CHARACTERIZATION OF COMMON SPORTS INJURY AMONG YOUNG BASKETBALL TRAINEES

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Abstract

Purpose: The purpose of the study was characterization of sports injury among young basketball trainees. Objectives: The research was to find out the characterization of sports injury among young basketball trainees, to estimate the prevalence of sports injury among young basketball trainees, to determine which body parts are affected, to find out the nature of injuries, to extract the types of injuries, to know about the management of injuries (medication, physiotherapy or both), to evaluate that what was the beneficial for the trainees. Methodology: The study was a quantitative research model in the form of a prospective type survey in design is carried out in this study. Twenty-eight samples were selected by convenient sampling procedure. Data were collected from BKSP. Results: The study has been provided a baseline of information about the characterization of sports injury among young basketball trainees. Among the 28 participants n=26, (92.9%) have injured during basketball training and rest of participants n=2, (7.1%) had no injury during basketball training. The mean age of the subjects was 16 years. However, among the 28 participants n= 8 (28.6%) participants were between 12-14 years, n=6 (21.4%) were between 15-16 years, n=14 (50%) were >17 years. Minimum age range was 12 years and maximum age range was 19 years. Among the 26 players n=1, (3.8%) had elbow injury, n=2, (7.7%) had wrist injury, n=1, (3.8%) hand and finger injury, n=1 (3.8%) had hip and thigh injury, n=10, (38.5%) had knee and leg injury, n=8 (30.8%) had ankle injury, n=1, (3.60%) had foot injury, n=2, (7.7%) had spine, back and trunk injury and n=1, (3.8%) had head and neck injuries. Among 26 participants n=17, (65.4%) had direct injury during their basketball training and n= 9, (34.6%) had overuse injury during basketball training. Among 26 participants n=12, (46.2%) taken medication, n=3, (11.5%) taken physiotherapy, n=11, (42.3%) taken both medication and physiotherapy after injury during their basketball training. Conclusion: It is said that, knee and leg and ankle injuries are most common injuries to all specialty of basketball trainees. Most commonly basketball trainees face direct and overuse injuries. More research should now be undertaken on sports related injuries of the basketball trainees, with an emphasis on larger sample sizes and response rate to be able to generalize the results and conclusions.

Key words: Characterization, sports injury, basketball trainees.

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Introduction

Basketball is a dynamic sport characterized by repetitive jumping, running, sharp changes in direction and sideway cutting maneuvers. The loads and kinetic forces placed on the body during basketball may be related to the high prevalence of injury (Deitch et al, 2006). Basketball continues to increase in popularity at all levels of play, from recreational to professional (Zvijac& Thompson, 1996) and remains immensely popular, not just in the United States, but throughout the world (Cantwell, 2004).

Basketball was created by James Naismith in 1891 in Springfield, Massachusetts as a means to occupy students at the Young Men's Christian Association (YMCA) during the winter months. He developed a scoring method of shooting the ball into peach baskets suspended from the balconies (Shouler et al, 2003). From these humble origins, basketball has evolved into one of the most popular sports in the United States, and indeed the world. It is an especially popular high school sport. Unfortunately, one consequence of the high level of participation is that the injury rate is extraordinarily high (Conn et al, 2003).

Basketball appears to have the highest frequency of injuries among non-contact sports; it is even referred to as being more dangerous, with a higher injury risk, than contact sports (Conn et al, 2003). Consequently, the intensity and aggressiveness of the game should be underestimated, because the contemporary game of basketball puts full emphasis on the speed and power of competitors (Starkey,

2000). Strength and quickness are necessary to control an opponent's position, "muscle" a rebound, or "power" a shot, all of these are prerequisites for a successful basketball career (Starkey, 2000).As the sport grows, in terms of numbers of participants and intensity, so does the number of injuries. So far, there is not a great deal of data to be found on the injury susceptibility of basketball players in European countries (Gomez et al, 1996).

