



## Research article

### PREVALENCE OF MUSCULOSKELETAL DISORDERS IN RECREATIONAL BADMINTON PLAYERS

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#### Abstract

*Badminton is most widely played sports which require high concentration, quick movements and sudden change of movements. Huge force involved in badminton while playing which results injuries. Ankle, shoulder, and knee injuries are common injuries in badminton which needs rehabilitation. It is recognized that the overall injuries in badminton is low comparing to other sports. The study aimed to find out the prevalence of musculoskeletal injuries in recreational badminton players. It is a cross sectional study done with one hundred and four recreational players selected based on the predetermined selection criteria. Nordic musculoskeletal questionnaire as used as outcome measure to find the prevalence of injuries in the players. The results of the study showed that shoulder region is the highest injured region followed by the wrist and other regions*

*The study concludes shoulder is the very vulnerable region in recreational badminton players prone to injury followed by wrist region and others which could be prevented with proper training and prevention strategies.*

**Key words:** *Badminton, musculoskeletal disorders, ankle, shoulder, and knee injuries.*

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## INTRODUCTION

Badminton is one of the most widely played sports in the world. World badminton federation announced that 150 million people worldwide play badminton and about 2,000 players take part in international competitions. This game is suitable for all people in every age and every level. (George et al., 2009)

It is a fast sport that requires quick movements and sudden changes of direction. A competitive badminton involves applying a high concentration of running, jumping, spinning, stretching, and walking back. Advanced levels of sport require high speed, coordination, quick reactions, agility and a relatively good physical condition.

Injuries in sports are common due to contact with players, ground, objects and other reasons such as pressure, overuse and fall. Weakness is also a common cause of injuries. There are factors to be considered like knowing injury extension, the mechanism, and the preventive strategies. Proper training and treatment can help in protecting the damaged tissues which will help healing in the inflammatory stage and pain control. In addition, it helps in muscle flexibility, strength, Proprioception, and balance in improving the game performance.

Due to huge force involved in badminton while jumping and other movements it is expected that injuries would occur. Ankle, shoulder, and knee injuries are common injuries in badminton which needs rehabilitation. It is recognized that the overall injuries in

badminton is low comparing to other sports.

## OBJECTIVE OF THE STUDY

- To find out which is more prevalent region of disorder in recreational badminton players.
- To find out the relationship of other covariant factors.

## MATERIALS AND METHODS

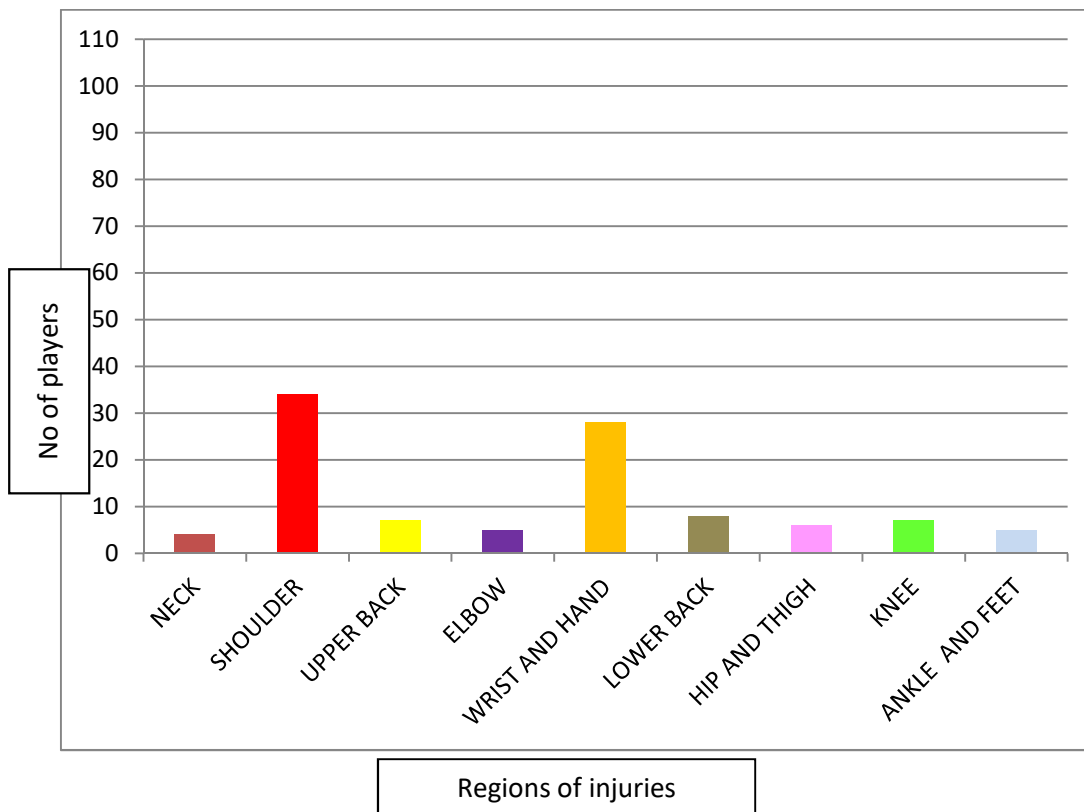
Cross sectional study design done with one hundred and four recreational badminton players (n=104) through convenient sampling method from KG institutions Saravanampatti, Coimbatore. Players with age of 18-22 years, both males and females and playing for a period of six months were included for the study. Players with injuries within one month of duration, with other neurological and systemic disorders were excluded. The total study duration was one month.

