



Duke Sports Medicine

**INAUGURAL
WILLIAM E. GARRETT, Jr, MD, PhD
SPORTS MEDICINE
RESEARCH DAY**

JUNE 17, 2020



Duke Orthopaedic Surgery

Dr. William E. Garrett, Jr, MD, PhD



April 23, 1949–May 4, 2019

Dr. Garrett was a consummate physician, clinician–scientist, and teacher during his 40+ years of service to Duke University Medical Center and his patients. As a specialist in sports medicine for thirty years, he served as the Medical Director of the U.S. Soccer Federation and Team Physician for the U.S. Men and Women's National Soccer teams, as well as many Duke teams. As a teacher, he has the unique distinction of earning the Outstanding Teacher Award by both the residents at the Duke and UNC Departments of Orthopaedics. He was awarded the Duke Department of Orthopaedic Surgery Master Orthopaedist Award. Posthumously, Dr. Garrett was inducted into the AOSSM Hall of Fame. Dr. Garrett's research awards include the Kappa Delta Award (ORS), Citation Award (ACSM), the Award of Merit (AOSSM), Excellence in Research in the Category of Basic Science (AOSSM), the Excellence in Research Award (AOSSM), the O'Donoghue Award (AOSSM). It is his friendship, mentorship, and love of research and Sports Medicine we honor at this event.

Dr. William E. Garrett, Jr. Visiting Professor

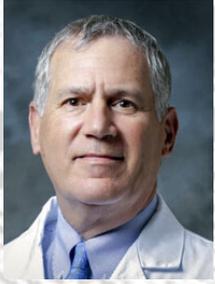
BERT R. MANDELBAUM, MD D.H.L (HON)

Dr. Mandelbaum is a medical graduate of Washington University Medical School in St. Louis in 1980. He completed his residency in Orthopaedic Surgery at The Johns Hopkins Hospital and fellowship in Sports Medicine at UCLA. He served on the faculty at UCLA from 1986-89 and subsequently joined the Santa Monica Orthopaedic and Sports Medicine Group that became Cedars Sinai Kerlan Jobe Institute. Dr. Mandelbaum presently practices there and served as the Director of the Sports Medicine Fellowship Program and Medical Director 1991-2019. He serves as Co-director of Clinical Affairs of the Kerlan Jobe Institute at Cedars Sinai and the Co-Chief of Sports Medicine at Cedar Sinai Orthopaedic Surgery.



He serves as Co-chairman of the Biologic Association and the Regenerative Orthobiologics Center (ROC) at Cedars Sinai. As a team physician, Dr. Mandelbaum has worked with UCLA Athletics (1985-1989) and Pepperdine University (1990-present), LA Galaxy, LAFC and Chivas USA MLS teams. He was the Chief Medical Officer for Women's World Cup Soccer 1999 and 2003, US Soccer Men's National Teams Physician since 1991, the Associate Chief Medical Officer for Major League Soccer since 1996, and served as USA Team Physician for Soccer World Cups '94 in the USA, '98 in France, 2002 in Japan and Korea, Germany in 2006 and South Africa in 2010. He served as FIFA medical officer for Brazil World Cup 2014. He also served as Olympic Medical Officer for the Sydney 2000, Athens 2004, Beijing 2008, London 2012 games and Rio 2016 games. He was Chief Medical Officer for LA 2015 World Special Olympic Games the CONCACAF Gold Cup 2015 and 2017 and COPA Centenario in 2016. He serves as Medical Director for the FIFA Medical Center of Excellence in Santa Monica. Dr. Mandelbaum has published his first motivational and inspiration book entitled ... *The Win Within.... Capturing Your Victorious Spirit*. He does motivational speaking for societies, companies, and groups and writes a monthly column for Medscape and The US World News Report.

PRESENTATIONS



Keynote

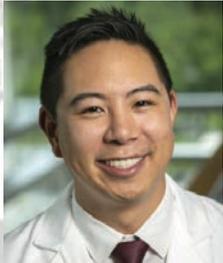
Bert R. Mandelbaum, MD D.H.L (Hon)

The Future of Orthobiologics : Fact, Fiction and Fantasy!