Furthermore, the data are collected through retrospective investigations and concern male professional player in France, young players in Italy or Swedish elite players (Colliander et al, 1996). Studies concerning the epidemiology of basketball injuries have been very popular in the US and research has focused mainly on professional levels or high school players (Gomez et al, 1996). An important purpose of sports injury epidemiology however, is to supply knowledge on injuries that occur frequently and which have serious consequences, and to describe their aetiology in order to provide a basis for preventive measures (Meeuwisse et al, 2003).

Sprains and strains are the most common types of basketball injuries, accounting for 55.1% of injuries in one study and 49.2% in another. Other common injuries include soft tissue injuries and lacerations (18.9%) and fractures and dislocations (17.7%-28%). Less common injuries include overuse syndromes (9.5%), embedding of foreign bodies, and dental injuries. Most cases (71.2%-82.7%) can be fully treated with return to play within a 1 to 2 week time frame.

Of injuries requiring more than 1 week of missed play, ankle injuries are the most common cause (42.5%) (Cohen et al, 2000).

Methodology

Study design:The study design was a cross-sectional design. Cross-sectional study is selected because in this way it is possible to identifying a defined population at a particular point in time. Through the cross-sectional study easily can comparing results among those of different ages, gender, or ethnicity.

Study settings:As this is a survey on the characterization of sports injury among young basketball trainees at BKSP, so study site was in BKSP, Savar, Dhaka. Samples were selected according to the inclusion criteria.

Population: Populations were the basketball trainees of BKSP of this study. A population refers to the members of a clearly defined set or class of people, objects or events that are the focus of the investigation. The population shares a specific set of characteristics or criteria that have been established by the investigator.

Sample: Twenty-eight samples were selected from the population for this study. Sometimes the sample size may be big and sometimes it may be small, depending on the population and the characteristics of the study. There is no easy way of establishing the best size of sample since this decision depends very largely on the research which is being undertaken as well as on the investigator's knowledge of the relevant population's characteristics. Samples was selected by convenience sampling procedure, because the basketball players remain in various tournaments on national and international level throughout the year and in convenience sampling participants are chosen who can be studied most easily, cheaply and quickly.

Sampling procedure:So the researcher aimed to focus his study by 138 samples following the calculation above initially. But as the study was done as a part of fourth professional academic research project and there were some limitations, so the researcher had to limit with 28 basketball trainees as sample.

Method of data collection:
Data was collected by using a close ended structured questionnaire. Questionnaire was used because questionnaire is still a very popular and very useful technique of data collection within the health care area. Additionally the aim of the study was to identify the common injuries among basketball players of BKSP. So, it is easier to identify these problems by using questionnaires than any other methods. The strength of structured questionnaire is the ability to collect unambiguous and easy to count answer, leading to quantitative data for analysis. So, structured questionnaire is the most suitable way for data collection.

Data analysis:The result of this survey was consisted of quantitative data. The collected data was illustrated with bar graphs. By this survey a lot of information was collected. All these results gave a basic idea about the characterization of common sports injury among young basketball trainees. The results were calculated in percentages and descriptive statistics were presented, other statistical tests could not be used, as samples were small in number.

Data analysis is the process of systematically arranging and presenting information in order to search for ideas. The aim of the data analysis is to find out the meaning of the collected information. The study used descriptive statistics. Generally descriptive statistics are often used in conjunction with survey methods. However the three most commonly used form of descriptive are: Measure of central tendency and Measure of dispersion, bar graph, histogram, pie chart and frequency polygon. Bar graphs are typically used to present nominal and ordinal data. It presents data in a series of vertical rectangle, with each rectangle representing the number of scores in a particular category.

Informed Consent: Before conducting research with the respondents, it is necessary to gain consent from the subjects. For this study interested subjects were given consent forms and the purpose of the research and consent forms were explained to the subject verbally. They were told that participation is fully voluntary and they have the right to withdraw at any time. They were also told that confidentiality was maintained. Information might be published in any presentations or writing but they were not being identified. The study results might not have any direct effects on them but the members of Physiotherapy population may be benefited from the study in future. They would not be embarrassed by the study. At any time the researcher was available to answer any additional questions in regard to the study.

