REVIEW OF RELATED LITERATURE

Junge (2004) conducted a study: Injuries in Team Sport Tournaments During the 2004 Olympic Games. During the 2004 Olympic Games, injuries in 14 team sport tournaments. After each match, the physician of the participating teams or the official medical representative of the sport completed a standardized injury report form. The mean response rate was 93%. A total of 377 injuries were reported from 456 matches, an incidence of 0.8 injuries per match (95% confidence interval, 0.75–0.91) or 54 injuries per 1000 player matches (95% confidence interval, 49–60). Half of all injuries affected the lower extremity; 24% involved the head or neck. The most prevalent diagnoses were head contusion and ankle sprain. On average, 78% of injuries were caused by contact with another player. However, a significantly higher percentage of noncontact (57%) versus contact injuries (37%) was expected to prevent the player from participating in his or her sport. Significantly more injuries in male players (46%) versus female players (35%) were expected to result in absence from match or training. The incidence, diagnosis, and causes of injuries differed substantially between the team sports. The risk of injury in different team sports can be compared using standardized methodology. Even if the incidence and characteristics of injuries are not identical in all sports, prevention of injury and promotion of fair play are relevant topics for almost all team sports.

Dettori and Norvell (2006) conducted a study Non-Traumatic Bicycle Injuries: A Review of the Literature. Bicycle riding is a popular form of recreation, fitness and transportation in many areas of the world. Traumatic injuries associated with bicycle riding have been documented and intervention strategies have been successful. This has not been the case for non-traumatic injuries. The prevalence of non-traumatic bicycle injuries can be as high as 85%. The most common sites for non-traumatic cycling-related injuries include the knee, neck/shoulder, hands, buttock and perineum. Two categories of injuries that may have the greatest impact on disability include ulnar and median nerve palsy, and erectile dysfunction. Injury prevention strategies have been proposed to reduce non-traumatic injuries but these strategies remain untested.

Pollard and Luo (2006) conducted study on Golf Injuries, the study showed that the low back is the most common injury sustained while playing golf, and the dynamic action of the golf swing is a major contributing factor to injury. The golf swing is a complex movement that
utilises the whole body in a coordinated fashion and when repeated frequently can result in injury. Injury can be overuse or traumatic in nature. Overuse injuries predominate in the professional golfer, and amateur golfer injury tends to occur secondary to an incorrect golf swing. Upper limb injuries are also common due to their role in linking the fast moving golf club with the power-generating torso. Fortunately, injury from a club or ball strike is rare. More common are the overuse injuries associated with the back, neck and shoulder. Most golf injury data have been collected retrospectively and further epidemiological study of a prospective nature is required to determine injury incidence and factor relating to the onset of injury.

Bahr and Bahr (1997) examine the incidence and mechanisms of acute volleyball injuries, with particular reference to possible risk factors for ankle injuries. Coaches and players in the top two divisions of the Norwegian Volleyball Federation were asked to keep records of exposure time and all acute volleyball injuries causing a player to miss at least one playing day during one season. We found 89 injuries among 272 players during 51 588 player hours, 45 837 h of training and 5751 h of match play. The total injury incidence was 1.7k0.2 per 1000 h of play, 1.5? 0.2 during training and 3.520.8 during match play. The ankle (54%) was the most commonly injured region, followed by the lower back (11%), knee (8%), shoulder (8%) and fingers (7%). Of the ankle injuries, 79% were recurrences, and the relative risk of injury was 3.8 (P<0.0001) for previously injured ankles (38 of 232) vs. non-injured ankles (10 of the 234). Moreover, a reinjury was observed in 21 of the 50 ankles that had suffered an ankle sprain within the last 6 months (42.017.0%; risk ratio: 9.8 vs. uninjured ankles; P<0.000001). The data indicate that external supports should be worn for 6-12 months after an ankle sprain and that specific injury prevention programs may be developed for ankle sprains in volleyball.

Malliaras et al. (2007) Abnormal imaging in the patellar tendon reveals pathology that is often associated with knee pain. Anthropometric measures of body size and mass, such as height, weight and waist-to-hip ratio (WHR), have been individually associated with abnormal imaging. The aim of this study was to investigate the anthropometric factors that have the strongest relationship with abnormal imaging in volleyball players. Height, weight, body mass index (BMI), waist girth, hip girth and WHR were measured in a cohort of 113 competitive volleyball players (73 men, 40 women). The univariate (ANOVA) and multivariable (discriminant function analysis) association between abnormal imaging and these anthropometric factors were investigated. No significant association was found in the female volleyball players. A significant
univariate association was observed between abnormal imaging and heavier weight, greater BMI, larger waist and hip girth and larger WHR in the male volleyball players. Waist girth was the only factor that retained this association in a multivariable model (p<0.05). Men with a waist girth greater than 83 cm seem to be at greater risk of developing patellar tendon pathology. There may be both mechanical and biochemical reasons for this increased risk.