Opening Remarks

Annunziato (Ned) Amendola, MD, Professor of Orthopaedic Surgery; Chief, Division of Sports Medicine; Director, Urbaniak Sports Sciences institute



Jonathan W. Cheah, MD

Use of an Individualized Development Plan to Identify Career Development Needs in Prospective Orthopaedic Sports Medicine Fellows



Rachel Lee, PT, DPT

The Utilization of Blood Flow Restriction Training in Post-Concussion Syndrome Recovery



Danica D. Vance, MD

Performance on ACL Functional Testing in the Pediatric Population



Gary Means, MD

Early Initiation of Vestibular Therapy following Sports Related Concussion: A Retrospective Cohort Study

PRESENTATIONS



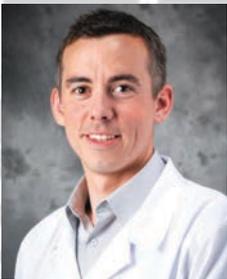
Ryan Jarema PT, DPT, SCS, ATC

The Relationship Between Playing Volume and Eccentric Hamstring Strength During a Season of American Football



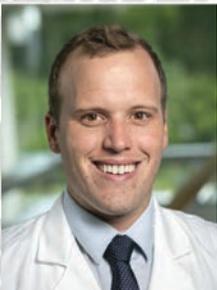
Nicholas A. Bonazza, MD, MHA

Effect of a Novel Healthcare Leadership Program on Leadership Activity and Emotional Intelligence



Thomas Stocklin-Enright, DO

Safety Considerations of Corticosteroid Injections in High Risk Populations



Douglas Landry Jarvis, MD

Minimizing Physal Disruption with a Hybrid Transtibial Drilling Technique during Transphyseal Anterior Cruciate Reconstruction



Nathan McMurray, MD

Medical Diagnoses in a University Athlete Training Room Clinic

Use of an Individualized Development Plan to Identify Career Development Needs in Prospective Orthopaedic Sports Medicine Fellows.

Cheah JW, Cabell GH, Bonazza NA, Taylor DC

Objective: It is critical for orthopaedic surgeons to be strong leaders to maximize team efficiency and patient outcomes. Mentorship is a key aspect of leadership development and literature suggests that there is a lack of mentorship programs in medical training. The Individualized Development Plan (IDP) is a potential tool that can improve mentorship opportunities through identifying specific competencies and knowledge gaps as well as facilitating communication with mentors about short and long term career goals. The objective was to assess prospective orthopaedic surgery sports medicine fellows' views on the skills necessary for career development and the utility of using an IDP for longitudinal career development during sports medicine fellowship.

Methods: Candidates who were being interviewed for an orthopaedic surgery sports medicine fellowship at a single institution voluntarily completed an IDP. The IDP included both quantitative (5 point Likert scale: 1=Needs improvement, 5= Highly proficient) and qualitative responses for a self-assessment of competency for a variety of skills within the domains of: general research skills, teaching skills, professional skills, interpersonal skills, and leadership and management skills. The candidates also completed a survey to assess their perceptions of the IDP tool to define their career goals and its use for longitudinal mentorship (5 point Likert scale: 1= Strongly agree, 2= Disagree, 3= Neutral, 4= Agree, 5=Strongly agree).

Results: Twenty-five candidates completed the IDP and subsequent survey (27% female/73% male). The majority of candidates agreed that the IDP would be a valuable tool to characterize their career and personal goals (73.9%) and facilitate mentorship during fellowship (83.3%). Candidates ranked interpersonal skills as the highest competency skill domain (composite average 4.28 ± 0.24), and professional skills as the lowest competency skill domain (composite average 3.35 ± 0.61). The candidates reported the least competency in the specific skills of grant writing (professional skill domain), large group presentations/public speaking (teaching skill domain), and creating/developing new research directions (general research skill domain, Figure 1). Candidates identified obtaining a fellowship training position, completion of research/academic projects, and improvement of surgical skills as upcoming short term goals. Candidates identified having a role in an academic institution or professional society and having a role with research and innovation as common long term goals.

