

Survey of common injuries among Inter-university Volleyball players

■ HARISH KUMAR TIWARI

Received : 31.03.2012; Revised : 05.06.2012; Accepted : 10.06.2012

■ ABSTRACT

Volleyball has become one of the most widely played sports in the world and, it requires expertise in physical skills and performance which is often dependent on an individual's ability. The incidence of injury in volleyball is similar to the physical contact sports. Though the most common sources of injuries in volleyball may be caused by accidents or by over use. Therefore, the purpose of this study was to find out the common injuries among volleyball players. Total eight hundred inter-university volleyball players age ranging 18 to 25 years were selected as subjects for this study. The essential information regarding injuries was assessed through the questionnaire. The survey method was used to calculate each response to the data with the help of descriptive statistics. On the basis of findings, 83.33 per cent of volleyball players belonging to inter-university were found to have injury during their playing career, 34.8 per cent of the injuries were suffered by the players during default of training. The most commonly injured body parts were ankle (21.6%), followed by knee (19.2%) and back (13.6%). Joint related injuries were most common injury among volleyballers. Sprain and strain were found to be the most frequently occurred injuries among the players, 28.4 per cent of players were found nervous after the injuries, (48.9%) had consulted sport medicine expert. Study has also revealed that 66.4 per cent players went to physiotherapists for the treatment. Maximum (55.2%) of the players taken treatment for two weeks for their injuries, 71.2 per cent players felt satisfied after treatment they received from various experts. On the basis of findings, it can be conclude that majorities of injuries occurred among volleyball players were joints and muscle injuries. The survey has also shown that 83.33 per cent of players got injury in their career and 16.66 per cent players reported without occurrence of any injury.

Author for correspondence :

HARISH KUMAR TIWARI
Lakshmbai National University of
Physical Education, GWALIOR
(M.P.) INDIA
Email: harishvolleyball@
gmail.com

■ **Key Words** : Injury, Volleyball, Volleyball players

■ **How to cite this paper** : Tiwari, Harish Kumar (2012). Survey of common injuries among Inter-university Volleyball players. *Internat. J. Phy. Edu.*, 5 (2) : 114-119.

Volleyball is an excellent all-round team sport and has been widely accepted as a highly competitive game. It has not only developed from a slow moving game into a fast one, but has also become a game of high interest and joy to the players and spectators alike. It is interesting to note that the speed of a powerfully spiked ball in the game of Volleyball is about 45 meters per second which is much faster than the movement of the ball in most other games. The game offers a wider opportunity for the development of strength, speed, endurance, agility, neuro-muscular skills and co-ordination of all parts of the body by the action involved in the game, such as running, jumping, bending, stretching and

other movements. The game situations demand co-ordinate team-work, thereby instilling in every player a sense of personal and group responsibility by his individual performance and his ability to combine with the rest of the team (Reeser Jonathan, 2003).

It is necessary for both the aspiring and the experienced Volleyballer to attain high levels of aerobic and anaerobic fitness, muscular endurance and strength and possess adequate level of flexibility. Sports injuries occur frequently and in large number in Volleyball. These sports injuries are treated by medical personals. Sudden and traumatic injuries may occur in either type of sports. In order to understand the

injury occurrence and recovery process, precautions need to be considered with respect to both physiological and psychological factors. Differences in study design, player population and injury definition between studies of Volleyball injuries; however, make variables such as injury incidence, risk factors and the mechanism of injuries difficult to compare between studies (Parkkari *et al.*, 2001).

