



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

Prospective Study of Jones Fracture Screening

Hiroaki Seto MD, PhD

Sports and Health studies
Hosei University Tokyo, Japan





ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

ISAKOS congress 2023

COI Disclosure

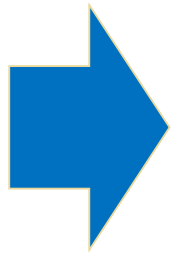
The author has no conflict of
interest to disclose with respect
to this presentation.

Presenting author: Hiroaki Seto



Background(1)

- ✔ Sports trauma is 7.9% of all metatarsal fractures¹⁾
- ✔ Jones fractures accounted for 5.3% of Foot and Ankle injuries in elite football players²⁾
- ✔ Incidence rate of Jones fractures was 0.02-0.04/1000 PH in elite footballers^{3,4)}



- Reports for prevention at the sports field level
- Literatures that is examined longitudinal study

is rare about Jones fracture



Background(2)

Jones fractures screening

- ✔ Utility of screening of Jones fractures in college soccer players⁵⁾
- ✔ Examination of Jones fracture for soccer club members⁶⁾
- ✔ Therapeutic experience using LIPUS for incomplete Jones fractures⁷⁾



To investigate longitudinal examination of Jones fractures screening in a elite university soccer club



ISAKOS
CONGRESS
2023



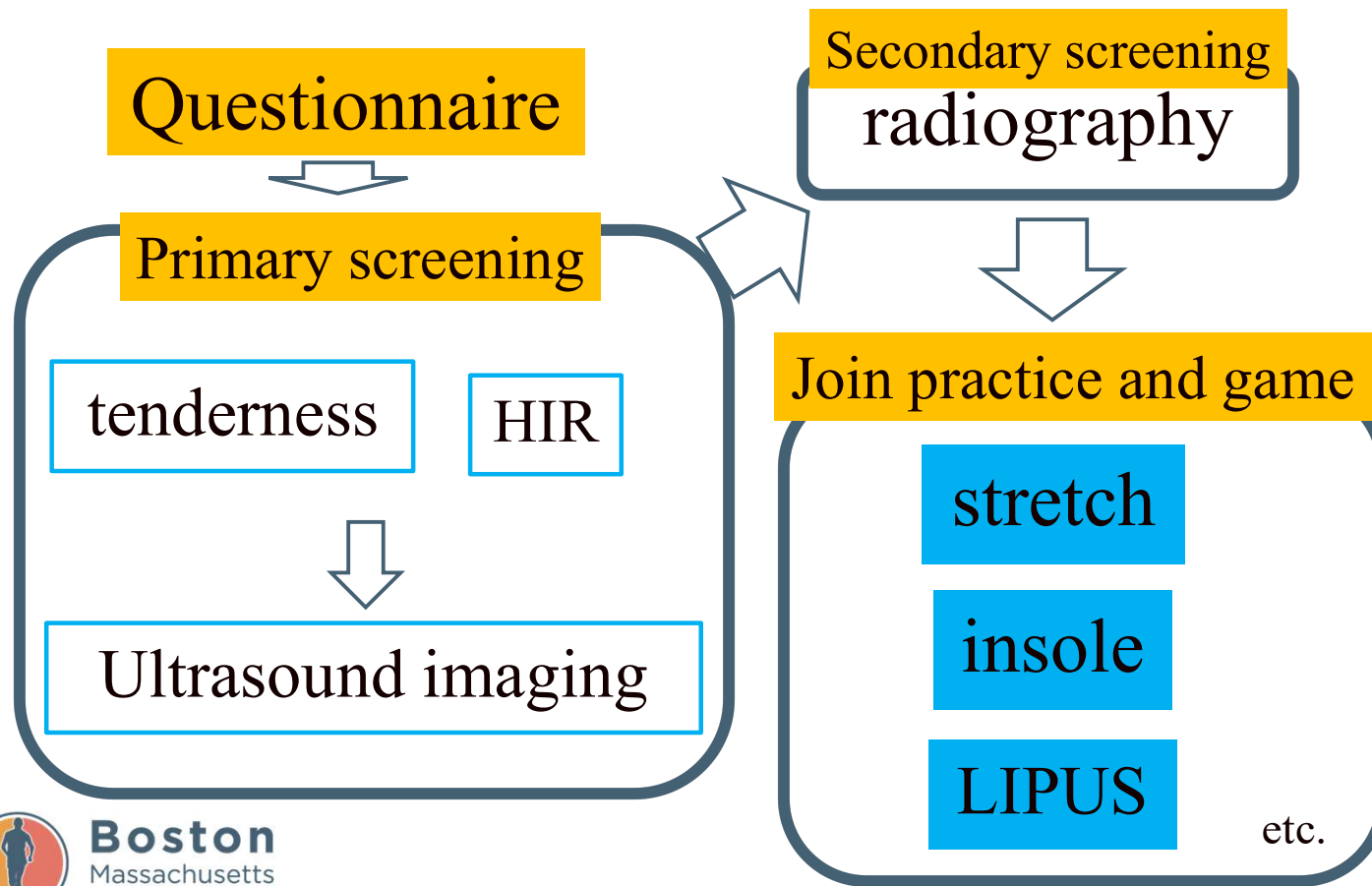
Boston
Massachusetts
June 18-June 21

Material and Methods

- Subject : a total of 58 players(116 feet)
from a elite soccer club for 4 years
- Year : 2016 to 2022
- Medical check-up : Tenderness
Hip internal rotation(HIR)⁸⁾
Ultrasound imaging