Conclusion: The majority of candidates found that an IDP would be valuable for both their short-term goals in fellowship and their long-term goals after their training was completed. Longitudinal mentorship during fellowship with a directed focus on grant writing, public/large group speaking, and developing new research directions can improve the deficiencies that was identified on a majority of fellowship candidates' IDPs.

The Utilization of Blood Flow Restriction Training in Post-Concussion Syndrome Recovery – A Pilot RTC Study.

Lee R, Martinez C, Myers H, Pietrosimone L

Purpose/Hypothesis:

Post-concussive syndrome (PCS) is defined as a concussed patient having symptoms longer than 4-6 weeks. Recent evidence suggests that autonomic nervous system (ANS) dysfunction may be one of many potential factors contributing to persistent post-concussive symptoms. Current literature supports early exercise intervention to reduce concussion-like symptoms, such as headaches, dizziness and cognitive difficulties, that may be associated with cerebrovascular dysfunction. Blood Flow Restriction Training (BFRT) may improve cerebrovascular regulatory mechanisms to better tolerate exercise in the post-concussive population but this has not been investigated to-date. Therefore, the purpose of this study is to determine if targeted anaerobic exercise training with BFRT changes Heart Rate Variability (HRV), orthostatic assessment, and patient-reported outcomes in patients with post-concussion syndrome compared to standard exercise, which would indicate improvement in ANS function. We hypothesize that exercise with BFRT will acutely result in reduced number and severity of patient-reported symptoms, greater change in HRV and improved orthostatic measures compared to standard exercise.

Subjects: One 15 y/o male subject has completed the study. He presented with symptoms for 8 weeks prior to evaluation at the Duke Sports Concussion Clinic, and had an initial post-concussion symptom score symptom (PCSS) of 28, a Dizziness Handicap Index (DHI) of 32%, a Neck Disability Index (NDI) of 10% and a Global Rating of Function of 40% at time of his PT evaluation. He was randomized to the BFRT intervention first and then crossed over to the exercise only intervention during his second session.

Materials/Methods: Ten (10) patients (male and female) 14-30 years-old patient with post-concussion syndrome (>4 weeks protracted symptoms and exercise intolerance) referred and diagnosed through the Duke Sports Medicine Concussion Clinic will be the target for this study. Exclusion criteria include: BFRT contraindications, focal neurological deficits, history of migraines, benign paroxysmal positional vertigo (BPPV). A randomized cross-over study design (2 conditions) will be utilized. Patients who are eligible for study enrollment will be randomized to either exercise with BFRT (EX-BFRT) or standard exercise (EX-ONLY) conditions at Session 1 and will complete the other condition at Session 2. Primary dependent variables of interest, including subjective patient-reported outcome measures (PCSS), orthostatic assessment (heart rate and blood pressure), and heart rate variability will be assessed before (pre) and after (post) each exercise condition. Change scores (post – pre) will be calculated for each dependent variable. Paired-samples t tests will be used to compare change scores for each dependent variable between the EX-BFRT and EX-ONLY conditions ($\alpha < 0.05$)

Results: To date, one subject has completed the study protocol. Of the data collected, we noted the following: HRV was acutely decreased following the exercise only intervention (81 pre-intervention to 39 post-intervention), orthostatic BP was found to be normal for all data sets and did not change pre or post for the exercise only intervention, orthostatic HR was found to be positive (>40 bpm or above 120 bpm within 10 min of standing) for all data sets but was acutely reduced following the exercise only intervention.

Discussion/Clinical Relevance: Results are limited secondary to lack of subjects due to COVID-19 restrictions on research activities. However, we can conclude that this study is feasible and safe to be performed in the clinical setting. At the completion of this pilot study, the final results may inform more robust future investigations into the clinical impact of BFRT on patients recovering from post-concussion syndrome.

