs with the elaboration of the results and discussion of the research.

This study was submitted for analysis by the Human Research Ethics Committee of the University Center of Volta Redonda (COEPs - UniFOA), approved under CAAE number: 47293521.0.0000.5237.

4 DEVELOPMENT

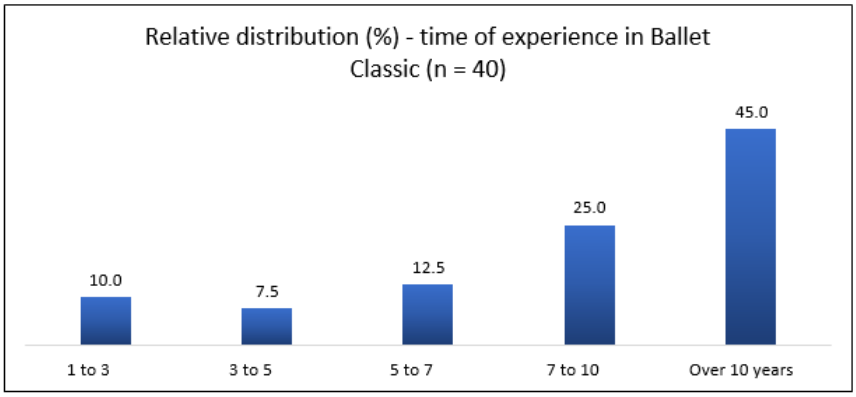
Forty dancers aged between 18 and 42 years participated in the survey. As shown in Graph 1, most respondents (53%) were aged between 18 and 23 years, 23% were between 24 and 29 years, 17% between 30 and 35 years and only 7% were aged between 36 and 42 years.

Graph 1: Shows the age range of the participating dancers in percentage.



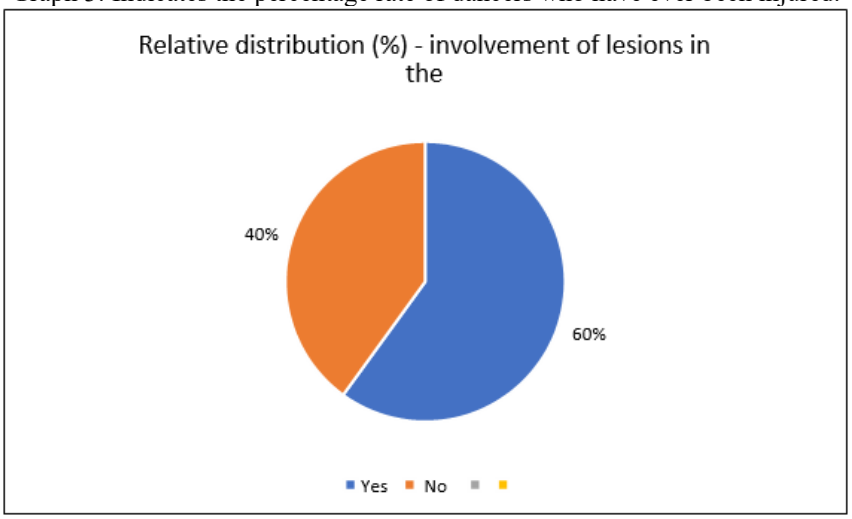
Regarding the time of practice of ballet, it was observed that all dancers have been practicing the modality for more than 12 months, the majority (45%) for more than 10 years (Graph 2).

Graph 2: Time of practice of classical ballet.

