

# Awareness about Spinal Cord Injuries among School Athletes of Kandy Educational Zone, Sri Lanka

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**Abstract-**Spinal cord injuries (SCI) are most commonly resulting from road traffic accidents, falling from a height, high velocity crashes and certain types of sports accidents. Even though sport related SCI is rare, still it carries a high rate of mortality and morbidity which limits the day-today and sport activities of the athlete because of the altered quality of life that often accompanies such an injury.

In this research, the focus is to evaluate the awareness about SCI among school athletes. Self-administered questionnaires were distributed among 243 school athletes (12-20years) of both genders (males-50.2%, females-49.8%) in 10 schools in Kandy educational zone in Central Sri Lanka. Responses for the questionnaires were analyzed to determine the knowledge regarding anatomy, etiology and clinical features of SCI as well as handling and transferring techniques of an athlete with SCI.

**Index Terms-**spinal cord injuries, sport injuries, school athletes, injury awareness

## I. INTRODUCTION

Spinal cord injury is defined as the occurrence of an acute traumatic lesion of neural elements in the spinal canal (spinal cord and cauda-equina), resulting in temporary or permanent sensory and/or motor deficit. These patients may complain of pain in the neck or back, often radiating because of nerve root irritation. Other than that they may have sensory disturbance distal to neurological level as well as weakness or flaccid paralysis below this level (Grundy, D. et al. 2002).

Spinal cord lesion can be either complete or incomplete. If the lesion is complete from the beginning, recovery is far less likely than in an incomplete lesion. There are recognized patterns of incomplete lesions, and variations of these may present in the emergency department. Those patterns of incomplete lesions can either be recognized as anterior cord syndrome, posterior cord syndrome, central cord syndrome, brown cord syndrome, conus medullaris syndrome or Cauda equina syndrome (Figure 1).

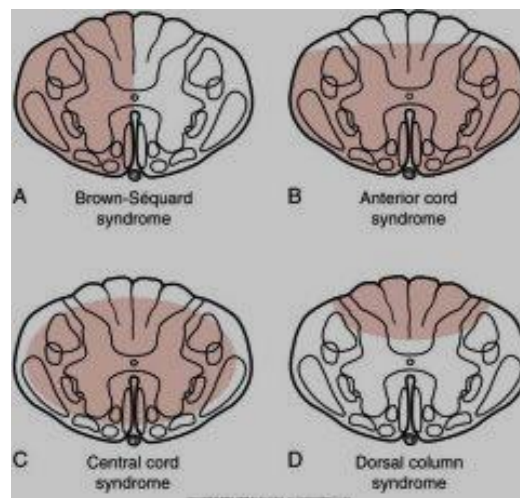


Figure 2 – Cross section of the spinal cord, showing partial spinal cord injury syndromes

SCIs are most commonly resulting from road traffic accidents. Falls from a height, high velocity crashes (Luke, A. and Micheli, L. 1999) and certain types of sports accidents (e.g. diving into shallow water, collapse of a rugby scrum) may also cause SCI (Grundy, D. et al. 2002).

Though prevalence of spinal cord injury while engaging with sport was less, still it carries mortality and morbidity which limits the day-today and sport activities of the athlete (Bailes, J. E. et al., 2007). Therefore, such injury warrants continued attention because of the altered quality of life. Apart from the high cost associated with treatments and rehabilitation, these injuries may cause significant burden to family and community (Illis, L. S, 2004). Many athletes start their sports careers at school age and hence, studying the awareness of spinal cord injuries among school players is timely.

In such injuries, although the effect of the initial trauma is irreversible, the spinal cord is at risk from further injury by injudicious early management (Hughes, R. N. 2003). Therefore, the emergency services such as proper handling and transferring must be established.

It is important to gather data from the spinal cord injury related risk groups and affected groups in order to evaluate the awareness level of them about the condition. Data collection,

analysis and interpretation play an important role in strategies of prevention of injuries. Hence data on injuries, circumstances and the chain of events leading to accidents is thus a key component in the implementation of a prevention policy. But data collection tools are not sufficiently focused on spinal cord injury accidents (Guidelines for prevention of Spinal cord injuries of Asian Spinal Cord Network, 2008).

In this research, the focus was to evaluate the awareness about spinal cord injuries among school athletes. Results of this research can be utilized by injury prevention policy makers, researchers, health sector of the country, athletes and the community.

