

# Awareness on Acute Knee Soft Tissue Injury Management among Rugby Players

TD Dissanayaka<sup>1</sup>, AJB Rathnayaka<sup>2</sup>

<sup>1</sup>Department of Physiotherapy, Faculty of Allied Health sciences, University of Peradeniya, Sri Lanka  
<sup>2</sup>Sport Physician, Teaching Hospital, Peradeniya, Sri Lanka

**Abstract-** Knee soft tissue injuries are more common among rugby players. Thus this study aimed to assess the awareness on acute soft tissue injury management using PRICE principle among rugby players in Kandy zone. A retrospective whole population survey was conducted among under 17 and 19 school level rugby players who had undergone knee soft tissue injuries in Kandy zone, Sri Lanka. A self-administered questionnaire which was developed according to the PRICE principle on acute soft tissue injury management was used as the data collection tool. A total of 45 rugby players in seven rugby playing schools in Kandy zone were participated the study. According to the results none of the players followed the PRICE principle correctly to manage acute soft tissue injuries. Even the players not following all the five components of PRICE principle accurately, they have followed each component separately, such as protection (75%), rest (57%), ice (37%), compression (60%) and elevation (8%). This study identified that 40% got recurrent injuries and 38% of players missed at least one match due to inappropriate soft tissue injury management. In conclusion, the results of this study showed, the lack of awareness on use of the PRICE principle for knee soft tissue injury management which should be adapted by the Kandy zone school level rugby players in Sri Lanka.

**Index Terms-** Awareness, acute, soft tissue injury, PRICE principle

## I. INTRODUCTION

Rugby is an intense sport, consisting of both running play and contact play. Playing rugby appears to impose both psychological and physiological stress on the players. In fact, the incidence of injury during a rugby match is high compared with other sports [1]. The lower limb injuries are more common among rugby players; other than that, upper limb, neck and head in varying order [2].

Rugby is a famous sport in Sri Lanka. At present, rugby is very popular in Kandy, which has the best club level team in the Island [3]. As a school sport, rugby rates high than other sports. In the history of school rugby, Kingswood College, Kandy, was the first school that initiate school rugby in Sri Lanka. Later, Trinity, from Kandy was also initiate rugby and the first match between these two schools was played in 1906 [4]. At present, many schools are playing rugby in this area and most of the schools are boys' schools. At the same time, these schools are the main source of club level and national level players in this country.

As a sport, rugby boasts at most injuries at school level that the age from 11-18 categories [5]. It contributes to most injuries of the knee [6] that consists of soft tissues, such as muscles, ligaments, tendons and menisci [7]. In sports, these soft tissues can undergo sprain, strain, damage to cartilage and overuse [8]. Mainly muscle and ligament injuries are more common during matches and training [9], and the main cause of injury to the knee being the tackle, due to hit forcibly by other players [10].

The players in rugby are wealthy and socially well recognized. Due to the lack of aware about early rehabilitation program after an injury to knee, they can suffer from a lifelong disability. In addition to that, it may prevent injured from playing rugby or other sports. Thus, in the acute stage, it is essential to begin the effective PRICE principle as soon as possible. Here, "P" stands for Protection, "R" for Rest, "I" for Ice, "C" for Compression and "E" for Elevation. The goal of the protection and rest is to avoid further injury and reduce the blood supply to injured area which has a high blood flow during the activity [11]. In this case it is necessary to ensure: normal range of motion, normal strength, normal neuromuscular function and normal aerobic capacity to minimize economic, social, physical and psychological problems to the player. Therefore, after an injury, it is essential to begin PRICE principle. Thus this study was to assess the awareness of acute soft tissue injury management using PRICE principle.

## II. METHOD

### Instrumentation

A retrospective survey was implemented in this study. A self-administered questionnaire which contained three parts, (parts A, B and C) was used for the data collection. Part A and C consisted of additional items of the students including gender, grade, school and about the number of matches missed. Part B consisted of five close ended questions to identifying application of PRICE principle in acute soft tissue injury management. Pre-test was carried out among ten players to refine the final instrument.

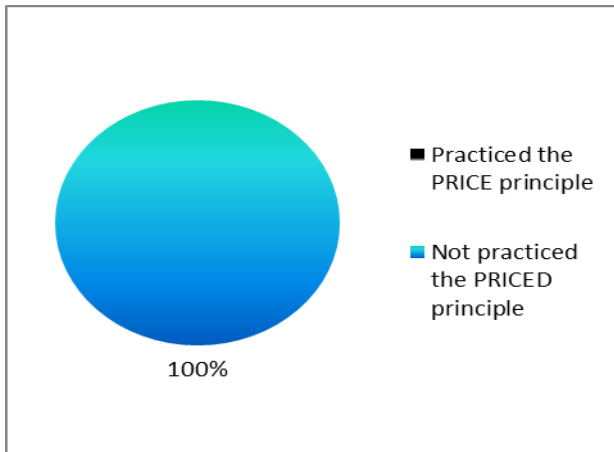
### Participants and procedure

Under 17 and 19 years old school level rugby players who have under gone knee soft tissue injury in the Kandy zone were participated in this study. Rugby players in seven schools were selected as the population of this study. All the data were collected from October to November 2010. Each player was given information about the project and invited to participate. Those choosing to do so were required to provide written

informed consent and complete the questionnaire anonymously. The questionnaire was self-administered, with physiotherapists available to answer questions and assist where necessary. Each subject was given a questionnaire to fill within the given time. They were asked to put a 'x' mark in the relevant boxes

