Injuries in a Professional Ballet Dance Company: a 10-year Retrospective Study

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ABSTRACT

Like other professional athletes, ballet dancers are high-performance athletes, who are particularly susceptible to a variety of musculoskeletal injuries. However, they are relatively understudied and data on injury rates is lacking. This retrospective study features the largest aggregate data on professional ballet dancers to date, identifying the most common diagnoses and areas of injury to better direct preventative and clinical practices in this unique population.

I. INTRODUCTION

The objective of this ten-year retrospective study is to report the largest aggregate data on professional ballet dancers, within this new era of comprehensive orthopaedic management, and to establish the baseline rates of injury, dancer turnover in a professional company, location of injury, and common diagnoses.

With this data, better preventative and clinical practices can be directed to the care of this unique population.

II. METHODS

- Subjects were the professional ballet dancers of one of the largest ballet companies in the United States.
- The study encompassed a 10-year period from January 1, 2000 to December 31, 2010.
- Musculoskeletal care was directed by designated “team physicians,” who are orthopaedic surgeons, in conjunction with in-house athletic trainers and physical therapists - all knowledgeable in dance medicine.
- Injury was defined as anatomic tissue-level impairment, as diagnosed by a licensed health care practitioner, that results in full time loss from activity for one or more days beyond the day of onset, in accordance with SMCI guidelines.
- Exposure was defined as injury during class, rehearsal, or performance.
- Data analysis included identification of injury by location: foot/ankle, leg, knee, hip, cervical spine, thoracic spine, lumbar spine, shoulder, elbow, hand/wrist, and other.

III. RESULTS

- Over the ten-year span, 574 injuries occurred.
- The injury incidence per annum was calculated to 1.10 (574 injuries ÷ 520 dancer-years).
- There were 153 unique dancers; thus, the injury incidence rate was calculated to be 0.38 ((574 injuries ÷ 10 years) / 153 unique dancers).
- Dancer’s rate of injury per 1000 hours was calculated to be 0.91.
- The three most common diagnoses of lumbar strain, ankle sprain, and thoracic strain (including back, oblique and intercostal strains) make up greater than a third (37%) of all diagnoses.

IV. CONCLUSIONS

As the largest study in professional ballet, these findings set the benchmark metrics for musculoskeletal injury. The data reveal that a dancer experiences at least one new injury every year, and the company has a turnover rate of 34%. Foot and ankle injuries account for 40% of the injuries, followed by lumbar spine. The most common diagnoses were lumbar strains and ankle sprains. Future studies aim to identify injury risk factors and develop prevention strategies.