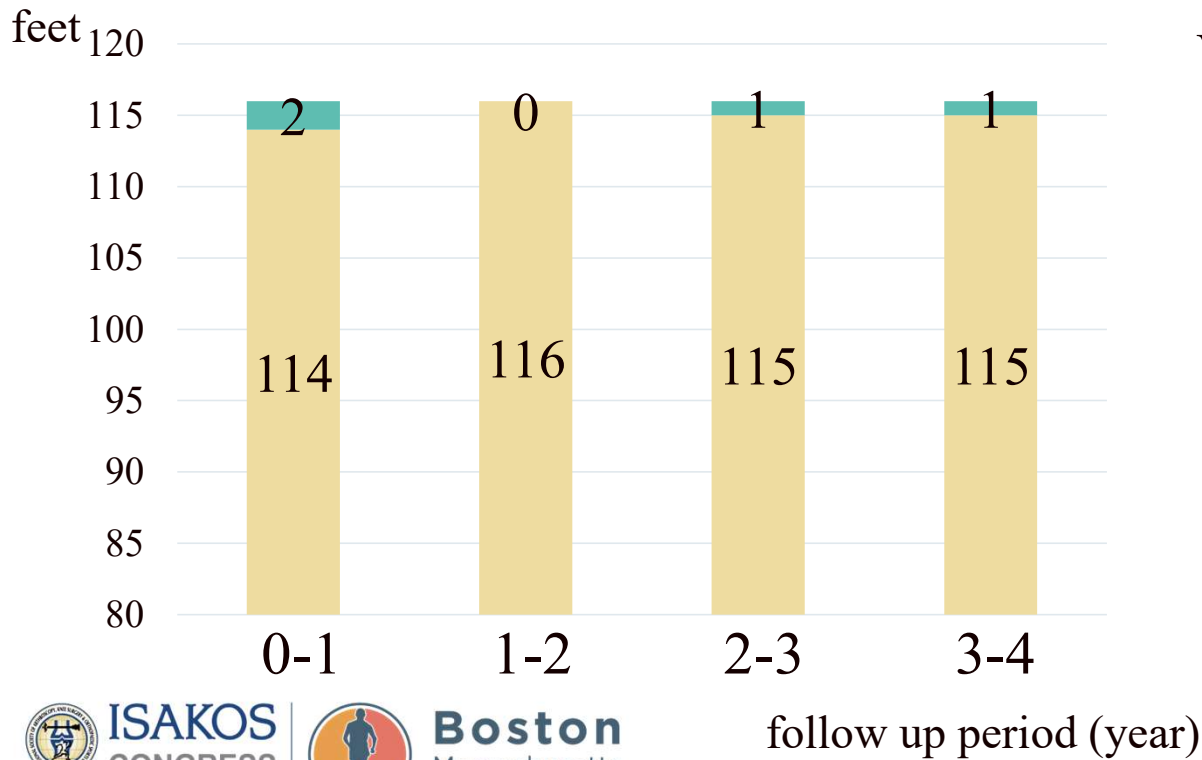


Jones fractures screening

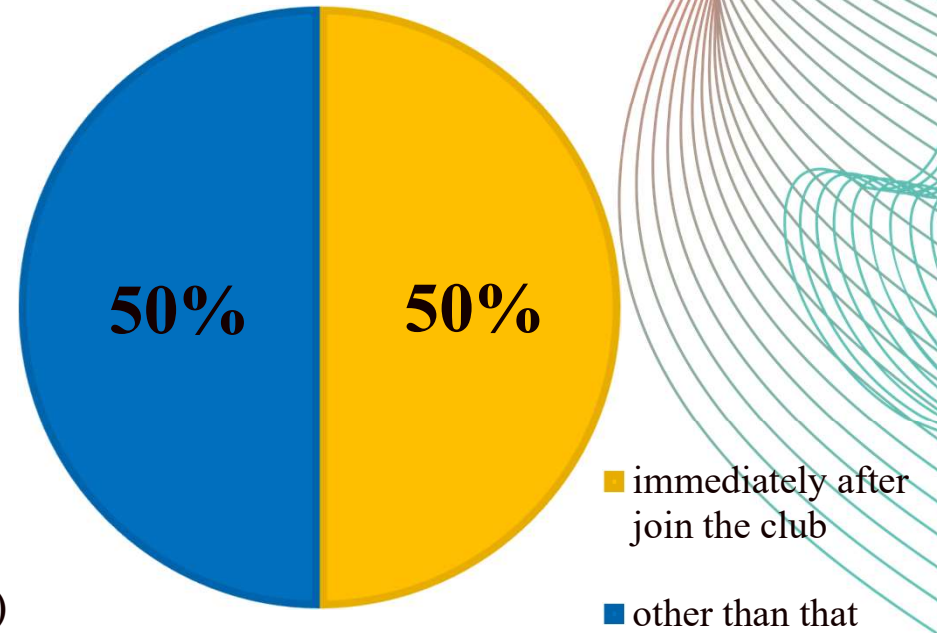


Results(1)

Number of complete Jones fracture



When did the fracture occur?



