COMPARISON OF PHYSICAL FITNESS VARIABLES BETWEEN INJURED AND NON INJURED ATHLETES

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ABSTRACT

The purpose of the study was to compare the physical fitness variables between injured and non injured athletes. Total 80 athletes were selected as subjects from different levels of competition. AAHPER Youth Fitness Test (1976) was used to measure the physical fitness level of the athletes. After the collection of the relevant data, it was processed and analyzed with descriptive statistics. To compare the physical fitness variables of the subjects, mean, standard deviation and t-test were employed with the help of statistical package of SPSS. To test the hypothesis the significance level was set at .05 percent. After statistical treatment, result showed that there were significant effect of muscular strength and muscular endurance of arms and shoulders, muscular strength and endurance of trunk, agility level, explosive strength of legs, cardio – vascular endurance between the injured and non injured athletes.On the other hand no significant effect was found on Speed of lower extremities and explosive strength of legs between the injured and non injured athletes.

KEYWORDS: Fitness, Injury and Athletes.

INTRODUCTION:

Injury Prevention is a complex process involving several steps. First step consists of determination of prevalence/incidence of injuries and identification of risk factors. The second step being the designing and implementation of intervention for modification of risk factors. Injuries are important cause of premature retirement and inconsistent performance of Indian players. However, unlike western countries the organized efforts of prevention of sports injury are not witnessed in the Indian Sports scenario. There are very limited studies based on the sports injuries among Indian athletes. Injury in sport occurs as a result of physical activities carried out either for general recreational purpose or with more professional goals in mind. They may be caused by accidents during the match, or by overuse of a body part, or as a result of strenuous training.

Athletes playing at higher levels require not only correct diagnosis of their injuries, but also early treatment with complete healing so that they can continue to produce good performance within the shortest possible absence from their sporting activity . even the more casual enthusiast, upon whom demands are not so great , may suffer both physically and psychologically as a result of minor injuries and they may be prevented from pursuing the sport.

Athletic performance is highly dependent on the physical condition of the athlete. The Hyperbaric chamber allows the athlete to recover more quickly and improves general health, which leads to greater physical performance. Months and years of rigorous training and practice are crucial in preparing the athlete's body for competition. A critical part of this athletic training is keeping the muscles strong and healthy to avoid injury. In endurance based sports, such as long distance running, it is also important for the athlete to physically peak at the right time to outperform all of their competitors. Thus, the training schedule must incorporate carefully timed periods of rest and recuperation to guarantee that muscles will not be overtired when it is time to compete. These recovery periods are necessary because even athletes' bodies have physiological limitations.

HYPOTHESES:

1. There will be significant differences between muscular strength and muscular endurance of arms and shoulders in injured and non injured athletes of Punjabi University, Patiala.
2. There will be significant differences between muscular strength and endurance of trunk in injured and non injured athletes of Punjabi University, Patiala.
3. There will be significant differences between agility level of injured and non injured athletes of Punjabi University, Patiala.
4. There will be significant differences between explosive strength of legs in injured and non injured athletes of Punjabi University, Patiala.
5. There will be significant differences between speed of lower extremities and explosive strength of legs in injured and non injured athletes of Punjabi University, Patiala.
6. There will be significant differences between cardio – vascular endurance in injured and non injured athletes of Punjabi University, Patiala.

OBJECTIVIES OF THE STUDY:

1. To find out the differences between muscular strength and muscular endurance of arms and shoulders in injured and non injured athletes of Punjabi University, Patiala.
2. To find out the differences between muscular strength and endurance of trunk in injured and non injured athletes of Punjabi University, Patiala.
3. To find out the differences between agility level of injured and non injured athletes of Punjabi University, Patiala.
4. To find out the differences between explosive strength of legs in injured and non injured athletes of Punjabi University, Patiala.
5. To find out the differences between speed of lower extremities and explosive strength of legs in injured and non injured athletes of Punjabi University, Patiala.
6. To find out the differences between cardio – vascular endurance in injured and non injured athletes of Punjabi University, Patiala.

