

Comparison of injury patterns, balance ability, and joint flexibility between breaking dancers and other street dancers

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Introduction : Characteristics of Breaking



Footwork



Powermove



Toprock



Freeze

✓ Breaking consists above 4 elements.

Shimizu D, et al. Cogn. Sci. 2018



✓ Breakin is the highest injury occurrence among street dance.

Tjukov O, et al. J Dance Med Sci. 2020

The factor of Breaking's injury is not clarified.

Purpose



- ① Comparing the injury demographics, balance ability, and range of motion (ROM) between Breaking dancers and other kind of street dancers.
- ② Revealing the physical factor of Breaking injury.



Material and method

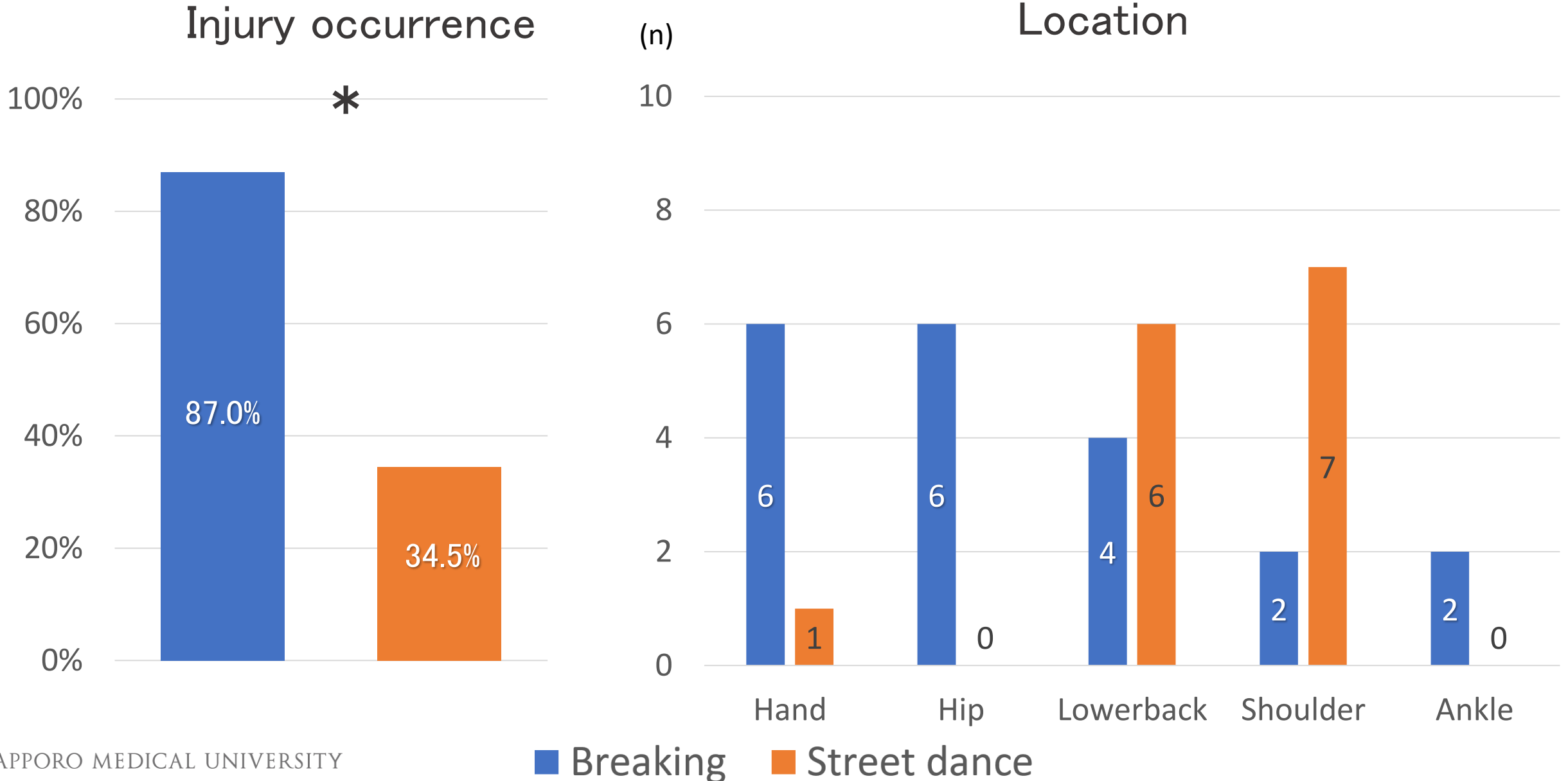
- ✓ Subject: 52 active street dancers
- ✓ Grouping: Breaking dancers and other types of street dancers
- ✓ Assessment Items:
 - Background (Age ▪ Sex ▪ Dance competition history ▪
Weekly practice frequency ▪ One practice session)
 - Injury occurrence, location
 - Balance ability (SEBT: Star Excursion Balance Test)
 - Range of motion (ROM) (Shoulder ▪ Elbow ▪ Wrist ▪ Hip ▪ Knee ▪ Ankle)
- ✓ Statistical analysis: Student t test , Fischer 's test
Significance level was set at 5%