ABSTRACTS

High Rates of Discordance Between Passing Limb Symmetry Index and Predicted Normative Performance Scores for Return to Sport Testing after Pediatric ACL Reconstruction

Vance DD, Cheah J, Magill J, Risoli TJ, Green C, Reinke EK, Riboh JC

Introduction: Return to sport (RTS) after pediatric anterior cruciate ligament (ACL) reconstruction is associated with a much higher risk (~30%) of ACL reinjury than in adults. The majority of RTS assessments use Limb Symmetry Indices (LSI) on physical performance tests (PPTs) to determine an athlete's readiness for sport. This can be problematic in pediatric patients who have asymmetric limb strength. In this case, comparing them to their contralateral limb may demonstrate a false readiness to return to sport. Therefore the purpose of this study was to use compare patient's LSI scores to an age and gender matched uninjured cohort. We hypothesize that fewer children will attain the 50th percentile for their age and matched group on PPTs than will achieve a passing LSI, creating a more stringent return to sport test for the pediatric population.

Methods: 63 patients who were < 18 years old and had a primary ACL reconstruction underwent RTS at a minimum of 6 months postoperative. The resulting LSIs for each PPT were compared to normative projected growth values for the patient's age and sex. A passing score for PPTs for LSI was >90% while a score >50th percentile was consider passing for the predicted normative performance scores (PNP). PNPs were generated from an age and gender controlled uninjured cohort that had completed RTS assessments previously. Statistical analyses was performed using SAS.

Results: Data demographics of the 63 patients enrolled were; 36/63 (57%) male, mean age 14.2 ± 2.4 years, mean weight 141 ± 35 lbs., and mean height 65 inches ± 5 . For graft types, 33 were BTB (52%), 7 hamstring (11%) 14 quad (22.2%) and 9 ITB (14.3%). The average time from surgery to PPTs were 181.5 ± 15.1 days. Significant differences between passing scores for PNPs and LSIs were found for BOSU ball single leg (SL) squat ($p=0.022$), quadrant clockwise hop test ($p= 0.007$), single hop test ($p = 0.006$) and 6m hop ($p=0.021$). (Table 1 and Figure 1).

Conclusion: Across all PPTs, there was an average discordance rate of passing LSIs and failing PNPs of 55.3%. Patients seem to be able to reach a passing LSI more often than a passing PNP for all PPTs except for the 6m hop. Based on our data, preceding to return to sport with LSI > 90% in the pediatric population should be taken with caution given the low overall passing rate of PNPs.

Early Initiation of Vestibular Therapy following Sports Related Concussion: A Retrospective Cohort Study.

Means GE, Reinke EK, Riboh, JC, Martinez C, Green C, Risoli TJ, Bytowski JR

Background: Vestibular dysfunction is a common sequelae of sports related concussion (SRC) which has been shown to be associated with prolonged recovery time compared to those without vestibular dysfunction. Current treatment models for sports related concussion recovery/rehabilitation do not routinely initiate vestibular therapy for at least 2 to 4 weeks post-injury. The impact of early initiation of vestibular therapy on time to recovery and return to play is unknown.

Purpose: This study aims to determine if there is a relationship between the timing of vestibular physical therapy following SRC and time to return to play.

Study Design: Retrospective cohort study

Level of Evidence: III

Methods: The electronic medical record (EMR) for a primary care sports medicine clinic at a university affiliated hospital system in the southern U.S. was reviewed and data from medical encounters for SRC were included in the analysis. This study evaluated 274 patients sustaining sports related concussions with vestibular dysfunction. Demographic data and information regarding timing and severity of the concussion along with return to play date were recorded.