SELECTION OF SUBJECTS:

The subjects for the present study were selected randomly from different levels (School, College, University, State, National and International) of various games. The subjects were selected from the Punjabi university Patiala. The total 80 subjects were selected for the study.

SELECTION OF VARIABLES:

1. Muscular strength and muscular endurance of arms and shoulders.
2. Muscular strength and endurance of trunk.
3. Agility level.
4. Explosive strength of legs.
5. Speed of lower extremities and explosive strength of legs.
6. Cardio – vascular endurance.

STATISTICAL ANALYSIS OF DATA:

The mean, standard deviation and t-test were applied to find out the difference between injured and non injured athletes of the selected variables.

RESULTS AND FINDINGS:

Table 1: Comparison of muscular strength and muscular endurance of arms and shoulders in injured and non injured athletes.

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
7.08	3.94	9.70	3.58	2.90

$t_{.05}$ (78) = 1.99

Table and fig. 1 shows Comparison of muscular strength and muscular endurance of arms and shoulders between injured athletes and non injured athletes. There was significant difference between the injured athletes and non injured athletes. The mean muscular strength and muscular endurance of arms and shoulders of injured athletes is 7.08± 3.94 and the mean muscular strength and muscular endurance of arms and shoulders of non injured athletes is 9.70± 3.58(t=2.90).

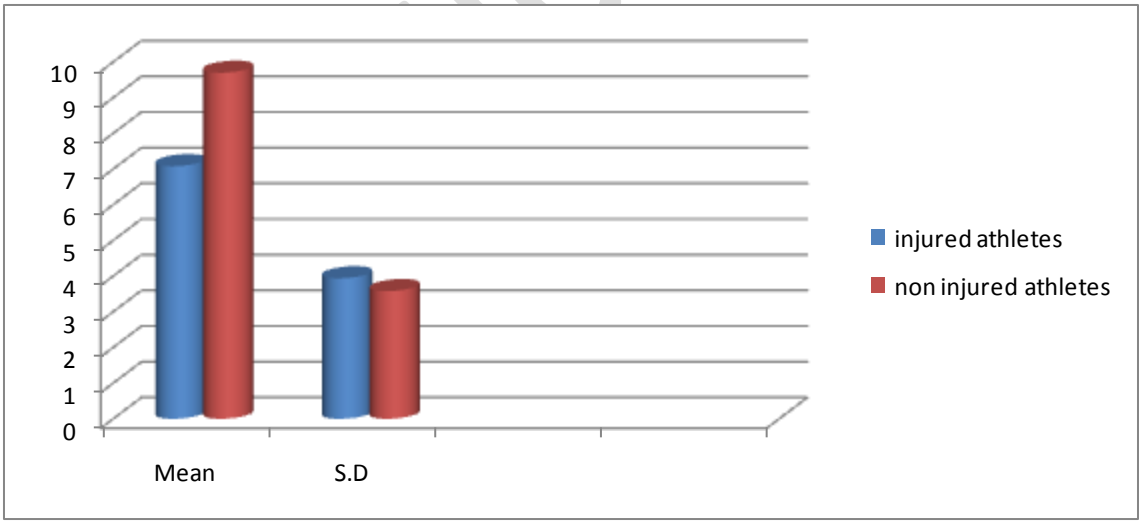

Fig1 : Comparison of muscular strength and muscular endurance of arms and shoulders in injured and non injured athletes.

Table 2: Comparison of muscular strength and endurance of trunk between injured and non injured athletes

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
20.19	4.98	23.52	7.18	2.42

$t_{.05}$ (78) = 1.99

Table and fig. 2 shows Comparison of muscular strength and endurance of trunk between injured and non injured athletes. There was significant difference between the injured athletes and non injured athletes. The mean muscular strength and endurance of trunk of injured athletes is 20.19± 4.95 and the mean muscular strength and endurance of trunk of non injured athletes is 23.52± 7.18 (t= 2.42).

