

# Epidemiology of Soccer Related Fractures in Solomon Islands



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## INTRODUCTION:

In the Solomon Islands (SI), a small Pacific Island nation, soccer is not just a sport, it's a way of life. Although soccer has several positive health benefits, it also poses a risk of injury to players. Management of soccer-related fractures is a significant burden to a resource scarce Pacific Island nation. Despite its importance, there has not been any publications on soccer related injuries in the Pacific. This study aims to determine the epidemiology of soccer-related fractures in SI.



Fig 1: Mechanism of fracture injury in local soccer match

## MATERIALS & METHODS:

The National Referral Hospital (NRH) is located in the national capital, Honiara. It is the only hospital that has a fracture clinic and is providing operative fracture treatment.

All soccer related fractures presenting to the fracture clinic, NRH were recorded prospectively from December 2016 to February 2019. A trauma database was created using LibreOffice 6 (The Document Foundation, Germany). Patient demographics, injury details, Muller AO classification, soft tissue findings and fracture management were recorded and analyzed using Microsoft Excel.

## RESULTS:

There was a total of 1191 fractures during the study period, 8.8% (105) of them were soccer related. The mean age of patients was 18 years (range 5 - 43 years). There were 102 males and 3 females.

AGE	HUM	RAD	FEM	TIB	MAL	OTH	TOTAL
<10	2		1	3		3	9
10-14		14	3	3		3	23
15-19	1	8		12		8	29
20-24		1		8	1	1	11
25-29	1	1		7	2	3	14
30-34				5	1	3	9
35-39				5	1	1	7
>40				3			3
<b>TOTAL</b>	<b>4</b>	<b>24</b>	<b>4</b>	<b>46</b>	<b>5</b>	<b>22</b>	<b>105</b>

Table 1: Soccer-related fracture distribution

We found that tibia 43.8% (46) was the most common bone fractured, followed by the radius 22.9 % (24) and the clavicle 10.5% (11). Of the tibial fractures, 28 were simple, 17 were wedge, and only one was segmental.

The majority of the fractures were closed 93.3% (98). Five were grade 1 open fractures and two were grade 2 (Gustilo-Anderson Classification).

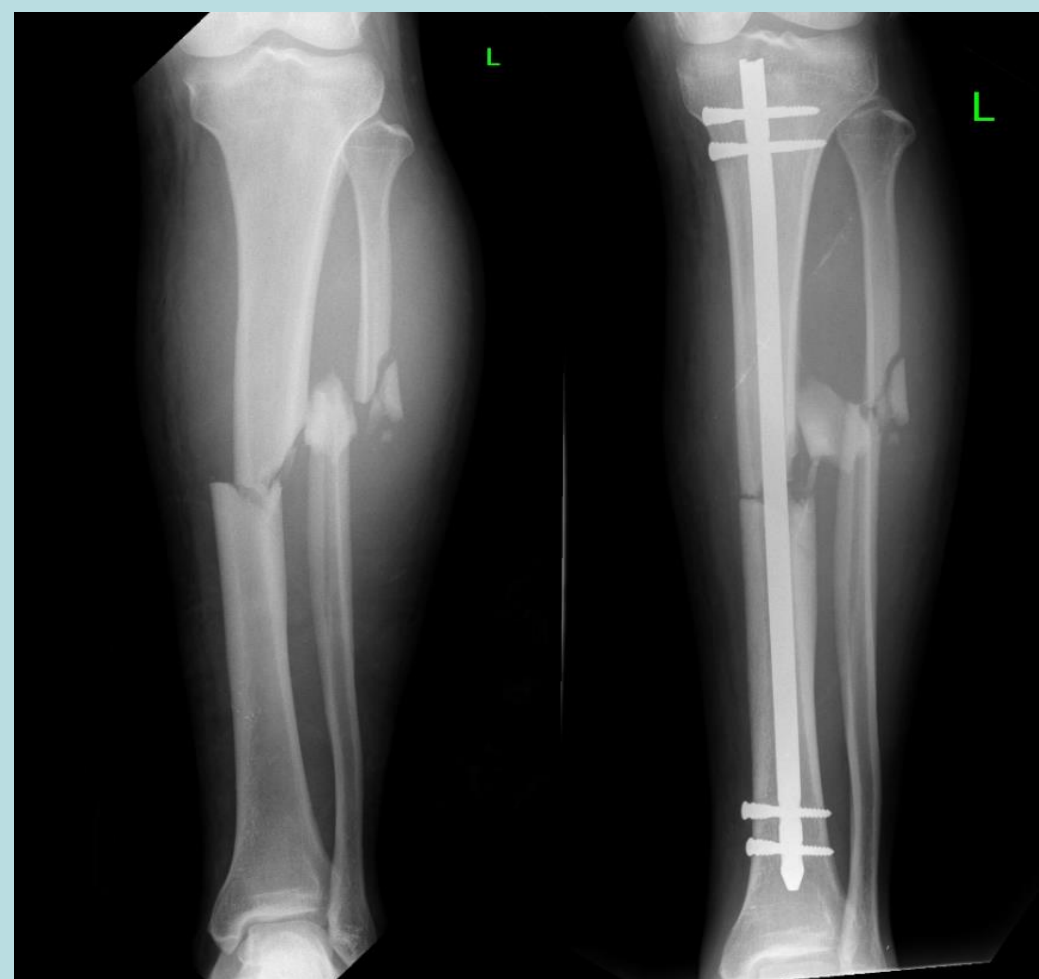


Fig 2: An example of SIGN IMN for fixation of a 42 B fracture (AO classification) at the NRH

TREATMENT	HUM	RAD	FEM	TIB	MAL	OTH	TOTAL
FUNCTIONAL		2	1	2	1	18	24
POP	1	18		18	3	3	43
ORIF	3	4	3	24	1	1	36
EXFIX				1			1
TRACTION				1			1

Table 2: Management of soccer-related fractures at NRH

22.9% of patients were managed conservatively (functionally), 41% with cast (POP), 34.3% with open reduction and internal fixation; and one each with external fixation (0.9%) and skeletal traction (0.9%).

## DISCUSSION:

In SI, soccer is largely an unregulated recreational sport. Our fracture rate of 8.8% is relatively high when compared with Robertson<sup>1</sup> who documented only 5.3% soccer related fractures. Vanlommel<sup>2</sup> reported that only 7.5% of soccer related fractures were leg fractures, while our study had leg fracture incidence of 43.8%. We believe that the high incidence is due to a lack of awareness of safety regulations and utilization of appropriate protective equipment. We found the most vulnerable age group was between 10 and 19 years.

## CONCLUSION:

SI has a high rate of fractures related to soccer injuries. To better understand the high incidence of soccer related injuries and its impacts in SI, future studies should explore specific aspects of soccer accidents such as level of professionalism, playing time, training vs competition scenarios. This would assist in developing prevention strategies to reduce the incidence of soccer related injuries in SI.

## REFERENCES:

- Robertson G et al. Epidemiology, Morbidity, and Outcome of Soccer Related Fractures in a Standard Population. The American Journal of Sports Medicine. 2012;40(8):1851-1857.
- Vanlommel L et al. Incidence and risk factors of lower leg fractures in Belgian soccer players. Injury 2013; 44:1847-1850.