Results: Multivariate regression analysis revealed an association between time from injury to initial vestibular therapy and time from injury to return-to-play. Adjusting for the other characteristics, for every one day increase in time from injury to initial vestibular therapy, the geometric mean of time from injury to RTP increases by 1.02 days ($\exp(\beta)=1.02$ days; 95% CI: 1.00, 1.01 days; $p<0.001$). Additionally female sex ($\exp(\beta)=1.25$ days; 95% CI: 1.06, 1.46 days; $p<0.006$) and post concussion symptom score ($\exp(\beta)=1.01$ days; 95% CI: 1.01, 1.01 days; $p<0.001$) showed association with duration of recovery.

Conclusion: These data suggest an association between timing of vestibular therapy following Sport Related Concussion and earlier recovery and return to sport. In this population, for each day that vestibular physical therapy was delayed there was an associated 2% increase in recovery time/return to play. This data is also consistent with previous research that identified risk factors for prolonged recovery from SRC.

Clinical Relevance: There is currently limited data on the effects of early initiation of vestibular physical therapy following sports related concussion. This study suggests that early initiation of vestibular physical therapy may reduce overall recovery time and lead to earlier return to play.

ABSTRACTS

The Effect of a NCAA Division I American Football Season on Eccentric Hamstring Strength.

Jarema RG, Sell TC, Beatty K, Steele JR, Katsuta Y, Christopherson ZR

Purpose/Hypothesis: Hamstring strain injuries (HSIs) are a common musculoskeletal injury in American Football (AF) and can result in impaired performance and lost time from competition. Factors that decrease this threshold may contribute to HSI. Fatigue in hamstring muscles is suggested to contribute to decreased eccentric hamstring strength. This relationship has been well studied over the course of a practice or competition. However, there is a paucity of research on changes in eccentric hamstring strength over the course of a season. The primary purpose of this study was to evaluate the effect of a season of AF on eccentric hamstring strength. We hypothesized that throughout the course of a season the additive effects of exercise would result in decreased eccentric hamstring strength at the end of the season compared to the pre-season, especially among the players who received the most playing time during competitions.

Subjects: Thirty-eight Division I male AF athletes divided into two groups. High (H) number of plays ($n = 21$) were players who logged greater than 100 plays during games over the course of the season. Low (L) number of plays ($n = 17$) were those who logged less than 100 plays during games over the course of the season. There was no statically significant difference between groups in age (mean \pm SD, H = 22.0 ± 1.0 yrs, L = 21.5 ± 1.1 yrs) height (H = 74.7 ± 2.4 inches, L = 74.3 ± 2.1 inches) or mass (H = 243.0 ± 50.0 lbs, L = 230.3 ± 41.0 lbs).

Materials/Methods: Participants were excluded if they did not complete both baseline and post-season testing. All eligible participants underwent baseline testing prior to the start and at the end of the 2017-2018 season. Each participant followed the same Nordic testing protocol (three maximal effort repetitions) on the Nordbord Hamstring Testing System (version 1.0; Vald Performance, Queensland, Australia). The maximum and average pull forces were calculated bilaterally and used in the analysis. Statistical analysis included a one-way ANOVA (group and test session) followed by t-tests to examine differences between time points for each group and between each group at each time point. Statistical significance was set a priori a $p < 0.05$.

Results: No significant difference was observed in hamstring strength across a competitive season between high and low volume football players. Main effects of 2x2 One-Way ANOVA demonstrated no statistical significance between groups (low vs high volume), time points (pre-season vs. post season), and interaction effects (group x time). All T tests between preseason and post season demonstrated no statistical significance except left average force pull (N) had a statistical significant gain in eccentric hamstring strength (Pre-Season: 396.8 ± 51.7 ; Post-Season 443.8 ± 92.2 ($p=0.048$)).

Conclusions: Athletic medicine and strength and conditioning programming was sufficient to prevent a deleterious change in strength that was expected in both groups.

Effect of a Novel Healthcare Leadership Program on Leadership Activity and Emotional Intelligence.

Bonazza NA, Cabell GH, Cheah JW, Taylor DC

Background:

Many physicians assume leadership roles at some point in their career. Relatively few have intentional development for these responsibilities. Formal medical education at the undergraduate or graduate levels frequently lacks explicit leadership training. Few leadership curricula have validity evidence that demonstrate effective cultivation of healthcare leaders.