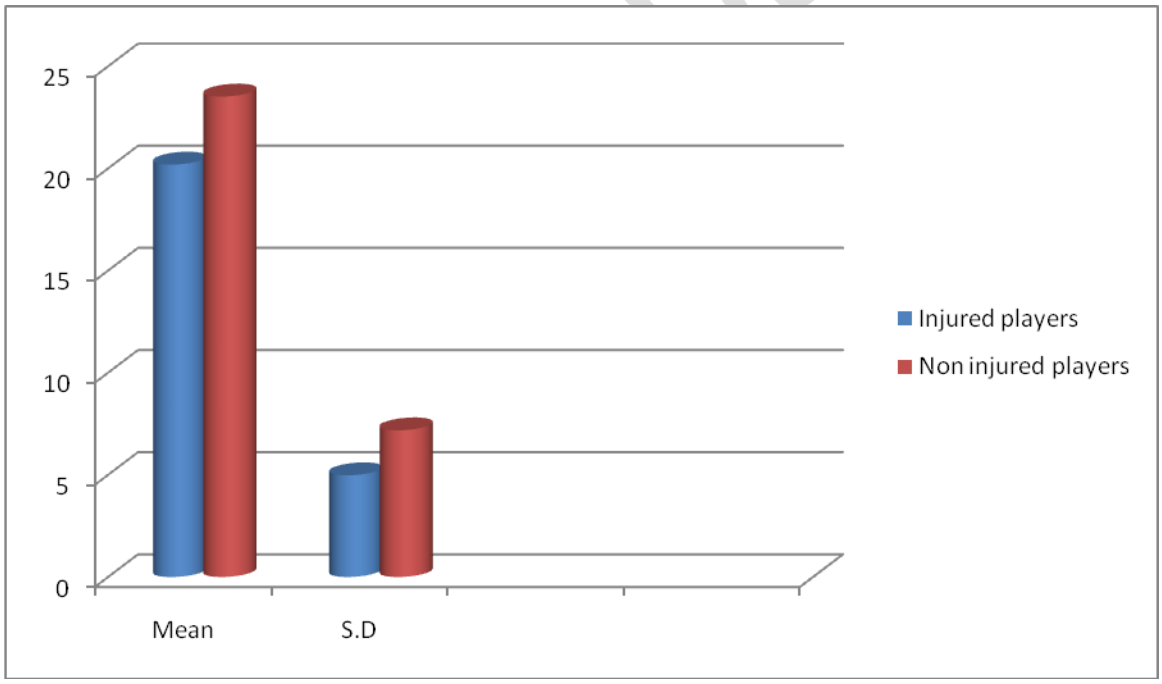

Fig.2: Comparison of muscular strength and endurance of trunk between injured and non injured athletes.

Table 3: Comparison of agility level between injured and non injured athletes.

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
11.86	1.37	11.10	0.89	2.60

$t_{.05}$ (78) = 1.99

Table and fig. 3 shows Comparison of agility level between injured athletes and non injured athletes. There was significant difference between the injured athletes and non injured athletes. The mean of agility level of injured athletes is 11.86± 1.37 and the mean of agility level of non injured athletes is 11.10± 0.89 (t= 2.60).

