



# Descriptive Epidemiology of Injuries in Collegiate Men's Badminton: A Five-Year Follow-up Prospective Study



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## BACKGROUND & PURPOSE

- Despite the existence of injury profile in badminton is valuable, there are no data available that prospectively collected on the population of college student-athletes.
- The purpose of this study was to describe the incidence and characteristics of musculoskeletal injuries in collegiate men's badminton during the 2015 through 2019 seasons.

## METHODS

- Sixty-three collegiate male badminton players  
- 21 years; 178cm; 75 kg; athletic career: 11 years
- Athletic trainers recorded exposure and injury data during matches and practices, on event basis.  
- Injury rates per 1,000 AE and TE, time to initial injury, injured body parts and types, and injury contributing factors.

## RESULTS

Table 1. Injury rates and 95% confidence intervals by time in season and type of athlete-exposure and time-exposure.

| Season Type | Activity Type | AE (n) | TE (min)  | # of Injuries | Rate per 1,000 AE (95% CI) | Rate per 1,000 TE (95% CI) |
|-------------|---------------|--------|-----------|---------------|----------------------------|----------------------------|
| Pre-season  | Practice      | 4,436  | 647,950   | 27            | 6.1 (3.8, 8.4)             | 0.0 (0.0, 0.1)             |
|             | Scrimmage     | 790    | 114,960   | 8             | 10.1 (3.1, 17.1)           | 0.1 (0.0, 0.1)             |
|             | Total         | 5,226  | 762,910   | 35            | 6.7 (4.5, 8.9)             | 0.0 (0.0, 0.1)             |
| In-season   | Practice      | 11,776 | 2,125,830 | 56            | 4.8 (3.5, 6.0)             | 0.0 (0.0, 0.0)             |
|             | Scrimmage     | 646    | 90,330    | 3             | 4.6 (-0.6, 9.9)            | 0.03 (0.00, 0.07)          |
|             | Game          | 906    | 83,070    | 7             | 7.7 (2.0, 13.4)            | 0.1 (0.0, 0.1)             |
|             | Total         | 13,328 | 2,299,230 | 66            | 5.0 (3.8, 6.1)             | 0.0 (0.0, 0.0)             |
| Post-season | Practice      | 1,097  | 151,650   | 14            | 12.8 (6.1, 19.4)           | 0.1 (0.0, 0.1)             |
|             | Scrimmage     | 16     | 960       | 0             | 0.0 (0.0, 0.0)             | 0.0 (0.0, 0.0)             |
|             | Total         | 1,113  | 152,610   | 14            | 12.6 (6.0, 19.2)           | 0.0 (0.0, 0.1)             |
| All-season  | Total         | 19,667 | 3,214,750 | 115           | 5.8 (4.8, 6.9)             | 0.0 (0.0, 0.0)             |

Table 2. Time to initial injury.

| Season Type | Activity Type | Initial Injury (%) |
|-------------|---------------|--------------------|
| Pre-season  | Practice      | 14.4               |
|             | Scrimmage     | 46.4               |
|             | Total         | 19.2               |
| In-season   | Practice      | 11.5               |
|             | Scrimmage     | 26.9               |
|             | Game          | 51.9               |
|             | Total         | 13.5               |
| Post-season | Practice      | 45.6               |
|             | Scrimmage     | 0.0                |
|             | Total         | 45.3               |
| All-season  | Total         | 16.4               |

Table 3. Injured body parts, types, and causes.

| Body Part Injured  | Injuries, No (%)       |                         |                   |                     |
|--------------------|------------------------|-------------------------|-------------------|---------------------|
|                    | Practice<br>96 (83.4%) | Scrimmage<br>12 (10.4%) | Match<br>7 (6.0%) | Total<br>115 (100%) |
| Head/face          | 1 (0.9)                |                         |                   | 1 (0.9)             |
| Shoulder/clavicle  | 12 (10.4)              | 3 (2.6)                 | 1 (0.9)           | 16 (13.9)           |
| Elbow              | 5 (4.3)                | 2 (1.7)                 |                   | 7 (6.1)             |
| Wrist              | 7 (6.1)                |                         |                   | 7 (6.1)             |
| Hand/finger/thumb  | 3 (2.6)                |                         |                   | 3 (2.6)             |
| Lower back         | 11 (9.6)               |                         | 2 (1.7)           | 13 (11.3)           |
| Pelvis/hip         | 7 (6.1)                | 2 (1.7)                 | 1 (0.9)           | 10 (8.7)            |
| Groin              | 2 (1.7)                |                         |                   | 2 (1.7)             |
| Thigh              | 2 (1.7)                |                         | 1 (0.9)           | 3 (2.6)             |
| Lower leg          | 3 (2.6)                | 1 (0.9)                 |                   | 4 (3.5)             |
| Knee               | 14 (12.2)              |                         |                   | 14 (12.2)           |
| Ankle              | 21 (18.3)              | 3 (2.6)                 | 1 (0.9)           | 25 (21.7)           |
| Foot/toe           | 8 (7.0)                | 1 (0.9)                 | 1 (0.9)           | 10 (8.7)            |
| Injury Type        |                        |                         |                   |                     |
| Fx and bone stress | 5(4.3)                 |                         |                   | 5 (4.3)             |
| Joint and ligament | 33 (28.7)              | 3 (2.6)                 | 1 (0.9)           | 37 (32.2)           |
| Muscle and tendon  | 48 (41.7)              | 7 (6.1)                 | 5 (4.3)           | 60 (52.2)           |
| Contusions         | 4 (3.5)                |                         |                   | 4 (3.5)             |
| Skin lesions       | 4 (3.5)                | 2 (1.7)                 | 1 (0.9)           | 7 (6.1)             |
| Other injuries     | 2 (1.7)                |                         |                   | 2 (1.7)             |
| Injury Cause       |                        |                         |                   |                     |
| Overuse            | 46 (40.0)              | 8 (7.0)                 | 3 (2.6)           | 57 (49.6)           |
| Non-contact        | 31 (27.0)              | 2 (1.7)                 | 3 (2.6)           | 36 (31.3)           |
| Contact            | 12 (10.4)              | 1 (0.9)                 | 1 (0.9)           | 14 (12.2)           |
| Acute              | 3 (2.6)                |                         |                   | 3 (2.6)             |
| Recurrence         | 3 (2.6)                | 1 (0.9)                 |                   | 4 (3.5)             |
| Other              | 1 (0.9)                |                         |                   | 1 (0.9)             |

## CONCLUSION

- Provided information on musculoskeletal injury can be used to establish and implement injury prevention strategies.
- While overuse was the most common contributing factor, ankle sprains were the most frequent single injury.