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The differences of the injuries between male and female young baseball players.

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COI Disclosure Information

Presenter: Yoshihiro Kotoura

I have no financial relationships to disclose.

Aim

There have been various reports about injuries of young baseball players.

However few reports focusing on the gender differences.

It has been reported that there are differences in some sports injuries between male and female players.

The purpose of this study was to assess the injuries of young baseball players focusing on the gender differences.

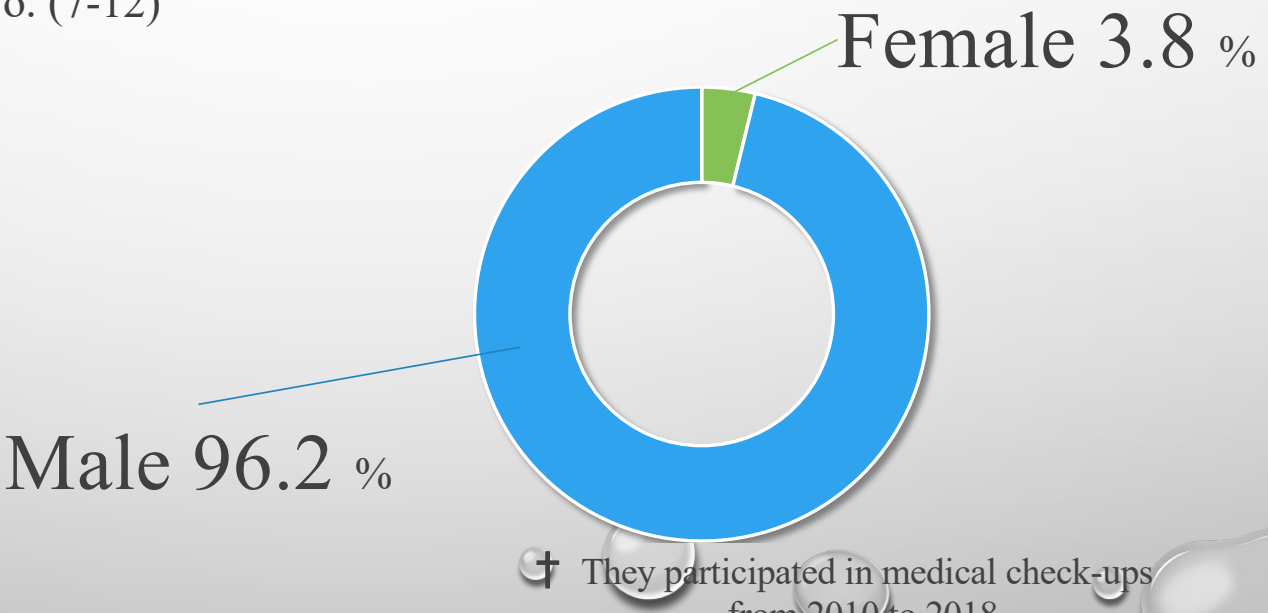
Subjects

3188 young baseball players†

Age: 10.3 ± 1.3 y.o. (7-12)

Male: 3067

Female: 121



† They participated in medical check-ups from 2010 to 2018.

Methods

- Comparison of background

Male

1. Age
2. Age introduced to baseball
3. Duration of competitive play
4. Position
5. Height
6. Weight
7. Softball throwing distance

Female

Methods

- Comparison of rate of injuries

Male

1. Shoulder pain while pitching at present
2. Shoulder pain while pitching in the past
3. Tenderness of the proximal humeral humeral physis
4. Hyper external rotation test of shoulder
5. Elbow pain while pitching at present
6. Elbow pain while pitching in the past
7. Restriction of elbow ROM
8. Tenderness of the medial epicondyle
9. Vulgus test of elbow
10. Osteochondritis dissecans of humeral capitellum
11. Morphological irregular of the medial epicondyle

Female

Results

- Comparison of background

	Age (y.o.) †	Age introduced to baseball $	Duration of competitive play(m) $	Position * pitcher catcher fielder (%)	Height (cm) †	Weight (kg) †	Softball throwing distance (m) $
Male	10.3	8.1	29.6	18.5 8.4 70.3	140.4	34.6	35.3
Female	10.0	8.5	21.9	7.4 1.6 87.7	139.4	32.5	28.1

*Chi-squared test * $p < 0.01$*
Mann-Whitney U test † NS , $ $p < 0.05$

Results

- Comparison of rate of injuries

	Shoulder pain at present †	Shoulder pain in the past †	Tenderness of the proximal humeral humeral physis †	Hyper external rotation test of shoulder †	Elbow pain at present †	Elbow pain in the past †	Restriction of elbow ROM †	Tenderness of the medial epicondyle †	Vulgus test of elbow †	Osteochondritis dissecans of humeral capitellum †	Morphological irregular of the medial epicondyle *
Male	3.7	10.4	4.8	2.7	4.3	15.0	10.7	7.9	8.0	1.4	24.5
Female	3.3	9.8	4.1	3.3	1.6	13.9	9.1	9.8	11.5	0.0	9.8

Chi-squared test * $p < 0.01$ † *NS*

Results

- Multivariate analysis of injury factors

	Gender †	Age †	Age introduced to baseball †	Duration of competitive play †	Height †	Weight †	Position †	Softball throwing distance *	Pitching side †
P-value	0.08	0.60	0.88	0.08	0.87	0.52	0.73	0.01	0.36
Odds ratio	7.86	1.74	1.12	3.75	0.86	0.58	1.23	4.83	3.14
95% CI	0.77	0.22	0.27	0.87	0.16	0.11	0.38	1.53	0.28
	80.21	14.04	4.58	16.10	4.80	3.04	3.96	15.21	35.49

Logistic regression test * $p < 0.05$ † *NS*

Summary of results

The prevalence of symptoms among female baseball players was similar to that among male baseball players.

On the other hand, the rate of morphological irregular of the medial epicondyle was low. The morphological irregular was affected by softball throwing distance, that is, the pitching ability.

Discussion

Male

Gender difference

Female

Injury rate

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Cross KM, Am J Sports Med, 2013

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Physical

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Technic

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Ultimately, this study suggested that overlord was the most important factor of injuries regardless of gender.

Conclusion

1. We assessed the injuries of young baseball players focusing on the gender differences.
2. There was no significant differences between male and female players except for the rate of morphological irregular of the medial epicondyle.
3. In multivariate analysis, the morphological irregular was affected by softball throwing distance.
4. The Overload might be the most important factor of injury among young baseball players.