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Review article

### Musculoskeletal Injuries and Pain in Dancers: A Systematic Review

Presented in part as a poster to the International Association for Dance Medicine and Science, October 19–21, 2006, West Palm Beach, FL.

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#### Abstract

Hincapié<sup>©</sup> CA, Morton EJ, Cassidy JD. Musculoskeletal injuries and pain in dancers: a systematic review.

#### Objective

To assemble and synthesize the best evidence on the epidemiology, diagnosis, prognosis, treatment, and prevention of musculoskeletal injuries and pain in dancers.

#### Data Sources

Medline, CINAHL, PsycINFO, Embase, and other electronic databases were searched from 1966 to 2004 using key words such as *dance, dancer, dancing, athletic injuries, occupational injuries, sprains and strains, and musculoskeletal diseases*. In

occupational injuries, sprains and strains, and musculoskeletal disorders. In addition, the reference lists of relevant studies were examined, specialized journals were hand-searched, and the websites of major dance associations were scanned for relevant information.

## Study Selection

Citations were screened for relevance using a priori criteria, and relevant studies were critically reviewed for scientific merit by the best evidence synthesis method. After 1865 abstracts were screened, 103 articles were reviewed, and 32 (31%) of these were accepted as scientifically admissible (representing 29 unique studies).

## Data Extraction

Data from accepted studies were abstracted into evidence tables relating to the prevalence and associated factors, incidence and risk factors, diagnosis, treatment, economic costs, and prevention of musculoskeletal injuries and pain in dancers.

## Data Synthesis

The scientifically admissible studies consisted of 15 (52%) cohort studies, 13 (45%) cross-sectional studies, and 1 (3%) validation study of a diagnostic assessment tool. There is a high prevalence and incidence of lower extremity and back injuries, with soft tissue and overuse injuries predominating. For example, lifetime prevalence estimates for injury in professional ballet dancers ranged between 40% and 84%, while the point prevalence of minor injury in a diverse group of university and professional ballet and modern dancers was 74%. Several potential risk factors for injury are suggested by the literature, but conclusive evidence for any of these is lacking. There is preliminary evidence that comprehensive injury prevention and management strategies may help decrease the incidence of future injury.

## Conclusions

The dance medicine literature is young and heterogeneous, limiting our ability to draw consistent conclusions. Nonetheless, the best available evidence suggests that musculoskeletal injury is an important health issue for dancers at all skill levels. Better quality research is needed in this specialized area. Future research would benefit from clear and relevant research questions being addressed with appropriate study designs, use of conceptually valid and clinically meaningful case definitions of injury and pain, and better reporting of studies in line with current scientific standards.

## Key Words

Dancing; Injuries; Musculoskeletal system; Pain; Rehabilitation; Systematic review

## List of Abbreviations

SEFIP, self-estimated functional inability because of pain

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