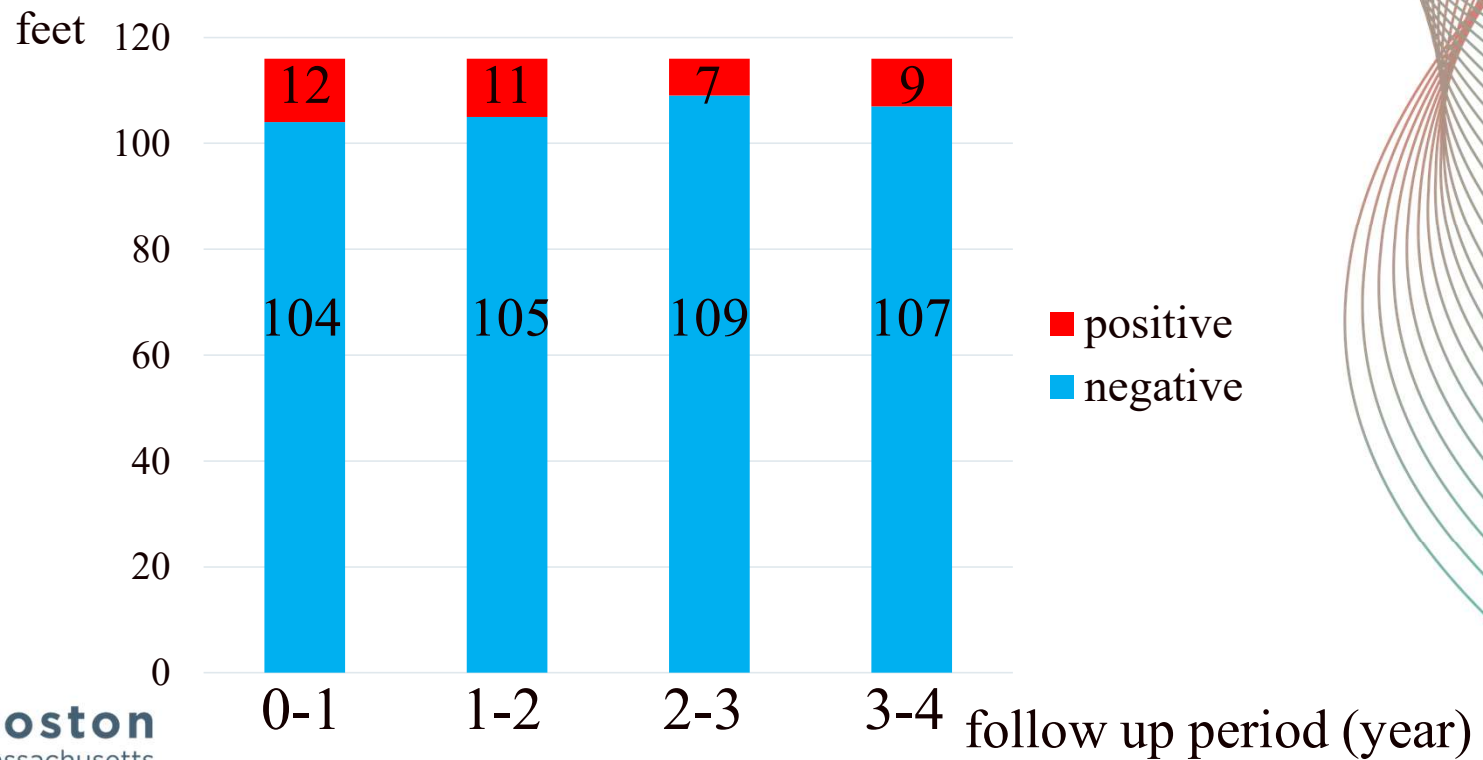
ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18-June 21

Results(2)

