

## Sports Update

This month, we will cover a variety of sports topics. We will focus on answering the following questions:

- How often are players injured when sliding into base?
- Is there a difference between injury patterns for high school girls and boys?
- How does manual stability testing of the shoulder compare with stress radiography measurement?
- Is there another explanation for the "burner" injury and a way to detect risk from a radiographic measurement?

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Hosey RG, Puffer JC. Baseball and softball sliding injuries: incidence and the effect of technique in collegiate baseball and softball players. *American Journal of Sports Medicine* 2000;28(3):360-363.

Head-first and feet-first slides were further stratified based on whether the player performed a diveback technique (getting back to base as opposed to advancing). Interestingly, the injury rate for baseball was higher for feet-first slides (7.31 per 1,000 slides) than for head-first slides (3.53 per 1,000) or divebacks (5.75 per 1,000). In softball, the injury rate was higher for head-first (19.45 per 1,000 slides) than feet-first (10.04 per 1,000) or divebacks (7.49 per 1,000 divebacks). Note the higher injury rate for softball, often more than double that of baseball. Most injuries were minor, with only four injuries causing athletes to miss more than seven days. Injuries included finger lacerations, finger fracture/dislocation, ankle sprains and contusions, among others.

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Powell JW, Barbara-Foss KD. Sex-related injury patterns among selected high school sports. *American Journal of Sports Medicine* 2000;28(3):385-391.

As might be assumed from common sense, injuries per 100 players for softball were lower (16.7) than girls' soccer (26.7). Injury rates for girls' soccer were higher than baseball (13.2) and boys' soccer (23.4). Knee injury rates were high for girls compared to boys. Most frequent were knee injuries in girls' basketball and soccer that were higher than their male counterparts. This also included more surgeries for anterior cruciate ligament injuries for girls in these sports compared with boys. Basketball and soccer had higher major injury rates compared with baseball and softball.

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Ellerbacker TS, Mattalino AJ, Elam E, Caplinger R. Quantification of anterior translation of the humeral head in the throwing shoulder: manual assessment versus stress radiography. *American Journal of Sports Medicine* 2000;28(2):161-167.

Manual assessment of instability is a common procedure in evaluating the athletic shoulder. There are few studies that indicate a high degree of interexaminer reliability (except perhaps under anesthesia). There are several grading systems employed by Altchek which divide movement into grades I-III: *Grade I* is translation without overriding of the humeral head over the glenoid; *grade II* is translation of the head onto the glenoid rim; and *grade III* is translation of the humeral head over the glenoid rim. These researchers used manual testing at 90 degrees of abduction in the supine position. Testing with a Telos shoulder-positioning device was applied with a 15-daN anterior load applied to the shoulder in 90 degrees of abduction in both neutral and 60 degrees of external rotation.

Interestingly, there were no significant differences between dominant and nondominant extremities in the amount of anterior translation with manual testing and stress radiography in professional baseball pitchers. As might be expected, there was more external rotation available in the dominant arm, yet this did not translate into more anterior translation on testing. The test-retest reliability was moderate-to-poor for the manual test and moderate for stress radiography.

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Kelly JD, Sliquo D, Sitler MR, et al. Association of burners with cervical canal and foraminal stenosis. *American Journal of Sports Medicine* 2000;28(2):214-217.

Cervical burners/stingers occur frequently in contact sports. In the past, most injuries were attributed to brachial plexus or root stretch lesions. This study suggests a cervical spine hyperextension with or without concomitant lateral flexion injury, causing pinching or compression of the nerve root in the intervertebral foramen. It appears that the brachial plexus stretch injury is more common in younger (scholastic) athletes, whereas the hyperextension/compression injury may be more common in collegiate and professional athletes.

The standard radiographic measure of the central canal ratio (as proposed by Pavlov) uses a lateral radiograph and a ration of the canal width over the vertebral body width. Although there is some argument, generally a ratio of less than 0.8 is considered a predictor of risk. These authors used the same concept for the intervertebral foramina (IVF). This ratio is derived from an oblique cervical film, using the height of the IVF over the height of the vertebral body. They found average ratios of less than 0.65 in the burner group compared to an average ratio of 0.72 in the control group. The authors felt that small ratios may be an indicator of an individual more prone to the extension/compression type of burner.

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