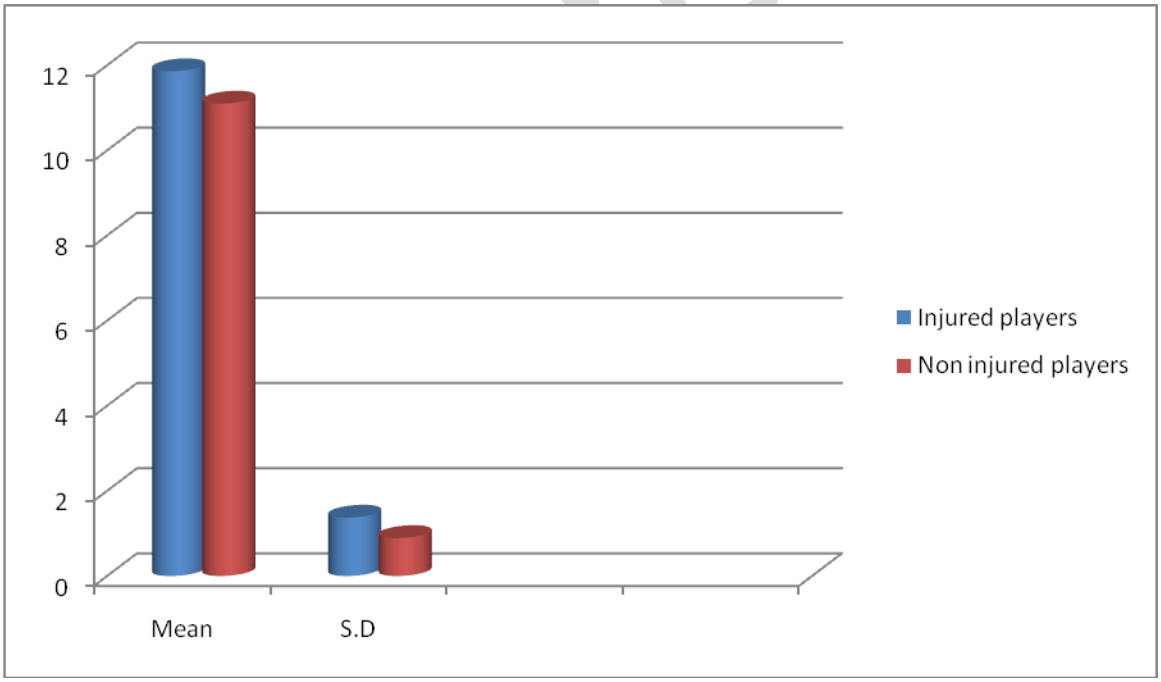

Fig. 3: Comparison of agility level of injured and non injured athletes

Table 4: Comparison of explosive strength of legs between injured and non injured athletes.

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
1.42	0.31	1.60	0.25	2.49

$t_{.05}$ (78) = 1.99

Table and fig. 4 shows Comparison of Standing broad jump test between injured athletes and non injured athletes. There was significant difference between the injured athletes and non injured athletes. The mean Standing broad jump of injured athletes is 1.42± 0.31 and the mean Standing broad jump of non injured athletes is 1.60± 0.25 (t= 2.49).