Result Background

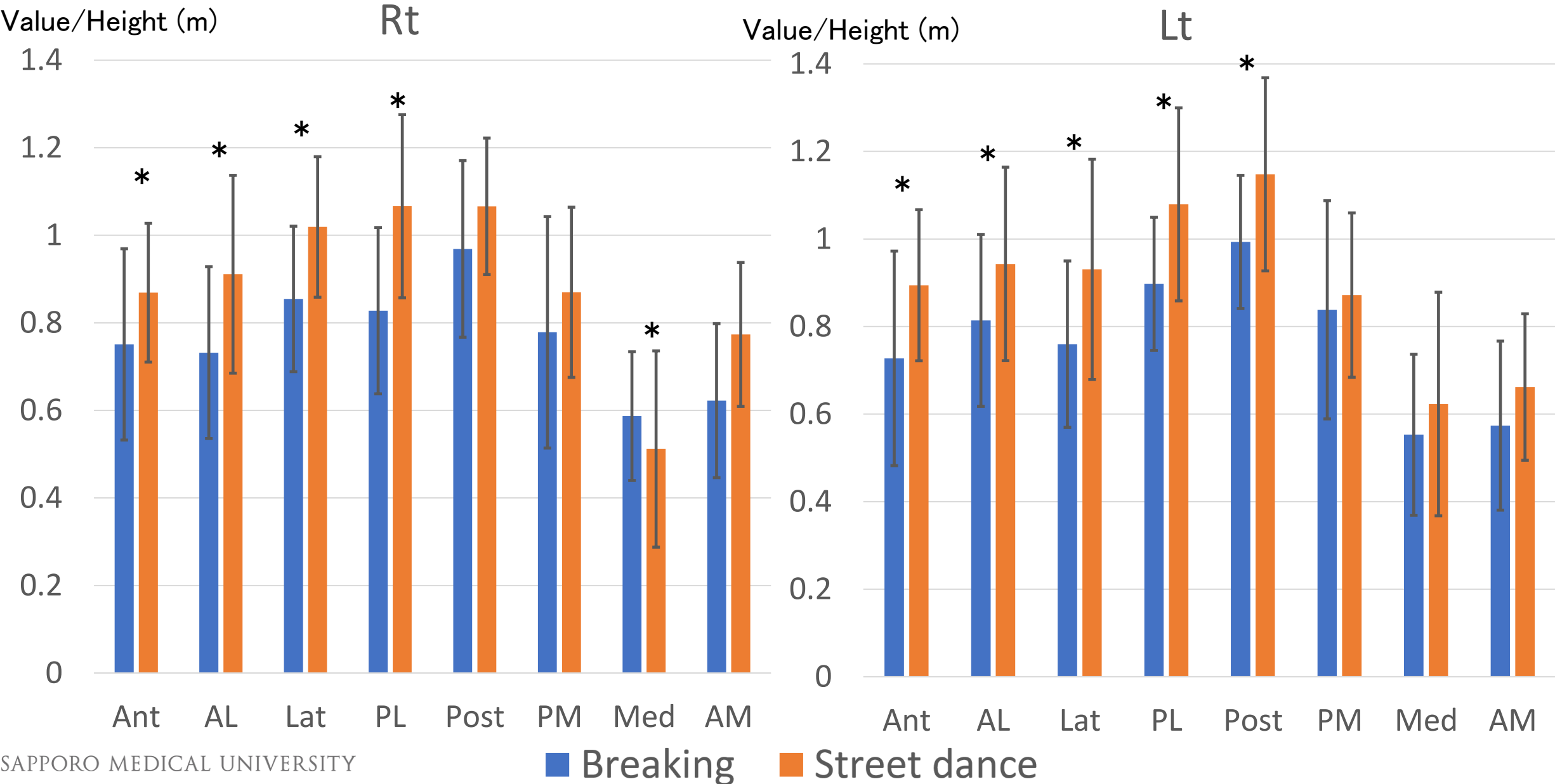


	Breaking	Street dance	P value
Number of cases	23	29 <i>(lock 10, waack 8, pop 5, krump 3, jazz 2, tat 1)</i>	
Age (year)	27.4 ± 4.5	25.1 ± 3.6	0.06
Sex (n)	M22/F 1	M14/F15	<0.01
Dance competition history (year)	10 ± 5	9 ± 5	0.31
Weekly practice frequency (n)	2.2 ± 1.2	2.9 ± 1.6	0.07
One practice session (min.)	118 ± 34	117 ± 37	0.89

