OBJECTIVE
The purpose of the current study was to define the epidemiology of isolated meniscus tears in a young athletic population to fill a relative gap in knowledge. Our hypothesis was that the distribution of injuries would differ from an ACL injured group previously investigated however similar sporting activities would cause risk.

METHODS
The Cadet Injury and Illness Tracking System (CIITS) was used to define a cohort of injured patients. In our closed health care system, this robust database documents demographics, injury mechanisms and injury patterns. Demographics of interest included age, gender and body mass index. The CIITS cohort was screened for all cadets with knee injury diagnoses. Isolated meniscus tears were culled from this group using clinical, radiographic and operative documentation. For inclusion we required diagnosis by sports-medicine trained orthopaedic surgeon, and arthroscopic or MRI confirmation of a surfacing tear.

Patients were excluded for previous or current ligament instability to the knee as well as initial meniscal injury prior to the 2005 start date of this cohort. Meniscal tears were classified by zone of injury, using the method described by Drs. Cooper and Warren, as well as by commonly used tear pattern descriptions. These descriptions came from corroboration of surgical dictations and MRI evaluations.

As part of the core physical fitness curriculum, cadet attendance and participation in intramural, club or varsity sporting events is recorded allowing compilation of Activity Exposure (AE) data which was compared with radiographic and operative documentation. For inclusion we required diagnosis by sports-medicine trained orthopaedic surgeon, and arthroscopic or MRI confirmation of a surfacing tear.

 RESULTS
79 isolated meniscal tears in stable knees met inclusion criteria. Average age, 20 years old. BMI with meniscal tears significantly higher at 25.7 versus 24.6. 3 months average return to full duty from a meniscus tear. 5 month average in the 16 that underwent surgical repair significantly greater vs debridement.

69% of tears to lateral meniscus. Significantly more complex tears to the lateral meniscus and more bucket and horizontal tears to the medial meniscus. Isolated radial tears only found in the lateral meniscus.

Football had the greatest number of meniscus tears for intercollegiate athletes, while wrestling and combatives were greatest number of intramural and department of physical education injuries. Male cadets had most of their injuries during military training tasks.

In conclusion this is a unique study population in terms of age, and documentation of sport and clinical data. Our group adds to data supporting lateral tears as a more prevalent injury in young athletes. We found a high incidence of complex tears on the lateral side but also supported evidence of characteristic lesions: the bucket handle tear to the medial side and radial tears to the lateral side. Our injured group had a higher BMI than the cohort, greater than the 25 threshold that has previously been described as a risk factor. Our intercollegiate males were at increased risk versus females and Wrestling and Rugby are the sports at both the intercollegiate and intramural level that have the greatest risk for meniscus injury.

CONCLUSIONS
In conclusion this is a unique study population in terms of age, and documentation of sport and clinical data. Our group adds to data supporting lateral tears as a more prevalent injury in young athletes. We found a high incidence of complex tears on the lateral side but also supported evidence of characteristic lesions: the bucket handle tear to the medial side and radial tears to the lateral side.


Epidemiology of Isolated Meniscus Tears in Young Athletes
Brendan D. Masini MD, Christopher J. Tucker MD, Jonathan F. Dickens MD, Kenneth L. Cameron PhD, ATC, Steven J. Svoboda MD, Brett D. Owens MD
John A. Feagin, Jr Sports Medicine Fellowship, United States Military Academy, West Point, NY