Although most Volleyball injury studies have reached similar conclusions regarding the types of injury for which Volleyball players are at risk (Solgard *et al.*, 1995; Aagaard and Jorgensen, 1996; Bahr and Bahr, 1997), the frequency and forms of injury in Volleyball still need to be further investigated to better understand and prevent injuries. Although most Volleyball injury studies have reached similar conclusions regarding the types of injury for which Volleyball players are at risk (Solgard *et al.*, 1995; Aagaard and Jorgensen, 1996; Bahr and Bahr, 1997), the frequency and forms of injury in Volleyball still need to be further investigated to better understand and prevent injuries. Overuse injuries appear to be as common as acute injuries in Volleyball (Aagaard and Jorgensen, 1996). Injury to the shoulder and the knee are the most frequently reported overuse injuries and ankle sprain is the most frequently reported acute injury (Aagaard and Jorgensen, 1996; Bahr and Bahr, 1997; Briner and Kacmar, 1997; Verhagen *et al.*, 2004). According to previous studies, "Jumper's knee" might be successfully treated with intense strength training (Vaneckova *et al.*, 2001) and ankle sprains prevented by attention to technique and balance boarding training (Bahr *et al.*, 1997). That about 15–20 per cent of high-level Volleyball players have experienced rotator cuff pain (Ferretti *et al.*, 1987, 1998). Kugler *et al.* (1996) stated that muscular imbalance could cause shoulder pain in Volleyball attackers and clearly underline the importance of strength and preventive actions (*i.e.* strength and conditioning training, neuromuscular training, plyometrics and technique drills). Furthermore, there are high-forces acting on the lower back in Volleyball, which make well-developed muscular function essential (Schafle, 1993). Taken together, it seems as if Volleyball requires a high level of muscular fitness for optimal performance and to prevent injuries. Although sports injury prevention programmes have gained considerable attention in recent years, the extent to which these programmes are used and the possibilities of preventive measures to prevent sports injuries is not clear (Parkkari *et al.*, 2001).

Furthermore, it has been our observation that studies evaluating the quality (appropriate programme design, proper weight-lifting technique and level of supervision, for example) of, and compliance with, prevention programmes are lacking in the literature. To our knowledge, there are few studies registering injuries and preventive actions in Volleyball players. Volleyball injuries are generally defined as either cumulative (over use) or acute (traumatic) injuries. Overuse injuries occur

over time due to stress on the muscles, joints and soft tissues without proper time for healing. They begin as a small, nagging ache or pain, and can grow into a debilitating injury if they are not treated early. Acute or traumatic injuries on the other hand are caused due to the sudden trauma or twisting of a body part during the execution of a skill or technique of the game. The common Volleyball injuries are - neck injury, shoulder injury, elbow injury, finger injury, wrist injury, thigh injury, back pain, knee injury, ankle injuries, etc.

■ METHODOLOGY

The sample population in this survey comprised total eight hundred inter-university Volleyball players age ranging 18 to 25 years as subjects for this study. The teams were introduced to the survey at the end of the season, through their team coach, scholar and the data were collected retrospectively. Seventy per cent returned the questionnaire 780 (97.5%) A questionnaire was distributed in February 2009. We informed all the coaches about the need to collect the data from all the players, including drop-outs because of an injury. The questionnaire comprised 12 questions. Questions concerning the ability for the player to complete the particular match or training session, and whether the injury resulted in any absence from training and/or matches were also recorded. The injury definition used in the present study was an injury that occurs as a result of participation in Volleyball, forcing the player to leave the court for the rest of the match/training session and/or leading to a reduction in the level of training and/or matches. The definition of injury prevalence and risk of suffering an injury was used in a similar manner in this study. The severity of the injury was graded by the time of absence from training and match participation. The questionnaire was designed by the author (H.K.T.) and preliminary tested on a team that was not included in the study, to obtain views about the design and to achieve face validity. A final version of the questionnaire was then constructed and used in the present study. The skill terminology was thought to be familiar to the players and, as a result, it was not defined in the questionnaire answered by the players.

Statistical technique :

Descriptive statistics (percentile method) was used to calculate each response to the data for the purpose of the present study. Descriptive information of the injuries was based on information gathered from the questionnaire.

■ OBSERVATIONS AND DISCUSSION

The questionnaire comprised of 12 questions covering various aspects of Volleyball injuries and responses of universities Volleyball (men) players. The findings of the present study are presented in different tables.



Table 1 shows that 83.33 per cent of west zone universities Volleyball players got injuries, whereas 16.66 per cent did not get any injury.

Table 1: Question – “Did you suffer from any type of injury?”				
Sr.No.	Total subjects	Response	Frequency	Percentage
1.	780	Yes	650	83.33
2.	780	No	130	16.66

From Table 2, it is evident that 24.8 per cent players injured during competition, 24.8 per cent players injured during normal regular practice, 34.8 per cent players injured during training, 4.8 per cent players injured by the fault of equipment, and 10.8 per cent players injured caused by opponent.

Table 2 : Question – “Under what situation did you suffer injury?”				
Sr. No.	Total subjects	When did injury occur (response)	Frequency	Percentage
1.	650	During competition	161	24.8
2.		During normal regular practice	161	24.8
3.		During training	227	34.8
4.		Default of equipment	31	4.8
5.		Caused by opponent	70	10.8

Table 3 shows that 4.8 per cent players suffered from neck injury, 12 per cent players got shoulder injury, 4.8 per cent players got elbow injury, 3.6 per cent players got wrist injury, 11.2 per cent players suffered finger injury and similarly 13.6 per cent got back injury, 4.4 per cent players got thigh injury, 19.2 per cent players got knee injury, 21.6 player got ankle injuries and 4.8 per cent got only other injury.