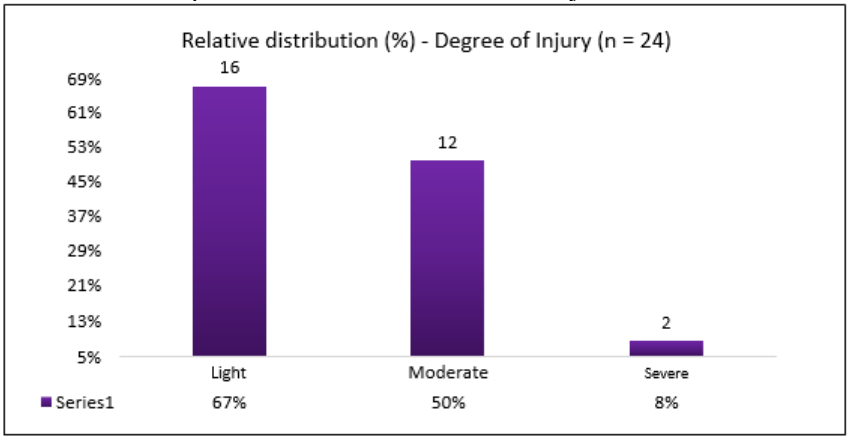


When asked if they had ever suffered an injury from dance (Graph 3), more than half (60%) of the participants stated that they had already had an injury, and most classified their injury(s) as mild (66.7%), followed by moderate (12%) and severe (2%), as observed in Graphs 3 and 4, respectively. In this, the question was directed to the total of 24 participants who responded as a result of their injuries.

Graph 3: Indicates the percentage rate of dancers who have ever been injured.

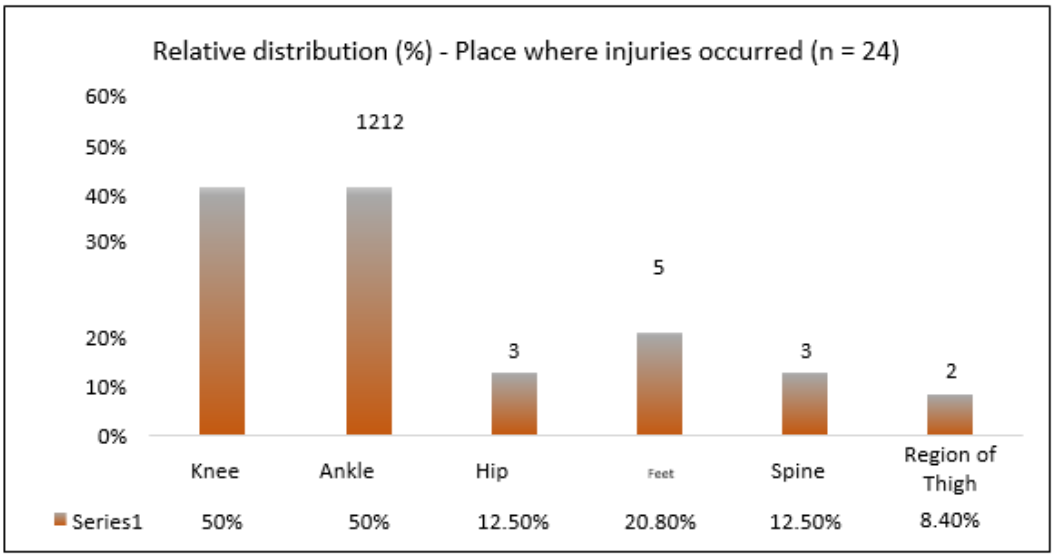


Graph 4: Indicates at which level the injuries were.



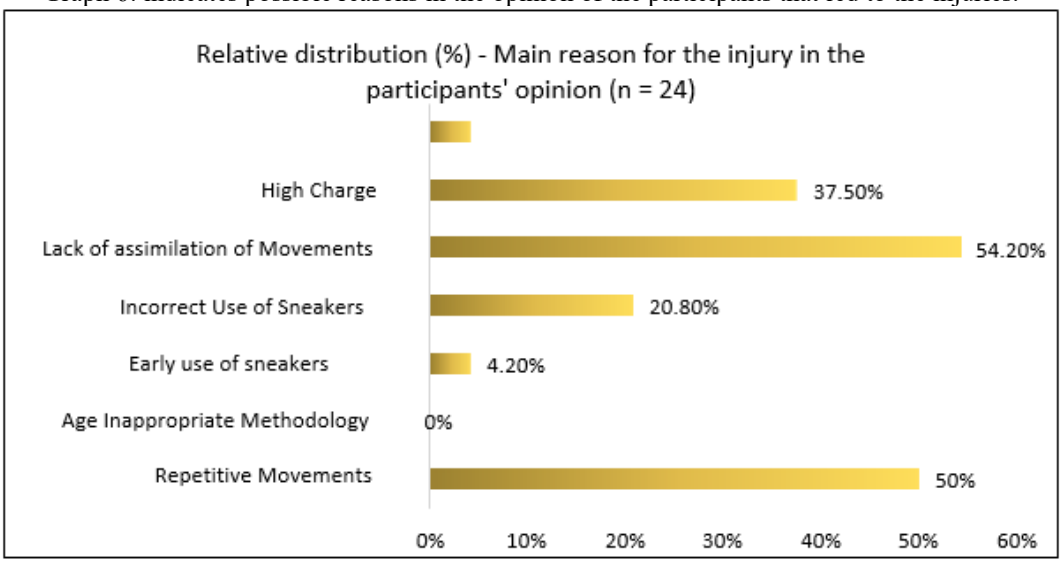
Regarding the site of injuries (Graph 5), the ankle and knee were the most cited joints (50%), followed by the hip (12.5%), spine (12.5%), foot (5%), quadriceps and muscles located in the thigh region (8.2%). This result corroborates the research by Albisetti et al. (2010) and Batista and Martins (2010), which found that the most common injuries occurring in dancers are linked to the lower limbs. The alternative provided the opportunity to select more than one option as an answer.