Results

The purpose of the study was to explore the characterization of sports injury among young basketball trainees. Data were numerically coded and captured in Microsoft Excel to show the result, using an SPSS 16.0 version software program for analyze the data as descriptive statistics. The investigator collected the descriptive data and calculated as descriptive statistics as percentages and presented by using both pie and bar chart. Twenty-eight participants were chosen to estimate the characterization of sports injury among young basketball trainees

Prevalence of injury: Analysis demonstrated that n=26, (92.9%) participants out of 28 participants have injured during basketball training and rest of participants n=2, (7.1%) had no injury during basketball training.
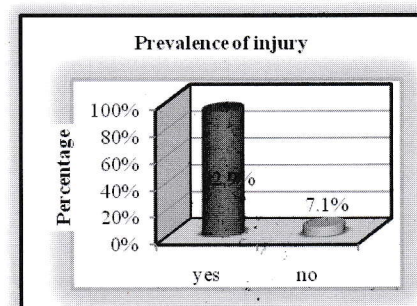

Prevalence of injury

Figure 1: Prevalence of injury

Age group: The mean age of the subjects was 16 years. However, among the 28 participants n= 8 (28.6%) participants were between 12-14 years, n=6 (21.4%) were between 15-16 years, n=14 (50%) were >17 years. Minimum age range was 12 years and maximum age range was 19 years.
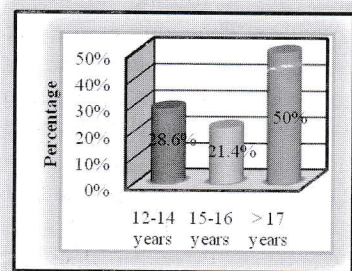

Figure 2: Age group of the participant

Duration of basketball training

Among 28 participants n=10, (35.7%) participant had trained for 0-1 year, n=4, (14.3%) participant had trained for 1-2 years, n=11 (39.3%) participant had trained for 2-5 years, n=3, (10.7%) had trained for >5 years.
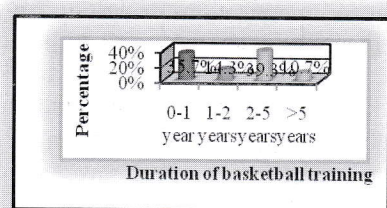

Figure 3: Duration of basketball training

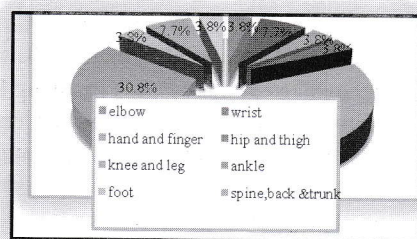Regional injuries of basketball trainees:

Figure 4: Regional injury

Analysis showed that among the 26 players n=1, (3.8%) had elbow injury, n=2, (7.7%) had wrist injury, n=1, (3.8%) hand and finger injury, n=1 (3.8%) had hip and thigh injury, n=10, (38.5%) had knee and leg injury, n=8 (30.8%) had ankle injury, n=1, (3.60%) had foot injury, n=2, (7.7%) had spine, back and trunk injury and n=1, (3.8%) had head and neck injuries.

Types of treatment: Analysis shows that among 26 participants n=12, (46.2%) taken medication, n=3, (11.5%) taken physiotherapy, n=11, (42.3%) taken both medication

and physiotherapy after injury during their basketball training.
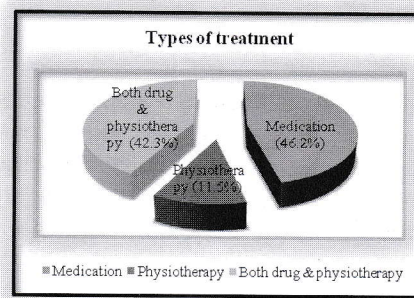

Figure 10: Types of treatment

Discussion:

This study examined the characterization of sports injury among young basketball trainees. This study found that more than three fourth (92.9%) injured during basketball training. This result is comparable to Henry et al, in 1982 at Nigeria that (69%) reported having injury during last year competition. (Meeuwisse et al, 2003) found that 44.7% basketball players had experienced injury in New South Wales. This variation in injury incidence, among published studies depends on the method used for the collection of data, since several authors used retrospective questionnaires and it is very difficult for any athlete to remember with details the injuries that suffered. To avoid this problem in this study investigator recorded the injuries that were sustained by the same participant in one playing season. Moreover, investigator recorded all injuries that could affect the participation of the athlete in at least one training session.

