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Injury Profile in state level inter university sports competition

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Abstract: *Sports injuries can affect significantly to the health and well-being of young athletes which can lead to indirect declination of their career progress. To minimize these injury effects, a development of appropriate injury-prevention strategies based on well-defined epidemiological data is a moral necessity.*
In this study conducted during a state level inter university sports competition, all sports related injuries were recorded on structured injury report form. Around 427 (20.12%) of the registered 2122 participants were injured in this competition. The maximum injuries occurred in Athletic events (33.96%), followed by Kabaddi (27.63%), Kho-Kho (24.36%) and Volleyball (13.58%) respectively. Minimum injuries (0.47%) occurred in Basketball. Maximum injuries occupied the lower part of the body.
Maximum injuries occurred in athletics and contact sports such as Kho Kho, and Kabaddi. Sufficient investment in medical and conditioning expertise and facilities will prove beneficial in reducing the incidence and prevalence of injury in the games.
Key Works: *Sports Injury, Indian games, Injury Prevention*

I. Introduction

Injury means any physical complaint sustained by a player that results from a particular match or training period and Medical attention refers to an assessment of a player's medical condition by a qualified medical practitioner.[1] Sports injuries are caused by overuse, direct impact, or the application of force that is greater than the body part can structurally withstand. Common injuries include bruises, sprains, strains, joint injuries and nose bleeds.

Sports injuries can affect significantly to the health and well-being of young athletes which can lead to indirect declination of their career progress. To minimize these injury effects, a development of appropriate injury-prevention strategies based on well-defined epidemiological data is a moral necessity. The data can be achieved from various sport competitions like state, national and international competitions. These injuries require not only a multidisciplinary approach towards their treatment but also sports injury prevention tasks in utmost cases.

Keeping in mind the above need of the nation, providing integrated diagnostic, surgical and rehabilitative services under one roof for the sports persons, Indian government launched "Sports Injury Centre (SIC)" at par with international standards.

Previously, a four stage process for the prevention of sports injuries was quoted by Van Mechelen (Van et al., 1992). These stages are:

1. Identification and description of the nature and extent of the problem
2. Identification of factors and mechanisms involved in their occurrence
3. Introduction of measures for reducing future risk and for severity and
4. Evaluation of interventions [2].

These stages were modified by Van Tiggelen and his team. They incorporated additional steps those enable the inclusion of external factors with a significant effect on the outcome of a prevention intervention. This expansion of Van Mechelen's model leads to a more global model in which the compliance level and risk-taking behavior of the individual and the assessment of efficiency of the stakeholders have a key influence on the preventive measure [3]. However, the implementation of this model has some limitations in determining the success of a preventive measure for the Indian traditional games like Kho-Kho, Kabaddi, etc.

A modified methodology has therefore been proposed by inclusion of additional steps which can significantly overcome these problems. To develop the modified preventive strategies for such games in India, a cross sectional study was designed to carry out in state level inter university sports competition.

II. General injuries during the sport events

1. **Kabaddi**: Kabddi , contact sport between two groups ,calls for agility, good lung capacity, muscular co-ordination, presence of mind and quick responses. There is a vast possibility of injury to the raider or any of

the opponents. Knee joint injury, ankle injury, sprain, skull injury are the common injuries found in this contact sport.

2. **Kho-Kho:** KhoKho is a tag sport played by teams of twelve players who try to avoid being touched by members of the opposing team, only 9 players of the team enter the field [4]. Kho-kho teaches how to craft strategies and it prepares players for intense physical activity and stamina[5].Khokho consist of running, quick movements, critical jump, and stretching styles which can lead to knee joint injury, ankle injury, sprain, skull injury, abdominal injury, etc.
3. **Athletics**: Athletics contests in running, walking, jumping, and throwing are among the oldest of all sports and their roots are prehistoric[6]. The most common types of athletics competitions are track and field, road running, cross country running, and race walking. Muscle injuries, sprain, ankle injuries are the common injuries found in many cases of athletic competitions.
4. **Volleyball**: Volleyball is a team sport in which two teams of six players are separated by a net. Each team tries to score points by grounding a ball on the other team's court under organized rules [7]. Wrist injury, finger injury, vertebral injury, sprain are the major injuries found in many cases of volleyball competition.
5. **Basketball:** Basketball is a sport played by two teams of five players on a rectangular court. Basketball is one of the world's most popular and widely viewed sports[8]. Finger injury, vertebral injury, sprain, neck injury are the major injuries found in many cases of basketball competition.

