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## Assessing the level of knowledge on the morphology and causes of ankle injury among adolescent boys football players in Njala town

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### Abstract

The research assessed the knowledge of adolescent boys; football players in Njala town, southern Sierra Leone on the morphology and causes of ankle injury. Fifty boys, who were adolescents school footballers participated in the research. All the players were given a questionnaire to complete.

The function of the ankle in the human anatomy cannot be overemphasized; it helps to support the whole weight of the body and is thus quite prone to injury. The players were asked about their knowledge of ankle morphology and injury against the background of ankle injury being more common in football. The study revealed that pupils could not clearly identify the morphology, suitability of the ankle and causes for ankle injury in football.

Tripping or falling, landing awkwardly after a jump from heading a ball, walking or running on uneven football pitches, twisting or rotating the ankle, rolling the ankle and unsuitable footwear were identified as causes for ankle injury. Home treatment, taping, surgery and proprioception were identified as possible treatments for ankle injury.

Demographic data and data for knowledge of ankle morphology and injury were entered into the SPSS software and analyzed using descriptive statistics and bivariate correlation.

It was observed that the players had a moderate knowledge of ankle morphology and its injury. It was recommended that players learn about sport injuries by attending sport medicine and first aid courses or seminars, perform warm up exercises before any game, land with their knees bent after a jump, cool down after rigorous training, play on soft surfaces like turfs, wear shoes that fit properly and absorb shock.

**Keywords:** Assess, knowledge, morphology, ankle injury, adolescent

### 1. Introduction

Soccer injuries are driven by several factors, such as, physical and the lack and/or improper physical preparation, as well as the violence and harsh playing style of opponents and other factors that include the lack of awareness on injury prevention<sup>[1]</sup>. Football is associated with relatively high incidences of injury. To ensure the health and safety of young footballers, efforts must be made to prevent and control injuries<sup>[3]</sup>. This can only be done when the players themselves have adequate knowledge of the injuries involved and the morphology of the injured area.

Most sports are associated with a risk of injury for players at both competitive and recreational level for which football is no exception. Soccer is associated with a certain risk of injury for players both at the competitive and recreational level<sup>[2]</sup>.

It is crucial that adolescents engaged in sport should have adequate knowledge of the factors that can cause injuries, as well as to those that play a part in preventing them. Players need to have knowledge of both the physiological and psychological mechanisms of injury in terms of occurrence, treatment and subsequent rehabilitation. Knowledge acquisition typically refers to the process of acquiring, processing, understanding, and recalling information through one of a number of methods<sup>[4]</sup>. The schools, parents, coaches and medical practitioners have a high stake in this process so that players would be well informed and are able to take precautions in their daily training activities.

Adolescent age is a period of life spanning the age between 10-19 years and it is a period of rapid development and growth including major physical changes in both the sexes leading

towards maturity<sup>[9]</sup>. Concepts are learned at this stage in the child's development. Thus they need to be adequately informed about issues bordering on their football career development. It is well known that across all sports the most common location of injury is the ankle. It has been estimated that about 25% of all injuries across all sports are ankle injuries<sup>[7]</sup>.

The ankle withstands the impact of running, twisting, pushing off and landing. The faster the movement of the player, the more important is the balancing act and proprioceptive function of the ankle. Nearly half of all ankle sprains are sport-related (occurring during athletic activity). When considering individual sports, basketball is most commonly associated with ankle sprain. Football and running are also among the most common athletic activities which cause an ankle sprain<sup>[8]</sup>. Despite the frequency of ankle sprain, the injury is often erroneously considered to be inconsequential<sup>[5]</sup>.

There is a high risk of injury associated with playing football, particularly to ankles which are exposed to the risk of injury with greater frequency than other parts of the body. Regardless of how careful a player is and how well he and his teammates follow safety regulations it is virtually inevitable that at some point in time during the footballer's career he is going to suffer from a sports related injury<sup>[1]</sup>.

The foot is, without doubt, important in many sports. During running, the forces applied to the foot are great. The foot is often divided into the rear foot, mid-foot and forefoot regions. Its bones are arranged in two arches, the longitudinal and transverse; the latter formed by the metatarsal bones and associated plantar ligaments.