Graph 5: Shows the relative distribution in percentage of the sites where the injuries occurred, with more than one option being possible to mark



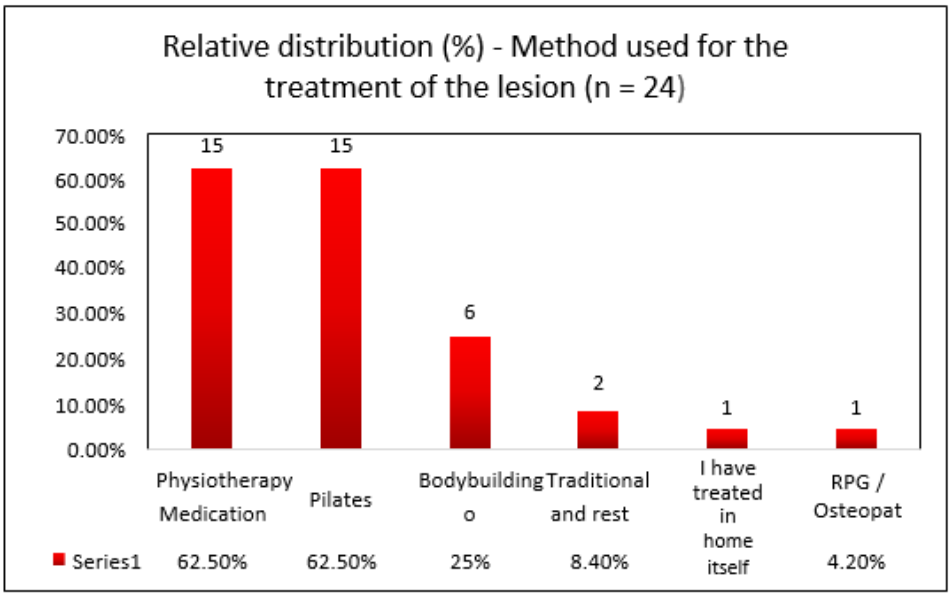
Regarding the main reasons that caused the injuries (Graph 6), the lack of correct assimilation of the movement was considered the main one pointed out in the research (54%), followed by repetitive movements (50%), excessive performance collection (37.5%), incorrect use of the top shoes (20.8%), early use of the top shoes (4.2%) and fall (4.2%) (Graph 6). This result is in line with the research conducted by Salles (2008), where it was found that musculoskeletal and musculoskeletal injuries may be due to factors such as: inappropriate methodology, lack of correct assimilation of movements, insufficient warm-up, overtraining, among others. In addition, Azevedo, Oliveira and Fonseca (2007) concluded that physical tiredness and fatigue (53%) are the main factors causing injuries in dancers, followed by improper soil conditions (43.9%), psychological factors (22.7%) and insufficient heating (21.1%), in addition to high training frequencies and high intensity. On the other hand, Rabelo (2012) indicated that the use of the top shoe is the main reason for injuries due to the great overload on the joints. In view of the above, it is possible to observe the high incidence of musculoskeletal injuries in the context of classical ballet and that these injuries are multifactorial due to the characteristic of classical dance.

Graph 6: indicates possible reasons in the opinion of the participants that led to the injuries.