Most frequent age range of participants (50%) has injured from basketball training in more than 17 years followed by (28.4%) participants in between 12-14 years, followed by (21.4%) participant in between 15-16 years. (Messina et al, 1999) showed that 40.5%, 0.47 rates per 1000 people in < 21 years old were injured during basketball playing, in between 15-18 years 30% people were injured during basketball playing and in between 11-14 years old 42% people were injured during basketball playing.

Percipients of BKSP n=10, (35.7%) participant had trained for 0-1 year, n=4, (14.3%) participant had trained for 1-2 years, n=11 (39.3%) participant had trained for 2-5 years, n=3, (10.7%) had trained for >5 years.

Among the 26 players 3.8% (1) had elbow injury, 7.7%(2) had wrist injury, 3.8%(1) hand and finger injury, 3.8%(1) had hip and thigh injury, 38.5%(10) had knee and leg injury, 30.8%(8) had ankle injury, 3.60%(1) had foot injury, 7.7%(2) had spine, back and trunk injury and 3.8%(1) had head and neck injuries. In this study among all injury knee and leg injury have greater percentage (38.5%). According to Deitch et al., (2006), the percentage of knee injury (39%) is higher than the other injury among basketball players.

Percipients of BKSP were mostly affected by direct injury 65.4% (17) and other were affected by indirect/ overuse injury 34.6% (9). Among 26 participants 73.1% (19) had most recurrence of injury about 1-2 times, 23.1% (6) had less recurrence of injury for 3-5 times, rest of participants 3.8%(1) had recurrence of injury >5 times.

Among 26 participants just only near about one fourth 3 (11.5%) had mild type of injury, near about half of two fourth 11 (42.3%) had moderate type of injury and rest of the participants near about half of two fourth 12 (46.2%) had severe type of injury during their basketball training.

In this study among 26 participants mostly 12 (46.2%) taken medication, followed by 11, (42.3%) taken both medication and physiotherapy and just only 3 (11.5%) taken physiotherapy, after injury during their basketball training. Analysis shows that among 26 participants 10 (83.3%) had improvement after receiving medication and rest 2 (16.7%) remain unchanged after receiving medication.

More ever, among 26 participants only 2 (66.7%) had improvement after receiving physiotherapy and rest 1, (33.3%) remain unchanged after receiving physiotherapy? In BKSP among 26 participants mostly 9 (66.7%) had improvement after receiving both medication and physiotherapy and only 2 (33.3%) remain unchanged after receiving both medication and physiotherapy?

The result shows that most of the trainees received medication during their injury period rather than physiotherapy. Most of them had lacking knowledge about physiotherapy and there intervention. Most of the county use physiotherapy for treatment of their injured player during direct or overuse injury, but in our country there is lacked of perception about physiotherapy and we should work on it.

Conclusion

The purpose of the study was to explore the characterization of sports injury among young basketball trainees. Though the research has some limitations but researcher identified some further steps that might be taken for the better accomplishment of further research. For the ensuring of the generalization of the research it is recommended to investigate large sample. In this study researcher only took the basketball trainees from BKSP in Dhaka. So for further study researcher strongly recommended to include the basketball players from all over Bangladesh. Due to limitation of time, investigator was not able to do pilot study. But pilot study is very much important for the validity of questionnaire. For this it is strongly recommended that if any further study done in this area then pilot study should be done to format the questionnaire. Beside this in this study the ratio of male and female participants were unequal. So it is recommended for further study to take the participants equally for comparison of gender and basketball injuries. In this study investigator only identified the percentage of sports injuries among the basketball players, so it is recommended for further study to identify the risk factor of sports injuries among the basketball players

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