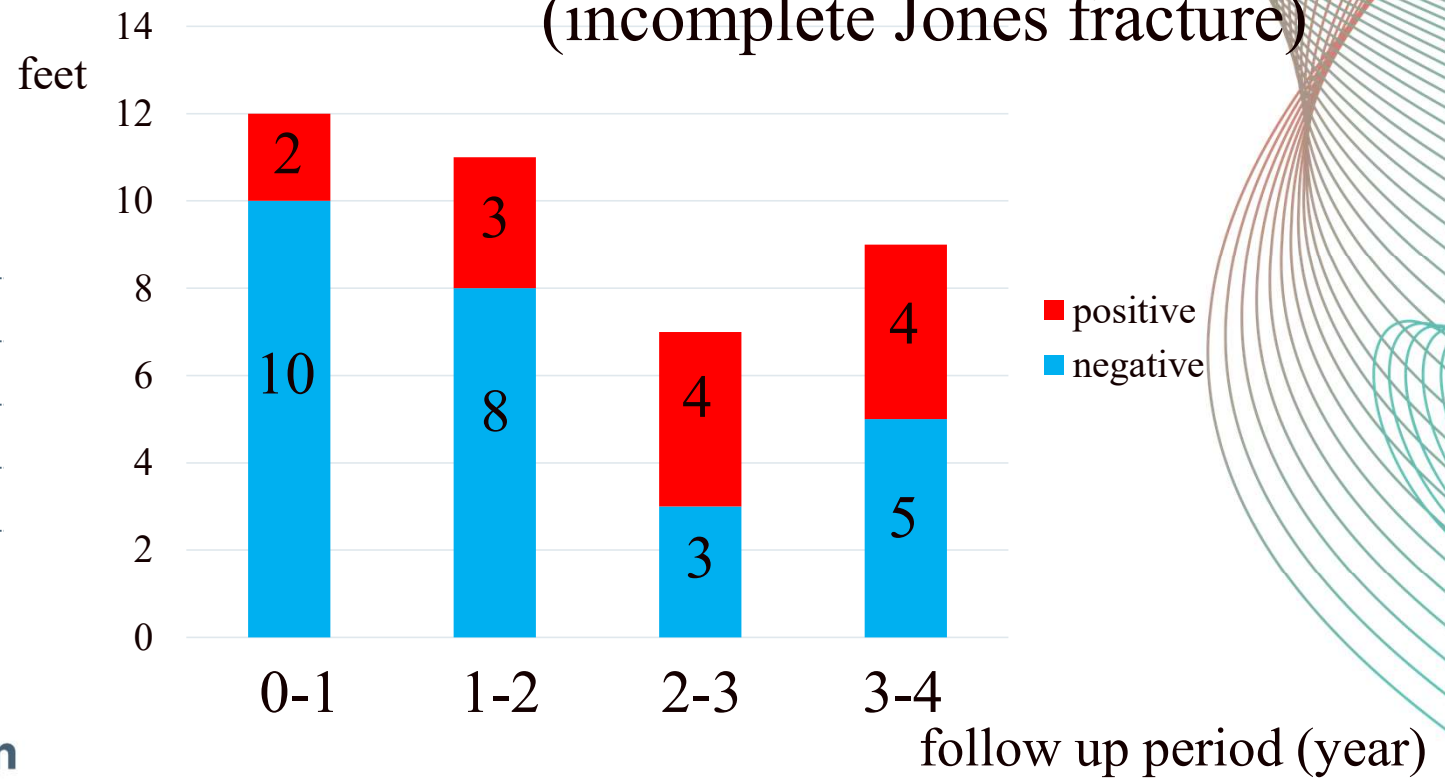
Number of positive on primary screening for follow up period



Results(3)

Number of positive on secondary screening for follow up period
(incomplete Jones fracture)