## II. MATERIALS AND METHODS

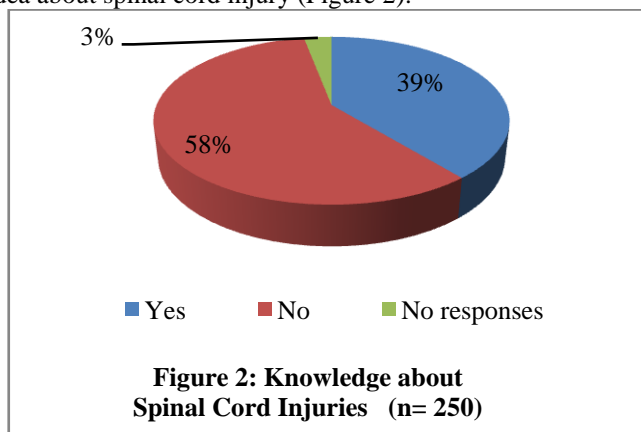
Ten schools from Kandy educational zone (located in Central Sri Lanka) were randomly selected from a list of schools provided by the authorities. From each school, 25 students were randomly selected among those who are involved in various sports activities. Pre-tested self-administered questionnaires were distributed among those 250 athletes (age range: 12-20 years) of both genders (males-50.2%, females-49.8%) after obtaining verbal consent. (For minors, consent was obtained from the parents). Ethical clearance was obtained from the Ethical Review Committee, Faculty of Medicine, University of Peradeniya, Sri Lanka.

First, students were inquired whether they knew what spinal cord injury was or not. "Yes" Responses were then assessed to determine whether their knowledge and awareness was on anatomy of the spinal cord injury, etiology of spinal cord injuries, handling and transferring techniques of a spinal cord injured athlete or clinical features of the spinal cord injuries.

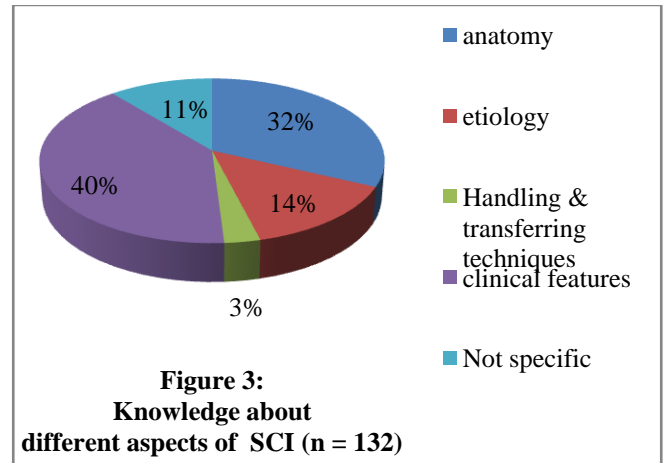
Answers in each category were further analyzed to evaluate the accuracy of their knowledge and to identify the myths regarding spinal cord injuries.

## III. RESULTS AND DISCUSSION

From total 250 questionnaires 7(3%) were excluded as they included unclear responses. 145(58%) of school athletes had no idea about spinal cord injury (Figure 2).



One hundred thirty two responses of the 98(39%) students who claimed to have some awareness of spinal cord injuries were categorized according to their knowledge regarding different aspects of SCIs (anatomy, etiology, handling and transferring techniques and clinical features) as shown in the Figure 3 below.



However, further analysis of responses for accuracy revealed that only a small percentage of the total sample (269 responses in 243 questionnaires) possessed accurate knowledge regarding different aspects of SCI (Table I).

**Table I: Accuracy of knowledge regarding SCI (total sample)**

Category	Number of total responses (out of 269 responses)	Number of correct responses (out of 269 responses)	% of athletes with accurate knowledge
Anatomy of SCI	42	15	5.58%
Etiology of SCI	18	15	5.58%
handling / transferring techniques of SCI patients	4	4	1.49%
clinical features of SCI	53	49	18.21%

More than half of the students (58%) had no idea what spinal cord injury was. Even among the 39% who claimed to have some knowledge about the subject, only a few were aware of accurate facts.

Awareness regarding anatomy of spinal cord injuries was very poor and so as the knowledge regarding etiology and clinical features of SCIs. However, the responses given in relation to handling and transferring techniques of an injured athlete were mostly accurate. Out of all responses, only 30.86% indicated accurate facts regarding SCI.

#### IV. CONCLUSION

Although this study was limited to a smaller geographical area, the results suggest that the awareness of spinal cord injuries was inadequate among school athletes.

Further studies with wider population should be conducted in relation to this issue and assessing the need of programmes to raise the awareness of the community including the groups at high risk of SCI.

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