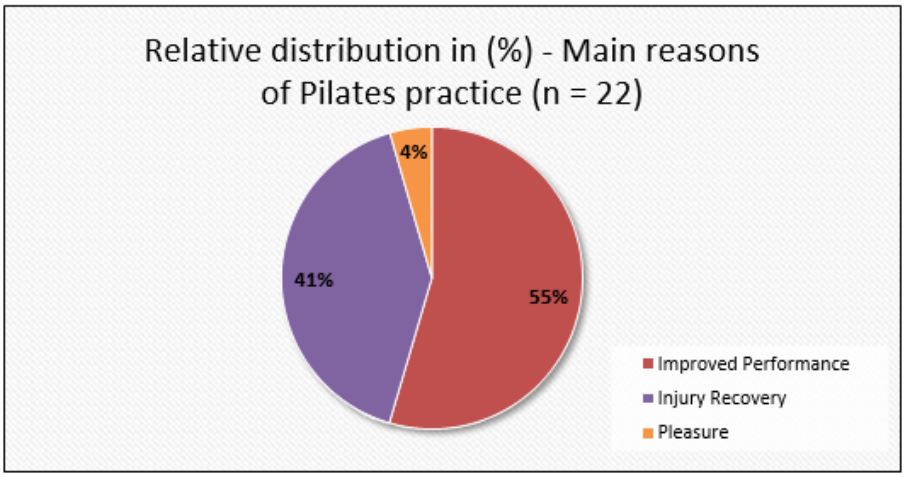
Regarding the form of treatment/recovery of the injury(s), traditional physiotherapy and Pilates were the most indicated alternatives, both with 62.5%, followed by weight training (25%), medication and rest (8.4%), treatment on their own at home (4.2%), RPG/osteopathy (4.2%), as shown in Graph 7.

Graph 7: Reports the form of treatment for improvement of lesions.



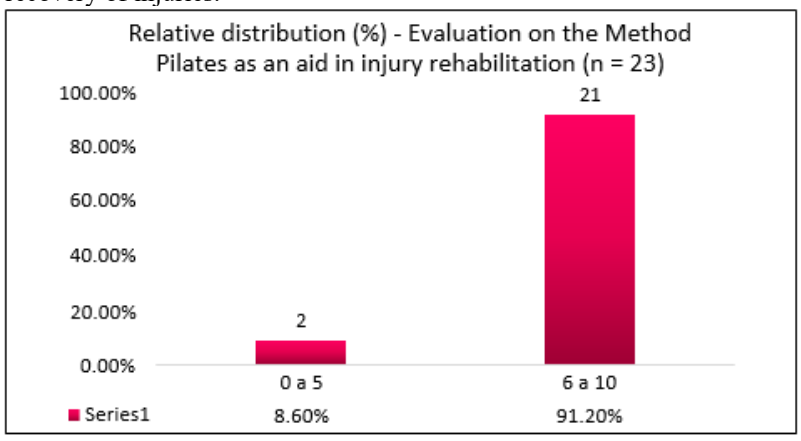
When analyzing the reason/objective of Pilates practice by dancers (Graph 8), performance improvement is understood as the main factor (55%), followed by recovery (41%) and only 4% as a moment of pleasure.

Graph 8: The graph indicates the main factors that motivated the initiative in the Pilates Method.



When asked about the influence of the Pilates method in helping to rehabilitate dance injuries (Graph 9), most dancers believe that the method contributes a lot (91%), indicating a score of 8 to 10. It is worth mentioning that the result of this question is directed to the opinion of the dancers who answered positive according to the inscience of injuries.

Graph 9: Cites the evaluation from the perspective of the participating dancers who suffered injuries, regarding the Pilates Method assisting in the recovery of injuries.



5 FINAL CONSIDERATIONS

Given the data identified in the research, considering that more than half of the participants have already suffered some injury from dance, it is possible to affirm that the practice of classical ballet can lead to the incidence of various injuries, caused by several factors related to the practice of the modality, highlighting the lack of correct assimilation of the movement and repetitive movements.

Among the methods of treatment of injuries, it was found that Pilates and traditional physiotherapy are the most used, and Pilates has been more practiced by dancers aiming at improving performance than rehabilitation.

Thus, we can conclude that the practice of the Pilates method has become increasingly common among dancers, and can be considered a positive influence on the recovery of injuries caused by

classical ballet, since this method has the qualifications that an activity such as ballet requires due to its high intensity and complexity. It is also possible to state that in addition to injury recovery, this method can benefit dancers with improved performance and injury prevention. Finally, we emphasize that it is extremely important that the practice is carried out with the accompaniment of a qualified professional and we recommend the realization of new research, understanding the importance of the continuity of studies contributing to scientific research.