Year (follow up period)	Sensitivity (%)	Insufficient fracture rate (%)
0-1	16.6	1.7
1-2	27.2	2.6
2-3	57.1	3.4
3-4	44.4	3.4
ave.	33.3	2.6



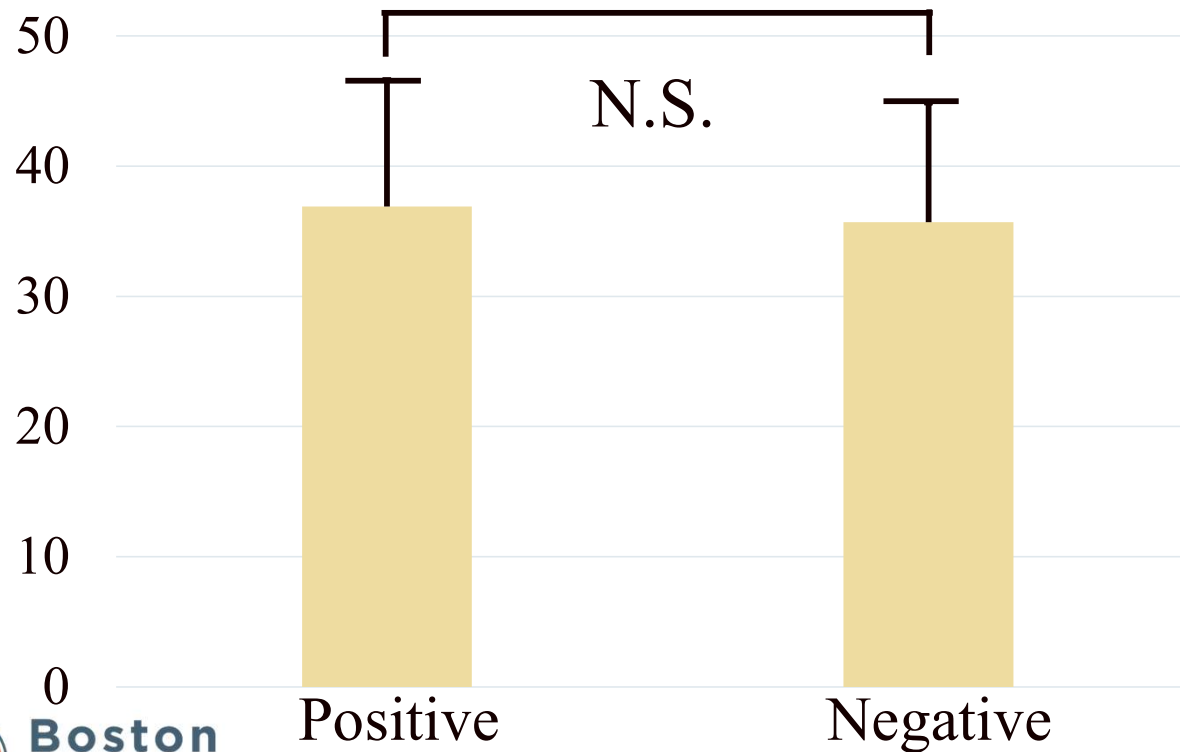
ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18-June 21