Bahr et al. (1997) examine the effects of an injury prevention program, consisting mainly of an injury awareness session, technical training (with emphasis on proper take-off and landing technique for blocking and attacking) and a balance board training program, for players with recurrent sprains. Baseline data were collected during the 1992-93 season and the program was introduced during the 1993-94 season. The 1994-95 season was used to evaluate the effects of the prevention program. The coaches and players in the top two divisions of the Norwegian Volleyball Federation kept monthly records of exposure time and acute injuries (causing a player to miss at least one playing day). total exposure time was 149 968 h, 132 757 h of training and 17 211h of match play during the three seasons. The incidence of ankle injuries was reduced from 0.9k0.1 per 1000 player hours during the 1992-93 season (48 injuries) to 0.7t0.1 during the 1993-94 season (38 injuries; NS vs. 1992-93) and to 0.520.1 during the 1994-95 season (24 injuries, IP<0.01 vs. 1992-93).

Fortes and Carazzato (2008) The purpose of this research is to characterize the most recent ankle sprain episode occurred with volleyball high performance athletes. From January 2003 to March 2004, 114 male athletes from 9 adult category teams of the Special and First Division of São Paulo State Volleyball Championship were included on this study. From the 114 athletes assessed, 21 have reported no ankle sprains, therefore, by following the exclusion criteria, the last 93 episodes of ankle sprain from 93 athletes were assessed. They have been individually interviewed by the researcher, following a pre-established sequence of the questionnaire. A significant difference was found in the correlation between the competition phase and the ankle sprain cause, as well as for the correlation between the athlete’s acting position and the movement made at the injury moment. The opposite position was the most affected and the blocking movement was the one showing the highest incidence of injuries.

Augustsson et al. (2006) examine the prevalence of injury and extent of preventive actions in elite Swedish volleyball players. Injuries to players in the elite male and female Swedish division, during the 2002–2003 season, were registered by using a questionnaire. Of the
158 volleyball players (70% response rate), a total of 82 players (52%) reported 121 injuries, during a total exposure time of 24 632 h, representing an overall incidence of 0.77 injuries per player. The majority of the injuries were located in the ankle (23%), followed by the knee (18%) and the back (15%). Most injuries (62%) were classified as being of minor severity. Most injuries occurred during training (47%), and 41% of the injuries had a gradual onset. Fifty-four percent of the injuries that could be related to a specific court situation occurred during blocking, and 30% during spiking. Most players (96%) participated in injury prevention training of some kind, generally performed without supervision (58%). Although most players took part in some kind of preventive action, one out of two players incurred an injury during the season, which indicates that the risk of suffering an injury in elite volleyball is relatively high.

Khayambashi et al. (2009) investigation was to determine the amount of mental imagery ability in injured and uninjured Iranian professional soccer and volleyball players. Two Iranian soccer premier leagues and two volleyball premier league clubs participated in this study. VVIQ & VMIQ were used to measure the ability of participants’ mental imagery. Also, Fuller's questionnaire [9] was used to evaluate the incidence of the players’ injury. An independent t-test was used to analyze the data. The results of this study revealed that for soccer players, a significant difference existed in the internal imagery ability between injured and uninjured players while no significant difference was found in external mental imagery between injured and uninjured players. For volleyball players, in internal mental imagery ability and external mental imagery, no significant difference was found between the injured and uninjured players. Based on the finding of this study, soccer players with higher internal imagery ability are more prone to injury.

Jadhav et al. (2010) study was to qualitify the injuries of varsity volleyball players and to determine the nature, location, causes, outcome of injuries and the possible risk factors involved. Information on injuries was collected through a questionnaire from members of twelve Indian varsity teams participating in all India Inter Varsity tournament held in Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Maharashtra in December 2007. The age range of the players was 18 to 25 years. 58% of players were in the age range of 22 to 25 years. The volleyball players were asked to recall injuries over the preceding one year period. A total of 121 out of 144 volleyball players sustained injuries. One hundred seventy eight injuries were recorded of which 36% injuries were of recurrent nature. Lower limb injuries were found to be
predominant; the ankle and knee being the most commonly injured anatomical location. Most injuries involved soft tissue and related to the muscle and tendon. Most common circumstances giving rise to injuries were spiking (33.70%), blocking (24.15%), diving (17.41%) and setting (11.23%). It was further observed that volleyball players directly involved in attack or defense were found to be more susceptible to injury. Muscle injuries were observed to be the most common type. Spiking is the most common cause of injuries. The results of the research provide a useful insight into the nature, incidence and sites of injuries in varsity level volleyball players.