A self reported questionnaire was created, the first part of which questionnaire was focused on demographic details and the second part includes the Nordic musculoskeletal questionnaire. The questionnaire was distributed to every individual participant. The participant was given two days of time before completing the questionnaire. Before including a clear explanation was given to every player both orally and written consents were obtained. Then the data were collected from each questionnaire and data analysis was done. Descriptive statistics was used. The tool was used to find the percentage and proportion.

**TABLE - I**  
**SHOWS THE OVERALL DISTRIBUTION OF MUSCULOSKELETAL PAIN IN PLAYERS**

Pain regions	Male players	Female players
NECK	2	2
SHOULDER	28	6
UPPER BACK	6	1
ELBOWS	4	1
WRIST/HANDS	24	4
HIPS/THIGHS	5	1
KNEES	4	3
ANKLES AND FEET	3	2

**GRAPH - 1**  
**SHOWS THE OVERALL DISTRIBUTION OF MUSCULOSKELETAL PAIN IN DIFFERENT REGIONS OF THE PLAYERS**



## RESULTS

The study was conducted to find the prevalence of musculoskeletal pain in the recreational badminton players. The descriptive statistical analysis of data (N=104 players) are as follows. Age wise classification distribution of male and females. 56% belonged to the 18 to 21 years age group, 48% belonged to the 21 to 22 years.

The gender classification of players shows 83% of male gender, 21% belonged to female gender. The Body mass index of players is that underweight 34%, obese 26%, normal 44%. The table above shows overall distribution of musculoskeletal pain. Graph shows overall distribution of musculoskeletal pain in badminton players is seen majorly in shoulder pain (n=28) followed by wrist pain (24), lower back pain (n=7) according to Nordic musculoskeletal questionnaire.

The analysis shows that shoulder pain position first of all the musculoskeletal pain followed by wrist pain and low back pain.

## DISCUSSION

The study was aimed to find out the prevalence of musculoskeletal disorders among the badminton players. 104 recreational badminton players were selected from KG institutions through convenient sampling method and clear explanation about the procedures were given to each players and then consent form was obtained. Then the players were provided with the Nordic musculoskeletal questionnaire, and adequate time was

given to completely answer the questions in it.

Various studies done previously was focused only on professional badminton players describing the injury incidence in them and various treatment procedure to treat those injures. Very less studies were done on the college students where some of them are professional players and the other are recreational players. (Okhovatian F 2009)

The game nowadays is very popular among the college students whether they play as team player of the institution or recreational player that helps them in stress relief, improve their general fitness and performance. But due to lack in the knowledge of the game, improper warm-ups and inadequate training from the coaches leads to lot of injuries.

The results showed that injuries to the shoulder region is higher than the other parts second most frequent region of getting injured is the wrist. This is due to improper playing techniques of striking, inadequate grip, heavier racquet, improper warm up and repeated over head playing resulted in the shoulder injury and ankle may be due to improper flooring, lack of proprioception, balance and strength in the muscles. (Franca Bahia Loureiro 2012)

To reduce injuries, athletic exercise and health promotion is recommended, at least from increase in the educational facility-training and classes for educators to use in the field of

injury in badminton and ways to deal with, it is up to teachers' knowledge in this area. Moreover, given the high share of all types of sports injuries in the shoulder and ankle followed by wrist and elbow. Badminton players are recommended to strengthen the muscles in this area and proper training and body building exercises, specifically in the area of injury prevention.

High prevalence rate of musculoskeletal disorders indicates that it is necessary to organize the training courses about sports and coaching intervention in order to raise players' awareness and skills. These programs can be used to improve the health of players due to preventing from the occurrence of musculoskeletal disorders. (Gouttebarga 2017)

## CONCLUSION

The study concludes that there is high prevalence rate of varied

musculoskeletal disorders in recreational badminton players which is due to improper training and awareness about the sport that mainly affects the shoulder, wrist and low back region comparing to other areas.

## LIMITATIONS AND RECOMMENDATIONS

### LIMITATIONS

- i) Age difference shows improvement differences.
- ii) Limited sample size.
- iii) Specified sample group only from K.G institutions are selected.
- iv) Subject's personal, psychological, physical, environmental factors are limited.

### RECOMMENDATIONS:

- i) Study can be done with different age group.
- ii) Larger sample can be used for further studies.

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