Result Injury occurrence, location * p<0.05

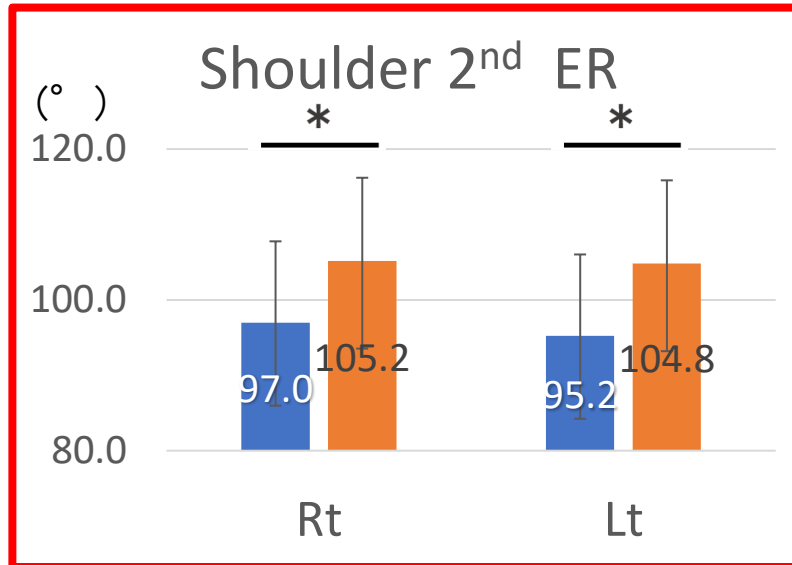
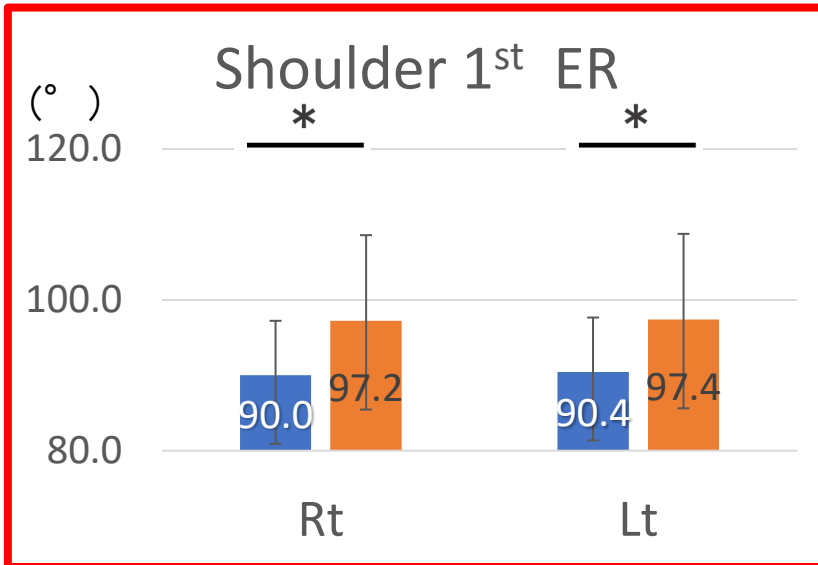
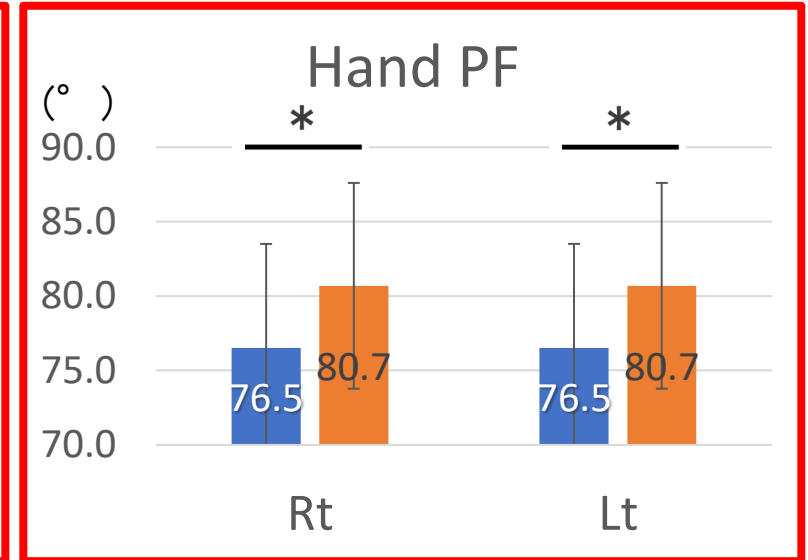