At present, there are no references of sport injury data at state level competition in India. This data can be analyzed to advantage to the government and society for planning future sporting events, sports injury prevention research, medico – legal purposes, Planning medical treatment and resources for sports events.

This study describes the frequency, pattern and causes of injuries occurring during 4 days of a state level inter university sports competition.

III. Methods

Total 2122 participants from 19 universities across the Maharashtra state were involved in sports events like Athletics, Volley Ball, Basketball, Kabaddi, Kho-Kho, etc. An injury report form was developed for data collection as quoted by Finch and his team [9], [10] was given to each member of medical coverage team.

Medical treatment personnel were received training in data collection procedures before injury watch activities initiate at four grounds and asked to report daily all newly occurred injuries on standardized injury report form. Sporting event organizers and medical treatment personnel were kept informed of the results of the injury observation activities, as this is one of the most powerful stimulants for them to collect data. The coverage of participants and of injuries was assessed and data were analyzed using MS Excel.

IV. Results

A total of 427 (20.12%) injuries among registered 2122 participants were reported during 4 days state level competition, Krida Mahotsava-2013.

Table 1: Frequency of injuries in sport events

Name of Sport/ Event	No. of injuries	%
Athletics	145	33.96
Kabaddi	118	27.63
Kho-Kho	104	24.36
Volley Ball	58	13.58
Basketball	2	0.47
Total	427	100%

Table 2: Nature of injuries

Nature of injuries	No. of injuries	%
Wound/Bruise	259	60.66
Sprain	140	32.79
Inflammation	11	2.58
Giddiness/Weakness	10	2.34
Wound Infection	5	1.17
Laceration	1	0.23
Fracture	1	0.23
Internal injury	0	0
Dental injury	0	0
Total	427	100

Table 3: Treatment on injuries

Treatment given	No. of patients	%
Medication	241	56.44
Strapping/ taping	67	15.70
Dressing	106	24.82
Tertiary Centre referral	6	1.41
Suturing	4	0.94
Plastering	1	0.23
Sling	2	0.46
Total	427	100

Table 4: Relative distribution of sports injuries by type and location (both sexes).

Injured region	No. of patients	%
Lower limb (Thigh, Knee, Ankle, Foot)	361	86.57
Upper limb (Upper arm, Lower arm, Finger)	39	9.35
Trunk	09	2.16
Head (Face, Ear)	08	1.92
Total	417	100

V. Discussion

Maintaining health records at sport events presents a challenge to medical organizing committees. Accurate data collection is important, not only for planning of medical services, but also for development of prevention programs and policies relating to player's health. Around 20.12% of the registered 2122 participants were injured in this competition which is higher as compared to the Junge's study (Junge et al., 2008).Results of Junge's study regarding prospective recordings of injuries in 2008 revealed an incidence of 96.1 injuries per 1000 registered athletes. This study indicates that there was a lower injury rate (below 10%) in during Summer Olympic Games 2008, than the injuries in Krida Mahotsava 2013 **[11].**

The maximum injuries occurred in Athletic events (33.96%), followed by contact sports Kabaddi (27.63%), Kho-Kho (24.36%). highest number of players came with wounds and/or bruise, followed by sprain involving lower parts of body .As sports turned to be a more antagonistic in nature, the level of sports injuries is emanated in numbers and complexity. This explains the findings in our study. Effective prevention measures for these types of Indian games should be based on an understanding of the inherent nature of the activity or sport, to its players or participants and the external environment.

The majority of sport injuries treated during this survey were relatively mild and required simple forms of treatment only a small proportion of injuries(1.41%) needed more extensive treatment enough to require referral to a tertiary medical centre.

However, as this study was a cross sectional prevention survey, it involves one medical centre at Maharashtra police academy ground area for limited time periods, the generalizability of the results of this study to the wider range of community might not be achieved.

VI. Conclusion

Maximum injuries occurred in athletics and contact sports such as Kho Kho, and Kabaddi. Sufficient investment in medical and conditioning expertise and facilities will prove beneficial in reducing the incidence and prevalence of injury in the games.

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