Objective:

We sought to assess the effectiveness of the Feagin Leadership Program (FLP) in measuring the leadership domains it emphasizes, and the leadership activity and emotional intelligence of participants following the program.

Methods:

An anonymous survey was electronically distributed to 178 graduates of the FLP (2011 – 2019). The survey collected demographic information, leadership experience, and participants' views of the impact of the FLP on core leadership domains. Emotional intelligence was assessed through the Trait Emotional Intelligence Questionnaire- Short Form (TEIQue-SF). Respondents were stratified into groups based on their level of training – medical student, resident/fellow, and faculty/staff. ANOVA was used to compare the difference in emotional intelligence domains between groups.

Results: Fifty-six percent of program graduates returned the survey. Of the one hundred and one respondents, fifty-two (51%) were still in some form of medical training. Since completion of the FLP, ninety-two (91%) of respondents had been involved in some form of leadership role. Respondents reported the FLP most improved skills in communication (83, 82.2%), emotional intelligence (65, 64.4%), and team building (64, 64.6%). Medical students (18, 38.3%) and faculty/staff (5/14, 35.7%) reported that the most relevant domain was emotional intelligence; residents/fellows reported the most relevant domain was teamwork (8/37, 21.6%). Overall, the highest level of emotional intelligence was reported the domain of well-being. Respondents in residency/fellowship had the lowest scores of emotional intelligence in the domains of well-being, self-control, and sociability.

Conclusion: A leadership program tailored to medical students, residents and fellows was effective in supporting future leadership activity and helping improve self-reported competency in various leadership domains. Emotional intelligence and teamwork were identified as the most relevant domains taught in the program. Only differences in emotionality on the TEIQue-SF reached statistical significance with medical students having the highest score. This may suggest that participation in leadership training earlier in medical education is more beneficial.

ABSTRACTS

Safety Considerations of Corticosteroid Injections in High Risk Populations.

Stocklin-Enright TF, Johnston KB

Context: Corticosteroids are widely used for musculoskeletal pain control. They are well tolerated in the general population, but may put certain populations at higher risk for adverse effects. This review is meant to aid clinicians in safely considering administration of intraarticular corticosteroids to both Human Immunodeficiency Virus positive (HIV+) individuals on Anti-Retroviral Therapy (ART) and Solid Organ Transplant (SOT) recipients.

Evidence Acquisition: Database search was performed using PubMed from 1960 to 2020

Study Design: Clinical Review

Level of Evidence: 4

Results: HIV+ patients are at increased risk of medication interaction between the corticosteroid and ART resulting in significant metabolic derangement. SOT patients are at greater risk of infection when receiving corticosteroid injections less than one year post-transplant. Additionally, SOT patients are also at risk of metabolic derangement secondary to exogenous corticosteroid administration.

Conclusions: Clinicians should select the lowest tolerable dose and potency of corticosteroid. Coordinated care with the patient's HIV or transplant team is recommended to reduce adverse effects of the corticosteroid utilized. Using a team based approach affords a better chance at patient selection and positive outcomes.

Minimizing Physeal Disruption with a Hybrid Transtibial Drilling Technique during Transphyseal Anterior Cruciate Reconstruction.

DL Jarvis, D Vance, J Riboh

Background: Despite the development of many physeal-sparing methods, a transphyseal Anterior Cruciate Ligament (ACL) reconstruction remains a commonly used technique in the pubescent population (12-16 years old). The challenging aspect of this surgery is achieving an accurate and strong reconstruction while minimizing femoral physeal disruption in order to avoid growth disturbances. Studies have shown that the verticality of transtibial-drilled femoral tunnels creates a smaller cross-sectional area of physeal disruption, but unfortunately lacks rotational stability due to its inability to recreate the native ACL footprint, whereas, the obliquity of the anteromedial drilled tunnels often result in a more anatomic footprint at the expense of a larger physeal lesion. A solution which may offer the advantages of both of these techniques is a hybrid transtibial drilling technique, which uses medial portal guidance of a transtibial guide.