An ankle is where three bones meet; the tibia and fibula of the lower leg with the talus of the foot. These bones are held together at the ankle joint by ligaments, which are strong elastic bands of connective tissue that keep the bones in place while allowing normal ankle motion. This description of the ankle is crucial for players to learn.

Medially, are the medial (deltoid) ligament and laterally, and three separate lateral ligaments. So the lateral ligaments, connects the fibula to the talus. There is one at the front and one posteriorly. These are called the talofibular ligaments. Anteriorly, there is the anterior talofibular ligament and posteriorly, there is the posterior talofibular ligament<sup>[6]</sup>.

The medial deltoid ligament consists of four parts. And the word 'deltoid' is from the shoulder muscle, the deltoid muscle; basically it comes from the Greek word delta, which is a triangular symbol, hence referred to as the deltoid ligament.

Ankle sprains are categorized as one, two or three depending on their severity and it is only professional therapists who will be able to tell which gravity of injury a player has sustained after carrying out a full assessment of the ankle.

In addition to the ligament damage in ankle sprains, there can also be associated damage to tendons, the joint capsules, bones, cartilages, the nerves or other soft tissues. Severely sprained ankles can result in complete or almost complete ruptures of the ligaments and may be associated with dislocations and fractures of the ankle bones

Most adolescents lack the knowledge on the morphology and causes of this career threatening injury for youth footballers. An ankle injury occurs when the ankle joint is twisted too far out of its normal position. Generally when asked what an ankle injury is, adolescents would respond that it is an injury to the foot. Most ankle injuries occur during training which forces the foot and ankle into an unnatural position. In

addition to wearing faulty boots, an ankle injury can happen as a result of tackling, tripping, falling, landing awkwardly after a jump, walking or running on uneven surfaces, twisting or rotating the ankle and rolling the ankle.

Knowledge of First aid treatment for ankle injuries is paramount for adolescent football players; this can be taught using the acronym PRICE meaning: (protection, rest, ice, compression and elevation). On sustaining ankle injury, apply a cold therapy and compression wrap to reduce pain, inflammation and swelling. Ice or cold therapy can be applied. An ankle support is worn to protect the injured ligaments and provide compression. Adolescents should learn that after the first-aid measure cases should be referred to the specialists for proper diagnosis and treatment.

## 2. Problem Statement

Knowledge is power. With knowledge, informed decisions can be made. A good number of our footballers at adolescent age have missed their continuity in their football career due to lack of knowledge of sports injuries, especially ankle injury which is most common. Sports injuries are injuries sustained when playing any game or doing a work out; Most often lack of knowledge on causes and preventive strategies of ankle injury may increase the frequency of occurrence.

For adolescent players trying to excel in their sport, an injury can result in major setbacks. Therefore they should be adequately informed about injuries in sport where ankle injury is no exception.

Ankle injury if not attended to immediately would throw an athlete out of his or her sport for life. Adolescent players need to know this so as to avoid such consequence. That is why a research into assessing the knowledge of these adolescents on the morphology and injury of the ankle cannot be overemphasized. With the knowledge of injuries they can be kept in their sports without much incidence of such a painful injury.

## 3. Objectives

The objectives of the research would be to:

- assess the level of knowledge of adolescent players on the morphology of ankle injury.
- assess knowledge on causes of ankle injury
- identify sources of knowledge on ankle injury preventive measures and treatment procedures.
- make recommendations on how the level of knowledge of adolescent football players can be increased to ameliorate frequency in the occurrence of ankle injuries in football.

## 4. Methodology

### 4.1 Subjects

The subjects comprised of 50(n=50) adolescent boys football players from three youth football clubs in Njala town. Their respective academic levels were JSS (Junior Secondary School),SSS(Senior Secondary School). Subjects were selected by random sampling.