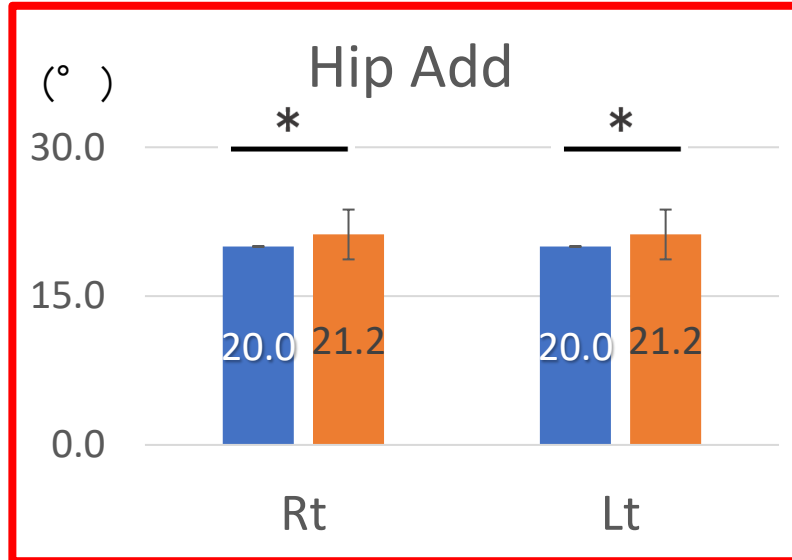
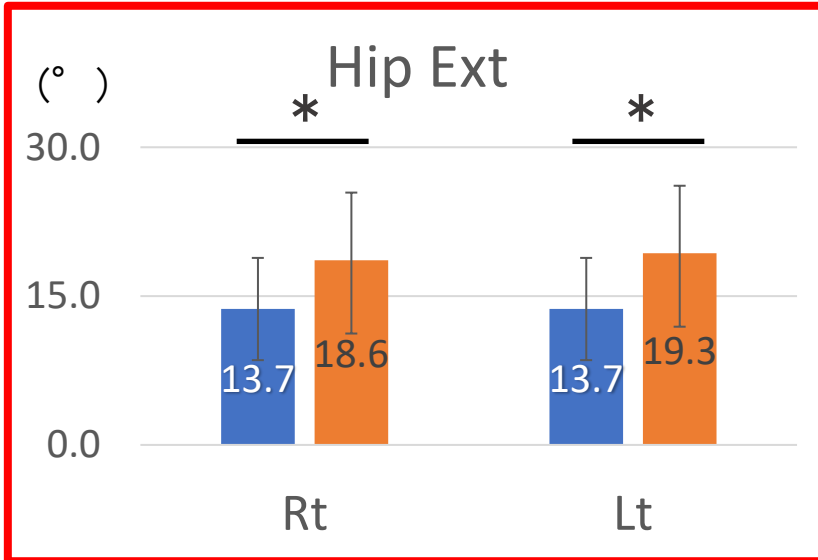


Result SEBT * p<0.05



Result ROM

* p<0.05



※

Elbow • Knee • Ankle : n.s.