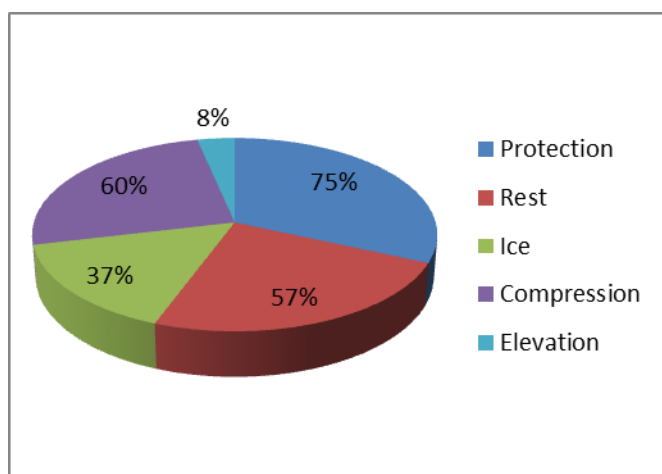
### III. RESULTS

According to the study, 45 players who had undergone knee soft tissue injury could be found. During the acute stage none of the players were sticking on the all the steps in the PRICE principle (Fig 1).



**Fig 1: Percentage of implementation of PRICE principle in acute stage**

Even if the players were not following all the five components of acute stage accurately, they have followed each component separately, for instance protection (75%), rest (57%), ice (37%), compression (60%) and elevation (8%) (Fig 2).



**Fig 2: Implementation of PRICE**

The study identified that the 40% of the players have got recurrent injuries and 38% of players missed at least one match due to the injury.

### IV. DISCUSSION

Soft tissue refers to tissues that connect, support or surround other structures and organs of the body. This may include muscles, tendons, ligaments, fascia, nerves, fibrous tissues, fat, blood vessels and synovial membranes. Generally soft tissue injury involves sprain, strain or direct blow to the muscle, tendon or a ligament. The time period of initial 48-72 hours after a soft tissue injury called as acute soft tissue injury [12]. Repetitive motions and overuse can cause a higher level of scar tissue and stresses the alignment of the body. Ignoring imbalances and pain can put your body into a never ending injury cycle. In order to successfully recover from an injury or to alleviate pain from overuses, the body needs to restore its proper balances and the scar tissue eliminated from the injured tissues [13]. Therefore the rehabilitation plays a major role in this issue to bring the patient back to the desired activity level. Hence, it is necessary to eliminate pain and reestablish range of motion, and coordination, while avoiding the loss of muscle strength and endurance, during the period the athlete cannot train maximally [11]. To the best of our knowledge, this study is the first to assess the implementation of PRICE principle in acute soft tissue injury management in Sri Lanka.

It is important to manage an injury immediately. The goal of acute treatment for acute injuries is to limit internal bleeding as much as possible and prevent or relieve pain, in order to improve conditions for subsequent treatment and healing of the injury. Measures to limit bleeding after an acute injury have traditionally been called ICE therapy an acronym for Ice (cooling), compression (with a pressure bandage), and Elevation (of the injured part of the body). Recently this acronym has been expanded to PRICE, with "P" standing for protection and "R" for Rest. The PRICE principle has become well established [11]. It is recommended that treatment be started as soon as possible after a quick preliminary examination to rule out major dislocations or fractures and to determine which area requires treatment. Later, a more detailed examination can be made. To be effective, PRICE treatment must begin as soon as possible after an injury and must continue for 2 days to reduce bleeding and plasma exudation. In this study, the percentage of implementation of PRICE principle to manage acute soft tissue injuries is zero.

A previous study on pattern and management of sports injuries at national sports festival in Nigeria revealed that cryotherapy and bandaging (form of compression) were the most frequently used treatment modalities during the games. In addition to that, it had concentrated on importance of cryotherapy. It is emphasized that it should be made abundantly available in the form of portable cold spray for easy transportation and application during the game [14]. As the above study was concerned about I-Ice; C-compression and R-rest as other issues of PRICE principle. In addition to that all five components should be fulfilled in equal proportion. Even though they have followed each component separately, the present study is concerned about not only on the usage of each component of PRICE, but also on the correct technique and way of usage of them. The result zero means school level rugby players do not apply PRICE principle in the accurate and efficient manner after having an injury.

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## AUTHORS

**First Author** – T. D. Dissanayaka, Department of Physiotherapy, faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka, [thushfhs@yahoo.com](mailto:thushfhs@yahoo.com)  
**Second Author** – A. J. B. Rathnayaka, Sport Physician, Teaching Hospital, Peradeniya, Sri Lanka, [aselajbr1974@yahoo.com](mailto:aselajbr1974@yahoo.com)

**Correspondence Author** – T. D. Dissanayaka, Department of Physiotherapy, Faculty of Allied health Sciences, University of Peradeniya, Sri Lanka, Email: [thushfhs@yahoo.com](mailto:thushfhs@yahoo.com), Tel no: 094716305852