REFERENCES

ALBISETTI, W. et al. Stress fractures of the base of the metatarsal bones in young trainee ballet dancers. International orthopaedics, 34(1), 51-55, 2010.

ARAÚJO, F. Importância da preparação física no contexto da dança; Centro Universitário Da Silveira IBMR – Laureate Internacional Universites Curso De Educação Física, Rio De Janeiro, 2017.

AZEVEDO, A., OLIVEIRA, R., E FONSECA, J.. Lesões no sistema músculo-esquelético em bailarinos profissionais em Portugal, na temporada 2004/2005. Revista portuguesa de fisioterapia no desporto, 11, 33-37, 2007.

BATISTA, C., E MARTINS, E. A prevalência de dor em bailarinas clássicas. Journal of health science institute, 28 (1), 47- 49. 2010.

BERTOLLA, F. et al. Efeito de um programa de treinamento utilizando o método pilates na flexibilidade. Rev Bras Med Esporte. Vol. 13, Nº 4 – Jul/Ago, 2007.

BERNARDO, L. M. The effectiveness of Pilates training in healthy adults: An appraisal of the research literature. Journal of bodywork and movement therapies, v. 11, n. 2, p. 106-110, 2007.

CARDOSO, A. A. et al. Lesões em bailarinos profissionais: uma revisão sistemática. Revista Brasileira de Medicina do Esporte, v. 23, n. 6, p. 504-509, 2017.

ENUMO, S.; SILVA A. Efeitos do treinamento físico na dança: uma revisão sistemática da literatura (1995-2015). Pensar prát. (Impr.), p. 964-977, 2016.

GIL, A. C. Como elaborar projetos de pesquisa. 4. ed. São Paulo: Atlas, 2008.

GONTIJO, K. N. S. Efeitos de uma intervenção fisioterapêutica baseada nos princípios da coordenação motora de Piret e Béziers sobre o alinhamento articular dinâmico dos membros inferiores de bailarinos da escola do teatro Bolshoi no Brasil, Universidade Federal Do Rio Grande do Sul – UFRG, Porto Alegre, 2017.

GREGO, L. G. O ballet das lesões: associação entre agravos músculos-esqueléticos e aptidão física de praticantes de dança e de escolares. 99p. Dissertação (Mestrado em Educação Física). Faculdade de Educação Física, 2002.

GREGO, L G., et. al. Agravos músculo-esqueléticos em bailarinas clássicas, não clássicas e praticantes de Educação Física, Arq Ciênc Saúde Jul-Set,13, 2006.

KADEL, N. J. et al. Stress fractures in ballet dancers. Amplied Journal Sports Medicine, USA, v. 20, n. 4, p. 445-449, 1992.

LIMA, L. G. O efeito do método pilates sobre o equilíbrio em bailarinas, Universidade Tecnológica Federal do Paraná, Curitiba, 2015.

MONTEIRO, H.; GREGO, L. As lesões na dança: conceitos, sintomas, causa situacional e tratamento. Motriz. Journal of Physical Education. UNESP, p. 63-69, 2003.

NILSSON, C. et al. The injury panorama in a Swedish professional ballet company. Knee Surgery, Sports Traumatology, Arthroscopy, v. 9, n. 4, p. 242-246, 2001.

RABELO, T. M. Lesões nos membros inferiores em bailarinos clássicos: uma revisão de literatura. 34 f. Monografia – Universidade Federal de Minas Gerais, Belo Horizonte, 2012.

SALLES, T.; O balé clássico: principais lesões e um trabalho preventivo baseado na preparação física. ed. Campinas: Universidade Estadual De Campinas Faculdade De Educação Física, 2008.

SOBRINO, F. J. Patología crónica acumulativa por microtraumatismos de repeteición: nueva definición, patogenia, clínica general, factores de riesgo, controversias. Mapfre Med, v. 14, p. 125-133, 2003.

SOBRINO, F. J.; DE LA CUADRA, C.; GUILLÉN, P. Overuse injuries in professional ballet: injury-based differences among ballet disciplines. Orthopaedic journal of sports medicine, v. 3, n. 6, p. 2325967115590114, 2015.