### 4.2 Procedure

Before conducting the research, the consent of the participants was sought and they kindly consented to participate and complete the questionnaires. They were briefed on the questionnaire, the objectives and purpose of the research. Data was collected using the questionnaire designed alongside an interview. There were 10 questions with five multiple choice answers. Each answer was dichotomized as 1 for

positive (YES) answer and 2 for negative (NO) answer. Other questions required respondents to choose from a five point scale for with excellent, very good, average, below average, and poor; marked 5, 4, 3, 2, and 1 respectively. Pictorials and charts for identification of an ankle were used. The analysis was done using Statistical Package for the Social Sciences (SPSS), version 22, with use of cross tabs to identify

frequencies and percentages of variables selected. Bivariate analysis was performed using Pearson's correlation coefficient tests to ascertain the statistical relationship between outcomes and predictors.

**5. Results**

**Table 1:** age of respondents and educational level

Age of respondents * Educational level of respondents Crosstabulation								
			Educational level of respondents					Total
			JSS1	JSS 2	JSS3	SSS1	SSS 2	
Age of respondents	13	% within Age of respondents	85.7%	14.3%				100.0%
		% within Educational level of respondents	100.0%	5.9%				14.0%
	14	% within Age of respondents		93.8%			6.3%	100.0%
		% within Educational level of respondents		88.2%			25.0%	32.0%
	15	% within Age of respondents		8.3%	91.7%			100.0%
		% within Educational level of respondents		5.9%	100.0%			24.0%
	16	% within Age of respondents				100.0%		100.0%
		% within Educational level of respondents				100.0%		24.0%
	17	% within Age of respondents					100.0%	100.0%
		% within Educational level of respondents					75.0%	6.0%
Total		% within Age of respondents	12.0%	34.0%	22.0%	24.0%	8.0%	100.0%
		% within Educational level of respondents	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1 shows the frequency distribution of 50 respondents for age and educational level, highest was age 14(32.0%), followed by 16 (24.0%), 15 (24.0%), 13(14.0%) and 17(6%). Educational level had 12% who were in JSS1 and 32.0%,

22.0%, 24.0% and 10% in JSS2, 3, SSS1 and SSS2 respectively. The highest percentage was from JSS2 with 32.0%.

**Table 2:** shows the knowledge of respondents about an ankle

			Can you describe an ankle?		Total
			YES	NO	
Do you know what an ankle is?	YES	% within Do you know what an ankle is?	27.6%	72.4%	100.0%
		% within Can you describe an ankle?	47.1%	63.6%	58.0%
	NO	% within Do you know what an ankle is?	42.9%	57.1%	100.0%
		% within Can you describe an ankle?	52.9%	36.4%	42.0%
Total		% within Do you know what an ankle is?	34.0%	66.0%	100.0%
		% within Can you describe an ankle?	100.0%	100.0%	100.0%

Table 2 shows that 58.0% of players know what an ankle is and 42.0% did not know what it is. In the knowledge of description of the ankle, the table shows that 34.0% can describe an ankle while 66.0% cannot. Though the number of

responses to knowing what an ankle is, most adolescent players could not describe what an ankle is. This is an indication that there isn't adequate knowledge gained about the morphology of an ankle.

**Table 3:** shows the relationship between the level of knowledge and sustaining ankle injury

		What is your level of knowledge in injury prevention in sports?	Have you sustained any injury before?
What is your level of knowledge in injury prevention in sports?	Pearson Correlation	1	-.443**
	Sig. (2-tailed)		.001
	N	50	50
Have you sustained any injury before?	Pearson Correlation	-.443**	1
	Sig. (2-tailed)	.001	
	N	50	50

Table three shows a significant negative correlation between the educational level of players and their knowledge in ankle injury. The correlation is at -.443. The p value is significant at 0.01 level. This stems from the fact that the players were not adequately informed or rather educated about an ankle and its

