

Musculoskeletal Disorders Amongst Bharatnatyam Dancers - An Evidence-Based Seminar

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ABSTRACT

Bharatnatyam is a dynamic and energetic Indian classical dance form that has earned recognition across the globe. Dancers are engaged in aesthetic yet challenging poses frequently. Various dance poses are common like Kurma, Bhramari, Arimandi, Tandav, Nritta, Matsya, Kuttanam, Preukhanam and Muzhumandi position. It comprises of rhythmic stamping of the feet, jumps, twisting and turning with rotational movements, pirouettes and positions where knees are in contact with the floor which lead to injury to Hip, Knee, Ankle and foot, Shoulder, Knee, Back, Neck etc. The objective of the study is to assemble and synthesize the best available literature on musculoskeletal disorders in Bharatnatyam dancers. PUBMED, MEDLINE, Cochrane Library, ScienceDirect and Google Scholar, NIH Clinical Trials Database, Meta-Register of Controlled Trials and CRISP databases were searched. Indexed terms such as Bharatnatyam, dancer, pain, injuries, sprains and strains, musculoskeletal disorders, Back pain, Knee pain, Hip pain were used to search the databases. Level 1 through 4 evidence studies reporting prevalence of Musculoskeletal disorders Data from accepted studies were abstracted into evidence tables relating to the prevalence and associated factors, risk factors, diagnosis and pain in dancers and critically reviewed by STROBE checklist. Almost 19 different studies like systematic reviews, case control studies, randomized controlled trials, cross sectional studies were included. The best available evidence suggests that musculoskeletal disorders are an important health issue for dancers at all skill levels. The principal findings were high prevalence of Knee pain followed by Back, Ankle and foot pain and altered foot posture and overuse and lack of warm up sessions are the main cause for development of pain.

Keywords: Bharatnatyam Dancers, Musculoskeletal disorders, Pain, Injuries, sprains, strains, back pain, knee pain, Hip pain

INTRODUCTION

Bharatnatyam is a very ancient famous classical dance form originated in South India. It is a dynamic and energetic Indian classical dance form that has earned recognition across the globe.¹ According to Balasaraswati, is a variety of natya yoga that reveals the spirituality through the physical and emotional body.² It has three distinct elements: Nritta (rhythmic dance moments), Natya (mind, or dance with dramatic aspect), and Nritya (combination of Nritta and Natya).³

Bharatnatyam comprises of rhythmic stamping of the feet, jumps, twisting and turning with rotational movements and positions where knees are in contact with the floor. Various studies are done to analyse affection of various dance poses on overall musculoskeletal systems of body. So the objective of the study is to assemble and synthesize the best available literature to find out the MSDs in Bharatnatyam Dancers.

So the clinical question of my study is, Are musculoskeletal disorders present in Bharatnatyam dancers? And Which are the

most prevalent regions where musculoskeletal disorders being present in Bharatnatyam dancers by various postures and dance moves?

MATERIALS & METHODS

PUBMED, MEDLINE, Cochrane Library, Science direct and Google Scholar, NIH Clinical Trials Database, Meta-Register of Controlled Trials and CRISP databases were searched. Key words which were used to search for articles related to Bharatnatyam Dance were Bharatnatyam, Bharatnatyam Dancers, Classical Dance, Bharatnatyam Dance postures; for articles related to Pain were Dance injuries, sprains and strains, musculoskeletal disorders, Back pain, Knee pain, Foot and ankle pain, Hip pain, Neck pain; for articles related to Prevalence, Prevalence of pain in Knee, Back, Foot, ankle, Neck were used.

Total number of studies identified through database searching were N=73. Records Screening was done for all of them. After screening total 67 Studies were excluded. Out of them 14 were published prior to 1990, 46 studies were Other or mixed types of classical dance and 7 were Only abstracts. Total 6 full text articles were included. Out of them 1 was Systematic review, 4 Cross sectional studies, 1 was Observational study without control group

RESULT

Critical appraisal of evidences was done

Nair SP et al did Survey of Musculoskeletal Disorders Among Indian Dancers in Mumbai and Mangalore.³ The level of evidence of this article was 4b. Study was done with 215 dancers of different age group Outcome measures was a self-developed questionnaire and Pain sensitivity questionnaire. The result showed the back (42.5%) followed by the knee (28.3%) and ankle (18.63%) were the most frequently reported sites of injury. The STROBE score of the present study was 17/22.

Chivate SD et al did a cross sectional study on Evaluation of Foot Posture, Pain and Ankle Proprioception in Bharatnatyam and Western Dancers.⁴ The level of evidence of this article was 4b. Study was done with 55 Bharatnatyam and 55 western dancers with the age group of 15 to 25 yrs. Outcome measures was Foot posture index and Visual analogue scale. The study concludes that there is significant change in foot posture and higher prevalence of foot pain in Bharatnatyam dancers The STROBE score of the present study was 15/22.

Panhale VP et al did study on Analysis of postural risk and pain assessment in Bharatnatyam dancers.⁵ The level of evidence of this article was 3e. Study was done with 40 female Bharatnatyam dancers with the age group of 18 to 30 yrs. Outcome measures was Self developed questionnaire and NRS. They concluded that the most common site of pain was the low back (55%) followed by thigh (47.5%), knee (47.5%), calve (37.5%), and ankle (35%). STROBE score of the present study was 21/22.

Paul JK, Kapoor S. Dance related injuries among Bharatanatyam dancers.⁶ The level of evidence of this article was 4b. Study was done with 70 Bharatnatyam dancers with the mean age of subjects were 17.05 ± 2.0 . Outcome measures were Self developed questionnaire and Visual analogue scale. The knee appears to be the most prone to injuries in a Bharatanatyam dancer. Following closely foot and ankle complex, hip, shoulders. STROBE score of the present study was 11/22.

Hincapié CA et al did systematic review on Musculoskeletal injuries and pain in Bharatnatyam dancers.⁷ The level of evidence of this article was 3b. No. of studies included were 32 (14 articles were analysing prevalence and associated factors in classical dancers). Most injuries affect the back and lower extremities (Especially knee followed by Ankle and foot) followed by neck and shoulder. The PRISMA score of this article was 23/27.

Pawar S et al did Study of lumbar lordosis and pelvic position in Bharatanatyam dancers.⁸ The level of evidence of this article was 3b. Study was done with 80 Subjects with the age group of 18 to 30 yrs. Prevalence of low back pain in Bharatnatyam dancers was found to be nearly 45%. STROBE score of the present study was 14/22.

Clinical Implication

1. Screening programmes can be organised to identify musculoskeletal disorders at the very early stage.
2. Can create awareness amongst students and dance gurus about the expected MSDs. Can explain various prevention strategies. Further research can be done with systematic reviews to identify various causes for development of MSDs in other classical dancers.

CONCLUSION

The best available evidence suggest that musculoskeletal disorders are important health issues in Bharatnatyam dancers'. Highest prevalence of injuries and pain are at Back followed by lower extremities including knee and Ankle.

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