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Low Back Injuries in Male Ballet Dancers: A Review of the Literature

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Abstract

Dancers are at risk for injury likely due to demands that involve extremes in hip and lumbar spine range of motion and the repetitive practice of such motions. Male dancers tend to have greater number of dancing days lost due to injury and might be at greater risk of injury from techniques such as lifts with female dancers. The following study was a review of the available literature to date that looked at dancers and spine injuries. Pubmed, CINAHL, PEDro, and the Cochrane Library were searched with keywords: male, ballet, dancer, low back pain, pain, and injury. The results of this search were that there are very few studies investigating dancers and their injuries as well as strategies to prevent such injuries. In conclusion, there needs to be more high-quality studies investigating risk factors for injury, prevention and rehabilitation in dancers.



<https://aballeteducation.files.wordpress.com/2014/10/male-ballet-dancer.jpg?w=440&h=598>

Introduction

Aesthetic athletes such as dancers are particularly at risk for injury¹. They face physical and technical as well as aesthetic demands that often involve movement at extremes of hip and lumbar spine range of motion and repetitive practice of these movements from a young age^{1,2}. In addition to the techniques directly causing stress on the hip and lumbar spine, compensatory strategies to achieve the techniques also contribute to negative effects on those tissues².

Research has shown that the yearly injury rate for a professional ballet dancer is one new injury per year, commonly to the lumbar spine in the form of muscle spasms, strains, and tears^{1,3}. It is hypothesized that male ballet dancers have a higher risk of injury to the lumbar spine than do female dancers due to the lifts they perform in partnering¹. In addition, male dancers have been found to experience greater injury severity than female dancers, as measured in days of dancing lost³.

In spite of the acknowledgement that dancers experience high risks of injury, there is relatively little research concerning dancers and their injuries^{1,4}. The limited existing research relating to dance injury rehabilitation cites a need to further study and better understand dance injury risk factors and to develop prevention strategies¹.

Authors	Year	Objective	Sample Size	Conclusion
Alderson et. al	2009	Compare the L5/S1 peak lumbar anterior shear force (PLASF) in male ballet dancers performing two lifts using 3D biomechanical analysis.	8 male, 5 female	1. PLASF occurs at the beginning of a lift. 2. Distance between the male and female dancers is a sensitive predictor of PLASF.
Allen et. al	2012	A research report surveying professional ballet dancer on injuries to provide a foundation for future interventions	52	1. 50/52 dancers reported at least 1 injury 2. Overuse injuries accounted for majority of male and female injuries
d'Hemecourt, P.A., Luke, A.	2012	Identify distinct characteristics of aesthetic athletes that lead to different injury patterns.	N/A	1. The hip can only attain 60° of turnout; compensation can come from tibial ER or foot pronation 2. Anterior pelvic tilt occurs with fatigue; landing a jump or lifting with anterior pelvic tilt increases lumbar compression.
Gildea et. al	2013	A cross-sectional, observational study that investigated the cross-sectional area (CSA) of trunk muscles in professional ballet dancers with and without LBP.	14 male, 17 female ballet dancers	1. Multifidi CSA was larger in dancers without LBP 2. CSAs of other muscles did not differ between groups.
Gottschlich, LM; Young, CC	2011	Review of causes of LBP in dance-related presentation and treatment issues.	N/A	1. Most injuries result from poor technique (forcing turnout, lacking core strength). 2. Team-based models are the most successful and should focus on limiting forced turnout and incorporating core strengthening to reduce risk of injury.
Hincapié et. al	2008	A systematic review on the epidemiology, diagnosis, prognosis, treatment, and prevention of musculoskeletal injuries and pain in dancers.	Accepted 32 articles: 15 cohort, 13 cross-sectional, 1 validation	1. Dance medicine literature is young and heterogeneous, limiting the ability to draw conclusions 2. High prevalence of back and LE injuries. 3. Tentatively conclude that most injuries are mild and require minimal time off
Miletic, D; Miletic, A; Milavic, B	2015	A research project to determine the age-specific pain experience among male dance sport competitors by defining the proportions of pain status of fourteen body regions.	200 male dancers from 14 countries	1. Lower back pain was the most frequently reported topological region, and frequency of reporting correlated with age. 2. The most common reason for absence of practice was due to overuse injuries.
Ramkumar et. al	2016	A 10-year retrospective study to identify the most common diagnoses and areas of injury and better direct preventative and clinical practices.	520 professional dancers	1. 574 injuries occurred over a 10-year span; injury incidence per annum was 1.10 2. Most common locations were foot, ankle, and lumbar spine, accounting for 37% of injuries.
Roussel et. al	2008	A prospective study to examine whether lumbopelvic movement control and/or generalized joint hypermobility would predict injuries in dancers.	32 dancers	1. The Knee Lift Abdominal test and Standing Bow test were able to correctly allocate 78% for risk of injury. 2. Generalized joint hypermobility did not correlate with a higher prevalence of musculoskeletal injuries.
Smith, J	2009	A literature review to examine the changes in motor control that occur in dancers with subtle clinical instability and recurrent low back pain	N/A	1. There is insufficient evidence to directly correlate spinal instability syndromes with LBP 2. Faulty movement patterns should be identified and corrected, with focus on specific changes in muscle recruitment

Methods

An online literature search was performed using Pubmed, Cochrane Library, CINAHL, and PEDro using keywords: male, ballet, dancer, low back pain, pain, and injury. In the papers that were identified, the references were examined for further studies to use. Studies were included if they were about ballet dancers and spine injuries.

Results

There are very few studies that investigate the types and frequency of injuries in male ballet dancers. For the studies that examine male ballet dancer spine injuries, they do not provide evidence for prevention of such injuries. Overall, there are very few studies on this topic with only one systematic review in 2008. We recommend that future research focus on rehabilitation and injury prevention in male ballet dancers.



<https://i.pinimg.com/736x/58/37/>

Conclusion

Based on this literature review, it is clear there is a need for more updated literature that focuses on injury prevention and rehabilitation in male ballet dancers. Very few studies on this topic have been conducted in the last five years; the only systematic review on this topic was written in 2008. It is clear that spinal injuries are common in male ballet dancers, but there is not conclusive evidence on how to prevent these injuries. More focused high-quality research is needed to determine risk factors for spinal injury, and to better prevent future injuries in this population.



<https://s-media-cache-ak0.pinimg.com/236x/12/6b/cd/126bcd3d183fa83eb3239db7a540faff--dance-lifts-ballet-lifts.jpg>

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