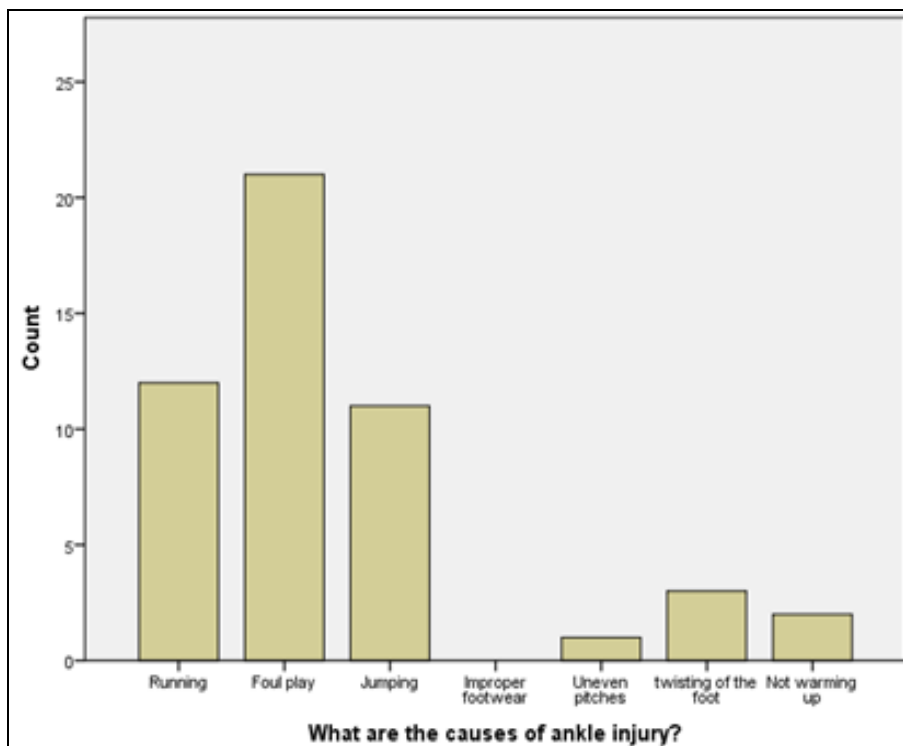
cause for injury. With inadequate knowledge in these areas, the players would not be able to take the necessary precautions for an ankle injury. Conversely, as the level of knowledge of players increase, there is a likelihood for more preventive strategies for sustaining unwarranted injury.

**Table 4:** shows responses to the causes of ankle injury

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Running	12	22.6	24.0	24.0
	Foul play	21	39.6	42.0	66.0
	Jumping	11	20.8	22.0	88.0
	Uneven pitches	1	1.9	2.0	90.0
	twisting of the foot	3	5.7	6.0	96.0
	Not warming up	2	3.8	4.0	100.0
	Total	50	94.3	100.0	
Missing	System	3	5.7		
Total		53	100.0		

Table 4 shows 24.0% of respondents saying ankle injury can be caused by running, 42.0% foul play, 22.0% jumping, 2.0% uneven pitches, 6.0% twisting of the foot and 4.0% not warming up. It was observed that a greater

percentage only knew about running, foul play and jumping as causes for ankle injury even though there were other crucial causes. It is an indication that the knowledge base of these adolescents should be increased.



**Fig 1:** shows players responses to the causes of ankle injury

Figure 1 shows that none 0.0% of the respondents are of the knowledge that improper footwear can also cause ankle injury. This cause has to be brought to their attention. The results indicated that the knowledge base of the subjects in the area of ankle morphology and injury was moderate and the reasons given for this was that they are not educated on

sport injuries. From the study, observations were that players don't know why ankle sprains usually occur. Also the players did not know that most common structures that are damaged in sprained ankles are the lateral ligaments (which join bone to bone) on the outside of the ankle.

### Conclusion

The findings of this study show that adolescent football players are not adequately informed about the morphology of an ankle and occurrence of injury. Therefore, football coaches, physical education teachers, fitness trainer, parents as well as physiotherapists, may be in the best position to use the findings of this study and continue imparting first aid knowledge to adolescent football players.

Despite average overall levels of awareness about ankle injury, there are some players whose knowledge and awareness about ankle injury could be improved.

### Recommendations

The coach or Physical Education teacher should endeavor to discuss basic sport medicine and first aid with players.

Physical Education teachers should endeavor to attend sport medicine courses and or seminars. Players should attend sport medicine and first-aid workshops or seminars.

Players should practice peer education on sport injuries.

Sport medicine or first aid should be emphasized in the school Physical Education syllabus.

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