Table 3 : Question – “Mention the body part which suffered most injury?”				
Sr. No.	Total subjects	Types of injury	Frequency	Percentage
1.	650	Neck injury	31	4.8
2.		Shoulder injury	78	12
3.		Elbow injury	31	4.8
4.		Wrist injury	23	3.6
5.		Finger injury	73	11.2
6.		Back injury	89	13.6
7.		Thigh injury	29	4.4
8.		Knee injury	125	19.2
9.		Ankle injury	140	21.6
10.		Other injury	31	4.8

Table 4 shows that 30 per cent players got injury because of faulty moves, 28 per cent players suffered because of careless attitude, 14 per cent players injured due to lack of protective gears and 28 per cent players got injury because of overload of training.

Table 4 : Question – “What was the reason of injury?”				
Sr. No.	Total subjects	Reason of injury	Frequency	Percentage
1.	650	Faulty moves	195	30
2.		Careless attitude	182	28
3.		Lack of protective gears	91	14
4.		Overload of training	182	28

Table 5 shows that in 22.8 per cent suffered by muscular injuries, 14.8 per cent players suffered by bone related injury, 43.2 per cent due to by joint related injury, and 19.2 per cent players injured by ligament injury.

Table 5 : Question – “What kind of injuries you suffered most?”				
Sr.No.	Total subjects	suffered most injuries	Frequency	Percentage
1.	650	Muscular	148	22.8
2.		Bone related	96	14.8
3.		Joint related	281	43.2
4.		Ligament	125	19.2

Table 6 shows that 12 per cent Volleyball players suffered by dislocation, 17.6 per cent by fracture, 32.8 per cent by sprain, 30 per cent player by strain and 7.6 per cent players by contusion.

Table 6 : Question – “Did you suffer injuries of following nature?”				
Sr.No.	Total Subjects	Response	Frequency	Percentage
1.	650	Dislocation	78	12.0
2.		Fracture	115	17.6
3.		Sprain	213	32.8
4.		Strain	195	30
5.		Contusion	49	7.6

Table 7 shows that 27.6 per cent Volleyball players lost the practice session for less than one week because of injury, 28.4 per cent players for two weeks, 15.2 per cent players for three weeks, 10.4 per cent players for four weeks and rest 18.4 per cent players for more than one month lost the practice session.

Table 7 : Question – “How many days of practice session did you lose because of injury?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	Less than one week	179	27.6
2.		Two weeks	185	28.4
3.		Three weeks	99	15.2
4.		Four weeks	67	10.4
5.		More than one month	120	18.4

Table 8 shows that 24.4 per cent player's state of mind was depressed, 9.6 per cent players were excited, 6.4 per cent players were confident, 15.2 per cent players were relaxed, 16 per cent players were fearful and 28.4 per cent were nervous.

Table 8 : Question – “What was your state of mind when injured?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	Depressed	159	24.4
2.		Excited	62	9.6
3.		Confident	41	6.4
4.		Relaxed	99	15.2
5.		Fearful	104	16
6.		Nervous	185	28.4

Table 9 reflects that 35.5 per cent players went to general doctor, 48.9 per cent players consulted the sport medicine expert only 4 per cent players consulted the traditional healers and 11.5 per cent players did not consult any one.

Table 9 : Question – “After injury whom have you consulted?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	General doctor	231	35.5
2.		Sport medicine expert	318	48.9
3.		Traditional healers	26	4
4.		No one consulted	75	11.5

Table 10 reflects that 20 per cent players took treatment for one day, 55.2 per cent players for one week and 24.8 per cent players went for treatment for one month.

Table 10 : Question – “For injury how long did you take treatment?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	One day	130	20
2.		One week	359	55.2
3.		One month	161	24.8

Table 11 shows that 66.4 per cent injured players took the physiotherapy treatment and 33.6 per cent players have not taken the physiotherapy treatment.

Table 11 : Question – “Do you undertake physiotherapy treatment and rehabilitation?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	Yes	432	66.4
2.	650	No	218	33.6

Table 12 shows that 71.22 per cent players were satisfied with the treatment and 28.8 per cent players were not satisfied with the treatment.

Table 12 : Question – “Are you satisfied with the treatment you received from the consulted expert?”