Results(4)

Comparison Positive and Negative side in HIR (incomplete Jones fracture)



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18-June 21

Summary(1)

Accuracy rate of screening using ultrasound image (incomplete Jones fracture)

	Primary rate	Secondary rate
Breast cancer ⁹⁾	30.2%	0.32%
Elbow screening ¹⁰⁾	22.9%	16.3%
Johns fracture screening	33.6%	33.3%

The results showed comparable to those of other screening using ultrasound image.

Summary(2)

Course of incidence of Jones fractures

Diagnosed with Jones fractures at the time of admission

2019	2 feet	→	2 feet (100%)
2020	2 feet		2 feet (40%)

It seems necessary to expand the screening to the high school (U-18) generation and below.



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18-June 21

Reference

- 1) Petrisor BA, Ekrol I, Court-Brown C. The epidemiology of metatarsal fractures: Foot Ankle Int. 2006 Mar;27(3); 172-4.
- 2) Kaplan LD, Jost PW, Honkamp N et al. Incidence and variance of foot and ankle injuries in elite college football players: Am J Orthop. 2011 Jan;40(1); 40-4.
- 3) Ekstrand J, van Dijk CN. Fifth metatarsal fractures among male professional footballers: a potential career-ending disease. Br J Sports Med. 2013 Aug;47(12); 754-8.
- 4) Miyamori T, Nagao M, Sawa R et al. Playing football on artificial turf as a risk factor for fifth metatarsal stress fracture : a retrospective cohort study: BMJ Open. 2019 Feb 20;9(2); e022864.
- 5) Ueki H, Tateishi T, Ogiuchi R et al. Utility of screening of Jones fracture in college soccer players: JOSKAS. 2017 42(2); 416-417.
- 6) Hatsushika D, Tateishi T, Ueki H et al. Examination of Jones fracture for soccer club members: ORTHOPAEDICS SURGERY. 2018 69(7); 752-755.
- 7) Kawazoe Y, Tateishi T, Nagase T et al. Therapeutic experience using LIPUS for incomplete Jones fracture: JOSKAS. 2019 44(2);580-581.
- 8) Saita Y, Nagao M, Kawasaki T et al. Range limitation in hip internal rotation and fifth metatarsal stress fractures (Jones fracture) in professional football players: Knee Surg Sports Traumatol Arthrosc. 2018 Jul; 26(7); 1943-1949.
- 9) Harada-Shoji N, Suzuki A, Ishida T et al Evaluation of adjunctive ultrasonography for breast cancer detection among women aged 40-49 years with varying breast density undergoing screening mammography: A secondary analysis of a randomized clinical trial Authors: JAMA Network Open.2021 4(8); e2121505.
- 10) Harada M, Takahara M, Sasaki J et al. Using sonography for the early detection of elbow injuries among young baseball players: AJR Am J Roentgenol. 2006 Dec;187(6); 1436-41.