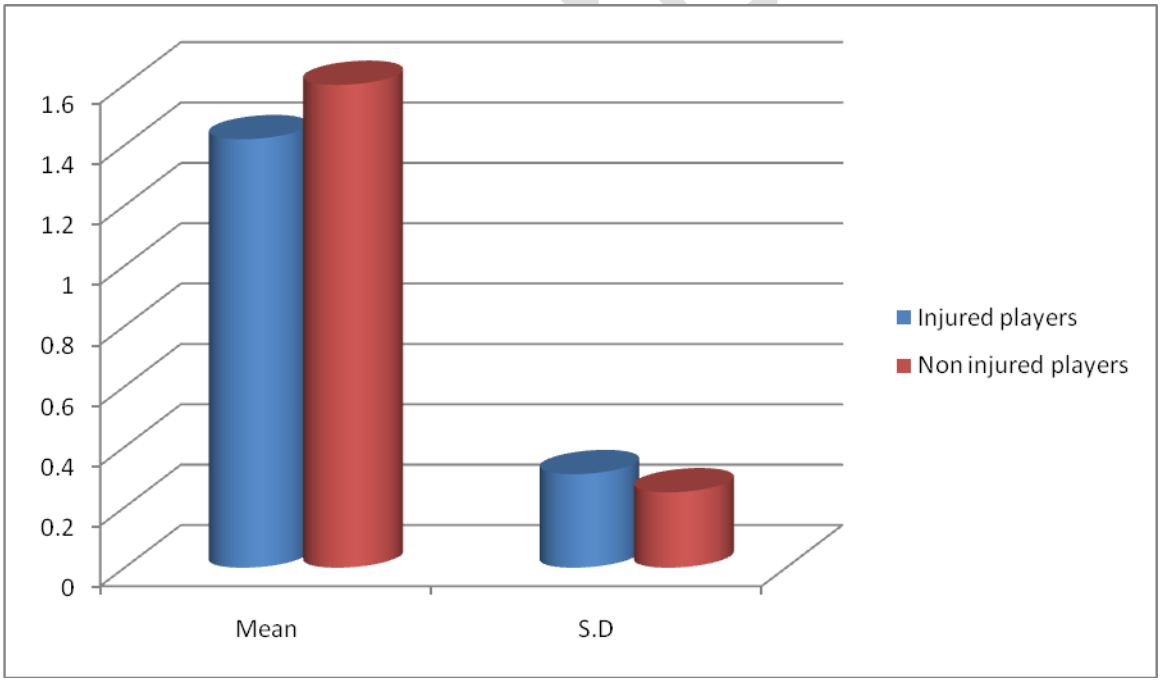

Fig. 4: Comparison of standing broad jump test between injured athletes and non injured athletes.

Table 5: Comparison of speed of lower extremities and explosive strength of legs in injured and non injured athletes.

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
8.72	1.10	8.41	0.93	1.27

$t_{.05}$ (78) = 1.99

Table and fig 5 shows Comparison of speed of lower extremities and explosive strength of legs in injured and non injured athletes. There was no significant difference between the injured athletes and non injured athletes. The mean speed of lower extremities and explosive strength of injured athletes is 8.72± 1.10 and the mean speed of lower extremities and explosive strength of non injured athletes is 8.41± 1.27(t= 1.27).

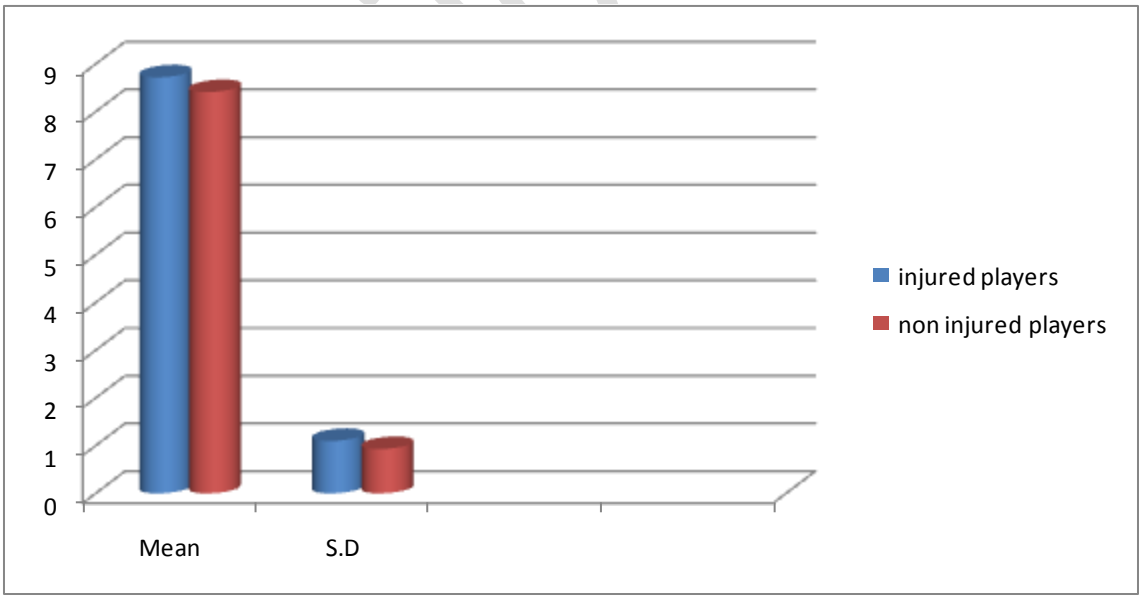

Fig 4.25: Comparison of speed of lower extremities and explosive strength of legs in injured and non injured athletes