Sr. No.	Total subjects	Response	Frequency	Percentage
1.	650	Yes	463	71.2
2.	650	No	187	28.8

Findings of the study relating to the survey of common injuries among inter-universities Volleyball players' 2009 from the responses of the players revealed that 83.33 per cent (mean) Volleyball players were injured, while 16.66 per cent did not get any injury it may be due to that they were not taking part in the game whole heartedly. Present study has shown that during training maximum, 34.8 per cent players got injured which may be because of lack of training knowledge, improper training schedule and lack of good coach.

As related to the body part suffered most injury, the responses obtained for question number 3, the findings have shown that maximum 21.6 per cent players got ankle injuries probably because ankle is a joint which is most frequently used throughout the game so, physical immaturity and rough techniques can also be other factors contributing injuries to this body part.

It was observed that maximum (30%) Volleyball players suffered injuries due to the faulty moves that can be because of unnatural movements, improper learning of the Volleyball skill and playing with improper techniques.

Volleyball is a kind of game in which dynamic movements are involved which gives lot of load to various joints. Responses question no. 5 has shown that maximum (43.2%) players suffered injuries related to the joints. Anything lacking in relation to their strength, flexibility and co-ordination are probably responsible factors for injuries related to the improper training and nutrition which are other factors for to sustaining the injury.

To ascertain the nature of injuries, the responses as

obtained in question no.6 revealed that sprain was sustained by maximum players (32.8%) as it is directly associated with the joints. Injuries that have led to the practice session lost revealed that the players lost the training session's maximum (28.4%) for the duration of two weeks.

Now-a-days Volleyball is more competitive like other games; feeling of insecurity towards the position in team is always there in player's mind especially when they get injured. The responses obtained from question no. 8 have shown that during the period of injury, maximum players (28.4%) felt nervous. After sustaining injuries, the most players (48.9%) had consulted sport medicine expert as reflected in question no.9, maximum 66.4 per cent of the players have received physiotherapist rehabilitation treatment due to the fact that this type of treatment might have been recommended by the other doctors, sports medicine expert or healers apart from the treatment given by the physiotherapist's directly themselves. The reason behind that most of the players (71.2%) were satisfied with the treatment they received for their injuries.

Acknowledgement :

We would like to thank all the Volleyball players and coaches for taking the time to participate in this study.