Other ROM of Hip Hand Shoulder : n.s.

■ Breaking ■ Street dance

Discussion: Relationship between SEBT and injury

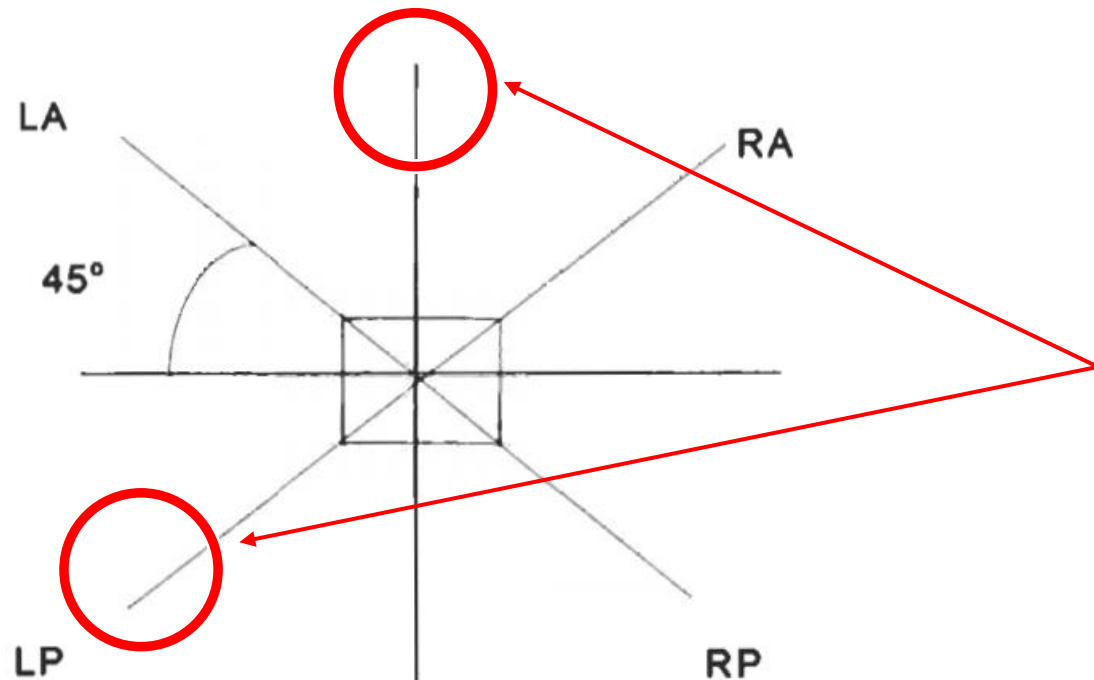


- ✓ **Street dance:** Negative correlation exists between SEBT and injury occurrence.

Ursej E, et al. Int J Environ Res Public Health. 2019

- ✓ **This study:**

Breaking performed worse anterior, anterolateral, lateral, and posterolateral on SEBT.



Kinzey SJ, J Orthop Sports Phys Ther. 1998

- ✓ **Hip muscle strength is required anterior and posterolateral direction.**

Ambegaonkar JP, Int J Sports Phys Ther. 2014

Breaking dancers may have had groin problems due to hip muscle weakness.

Discussion: Relationship between ROM and injury



✓ This study:

Breaking had smaller hip and wrist ROM.

Furthermore, there was high incidence of hip and wrist disorders.



【Gymnast】

Upper limb lord make wrist ROM small and cause wrist pain.

DiFiori JP,et al. Am J Sports Med. 1996

Sekiguchi T,et al. Japanese Journal of Clinical Sports Medicine. 2013

Lack of hip ROM may cause hip pain and upper limb lord may cause wrist pain.

Conclusion



- We investigated injury patterns, balance ability, and joint flexibility of breaking dancers.
- Breaking is higher injury occurrence of hip and wrist than the other street dancer.
- Balance ability and ROM (hip, wrist, shoulder) of Breaking is worsen.
- Balance ability and ROM contributed to occurrence of injury.

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