Table 6: Comparison of cardio – vascular endurance between injured athletes and non injured athletes.

Injured athletes (n=53)		Non injured athletes (n=27)		
Mean	SD	Mean	SD	t value
2.35	0.56	2.10	0.32	2.11

$t_{.05}$ (78) = 1.99

Table and fig.6 shows Comparison of cardio – vascular endurance between injured athletes and non injured athletes. There was significant difference between the injured athletes and non injured athletes. The mean cardio – vascular endurance of injured athletes is 2.35± 0.56 and the mean cardio – vascular endurance of non injured athletes is 2.10± 0.32 (t= 2.11).

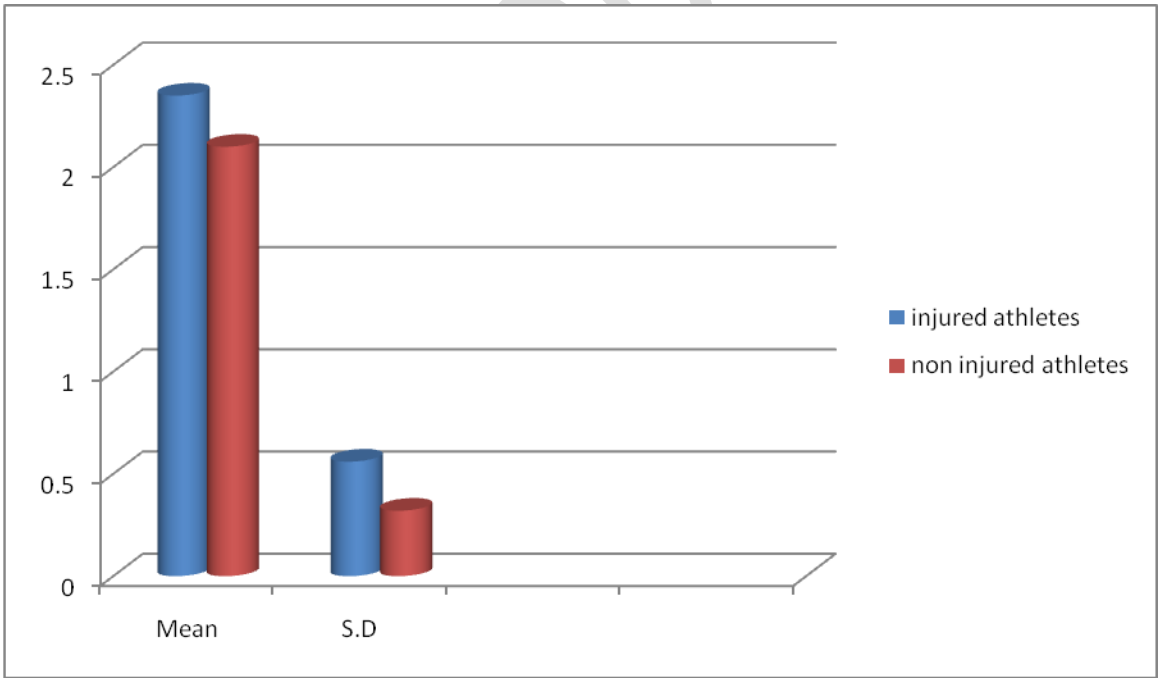

Fig 6: Comparison of cardio – vascular endurance between injured athletes and non injured athletes.

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