■ REFERENCES

- Aagaard, H. and Jorgensen, U. (1997).** Injuries in elite Volleyball. *Scand J. Med. Sci. Sports*, 7:228–232.
- Aagaard, H., Scavenius, M. and Jorgensen, U. (1997).** An epidemiological analysis of the injury pattern in indoor and in beach Volleyball. *Internat. J. Sports Med.*, 18: 217–221.
- Bahr, R. and Bahr, I. A. (1997).** Incidence of acute Volleyball injuries: a prospective cohort study of injury mechanisms and risk factors. *Scand. J. Med. Sci. Sports*, 7: 166–171.
- Bahr, R., Lian, O. and Bahr, I.A. (1997).** A twofold reduction in the incidence of acute ankle sprains in Volleyball after the introduction of an injury prevention programme: a prospective cohort study. *Scand. J. Med. Sci. Sports*, 7: 172–177.
- Berquist, Thomson H. (1992).** *Imaging of sports injuries*. An aspen publication, MARYLAND.
- Briner, W.W. Jr. and Kacmar L. (1997).** Common injuries in Volleyball. Mechanisms of injury, revention and rehabilitation. *Sports Med.*, 24: 65–71.
- Frank, J.G. Back (1989).** Sports injuries in School Aged Children. *The American J.Sports Medicine*, 17 (2):234-238.
- Ferretti, A., Cerullo, G. and Russo, G. (1987).** Suprascapular neuropathy in Volleyball players. *J. Bone Jt. Surg.*, 69(A): 260–263.
- Ferretti, A., De, Carli, A. and Fontana, M. (1998).** Injury of the suprascapular nerve at the spinoglenoid notch. The natural history of infraspinatus atrophy in Volleyball players. *American J. Sports Med.*, 26: 759–763.
- Gee, S. Min. (1975).** *The Sports Book*. Rinenair and Winston, NEW YORK (U.S.A.).
- Jayaprakash, C.S. (2002).** Sports publication,” (Jaypee Publication, NEW DELHI, INDIA.
- John, P., Albright and John, Powell, W. (1994).** Medical Collateral Ligament Knee Sprains in College football. *American J. Sports Medicine*, 22(1): 12-16.
- Korne, K., Neilson, A.B. and Jakobsen, B.W. (1990).** Badminton Injuries. *British J.Sports Medicine*, 24: 169-173.
- Kraemer, W.J. and Ratamess, N.A. (2004).** Fundamentals of resistance training: progression and exercise prescription. *Med. Sci Sports Exerc*, 36: 674–688.
- Kraemer, W.J., Ratamess, N.A. and French, D.N. (2002b).** Resistance training for health and performance. *Curr. Sports Med. Rep.*, 1: 165–171.
- Kugler, A., Kruger-Franke, M., Reininger, S., Trouillier, H.H. and Rosemeyer, B. (1996).** Muscular imbalance and shoulder pain in Volleyball attackers. *British J. Sports Med.*, 30: 256–259.
- Parkkari, J., Kujala, U.M. and Kannus, P. (2001).** Is it possible to prevent sports injuries? Review of controlled clinical trials and recommendations for future work. *Sports Med.*, 31: 985–995.
- Pekka Kanus (1989).** Non-operative of Grade and Sprains of the Lateral Ligament Compartment of the knee. *American J. Sports Medicine*, 17:1-6.
- Ranganathan, P.P. (2000).** *Volleyball: A guide to playing and coaching*. Friend Publication, NEW DELHI, INDIA.
- Reeser, Jonathan C. (2003).** *Volleyball: Hand book of sports medicine and science*. Blackbell Publication, U.K. P-1-7, 81-149.
- Richard, D.Hawkins, Colin, M. Fuller (1998).** A preliminary assessment of professional footballers awareness of injury prevention strategies. *British J. Sports Medicine*, 32 :140-141.
- Sagar, S.K. (1994).** *Play better Volleyball*. (Sports Publication, NEW DELHI, 10-21 pp.
- Schafle, M.D. (1993).** Common injuries in Volleyball. Treatment, prevention and ehabilitation. *Sports Med.*, 16: 126–129.
- Solgard, L., Nielsen, A.B., Moller-Madsen, B., Jacobsen, B.W., Yde, J. and Jensen, J. (1995).** Volleyball injuries presenting in casualty: a prospective study. *British J. Sports Med.*, 29: 200–204.
- Vaneckova, M., Ost’adal, M., Seidl, Z., Podskubka, A., Obenberger, J., Vitak, I. and Danes, J. (2001).** Jumper’s knee: diagnosis, surgical treatment and return to high level performance within three months. *Euro. J. Sports Traum Rel. Res.*, 23: 179–182.
- Verhagen, E., Van der Beek, A., Bouter, L., Bahr, R., Van Mechelen, W. A. (2004).** One season prospective cohort study of Volleyball injuries. *British J. Sports Med.*, 38: 477–481.
- Y.P.C., Lo and S.R.P. (1990).** Epidemiology of shoulder impingement in upper arm sports events. *British J. Sports Medicine*, 24 (3): 173-177.

■ WEBLIOGRAPHY

Augustsson, S.R. (2006). Injuries and preventive actions in elite Swedish Volleyball ,”pubmed.com, retrieved on 10th December 2008, from the World Wide [http://www.ncbi.nlm.nih.gov/pubmed/17121646? log\\$=activity](http://www.ncbi.nlm.nih.gov/pubmed/17121646?log$=activity)

Kugler, A. (1994). Chronic shoulder pain in the Volleyball attack player. pubmed.com, retrieved on 29th December 2008, from the World Wide Web [http://www.ncbi.nlm.nih.gov/pubmed/7855723? log\\$ =activity](http://www.ncbi.nlm.nih.gov/pubmed/7855723?log$=activity)

Richards, D.P., Ajemian, S.V., Wiley, J.P. and Zernicke, R.F.(1996). Knee joint dynamics predict patellar tendinitis in elite Volleyball players. “pubmed.com, retrieved on 21th December 2008, from the World Wide Web [http://www.ncbi.nlm.nih.gov/pubmed/8883692?log\\$=activity](http://www.ncbi.nlm.nih.gov/pubmed/8883692?log$=activity).

Schafle, M.D. (1990). Injuries in the 1987 National Amateur Volleyball Tournament.” pubmed.com, retrieved on 04th December 2008, from the World Wide Web [http://www.ncbi.nlm.nih.gov/pub med/ 2126673?log\\$=activit.\].](http://www.ncbi.nlm.nih.gov/pubmed/2126673?log$=activit.)