Objectives: The objective of this study was to retrospectively assess the cross-sectional area and location of physeal disruption using 3 different femoral tunnel drilling techniques during ACL reconstruction in a pubescent patient population based on postoperative radiographs.

Study Design: Cohort Study; Level of Evidence III

Methods: We retrospectively analyzed all of the transphyseal ACL reconstructions performed in pubescent children aged 12-16 from January 2013 - December 2019 at our institution. After screening for a history of previous ACL surgery or lack of postoperative radiographs, the remaining patients (n=47) were subdivided into 3 groups based on femoral drilling technique: transtibial (TT) (n=9), anteromedial (AM)(n=18), and hybrid transtibial (HTT) (n=20). Postoperative radiographs were analyzed by 2 orthopedic sports medicine fellows and measurements of the angle and location of the femoral tunnels and physis were recorded into a Redcap database. Applying the equation of an ellipse created by a cylinder passing through a plane, the cross-sectional area of physeal disruption was calculated using the measurements collected.

Results: The coronal angle of the femoral tunnel was significantly more vertical in the TT ($60.7^{\circ} \pm 7.2$) and HTT ($54.4^{\circ} \pm 5.7$) groups as compared to the AM group ($48.8^{\circ} \pm 5.9$); $p = 0.0037$ and $p = 0.02$ respectively. There was no significant difference between the TT and HTT groups ($p = 0.066$). With a standardized 10mm femoral tunnel, the cross-sectional area of physeal injury was 0.901cm^2 , 0.966cm^2 , 1.04cm^2 in the TT, HTT, and AM groups respectively. On the lateral radiograph, the HTT femoral tunnel crossed the femoral physis in a significantly more central position compared to AM drilling ($28.9\% \pm 4.8\%$ vs. $20.0\% \pm 5.1\%$, $p = 0.00002$); however, there was no significant effect on location seen on the AP radiograph ($p = 0.097$).

Conclusion: Physeal disruption in the HTT group was smaller and more central than the AM group, albeit larger than the TT group. Previous evidence has demonstrated the anatomic accuracy of the hybrid transtibial technique to be better than transtibial technique and similar to if not better than the anteromedial technique. Appraising this evidence together, the hybrid transtibial technique may be the most ideal method for transphyseal ACL reconstruction in the pubescent population, consistently producing anatomic accuracy of the anteromedial technique, while minimizing physeal disruption with more vertical and central tunnels. Future 3-dimensional studies should be done to continue to evaluate this technique's accuracy postoperatively.

Medical Diagnoses in a University Athlete Training Room Clinic.

McMurray N, Reinke EK, Riboh JC, Bytomski JR

Background: Approximately 560,000 student-athletes participate in university athletic programs every year. These athletes develop a variety of medical injuries and illnesses during their time at the university. There is currently a paucity of data with regards to medical encounters in a dedicated university athlete training room clinic.

Purpose: This study aims to provide data regarding medical diagnoses that would be expected to be encountered in a university athlete training room clinic.

Study design: Descriptive epidemiology study.

Level of evidence: III-2

Methods: The electronic medical record (EMR) for a year-round, athlete-only training room clinic at a private U.S. university was reviewed and data from medical encounters of university student-athletes for five calendar years were included in analyses. Athlete age, sex, sport, date of medical encounter, and encounter diagnoses were recorded; medical diagnoses were then manually stratified into diagnostic categories and subgroups.

Results: A total of 1,258 student-athletes were evaluated during 5,303 medical encounters. Average number of encounters per athlete per year was 2.2 (0.6 to 3.8, 95% CI). The football team accounted for the greatest number of encounters compared to other athletic teams at the institution (15.2% of total encounters). The most common medical diagnosis category was otorhinolaryngology (30.6% of total diagnoses), followed by orthopedics (14.0%). The most common diagnosis subgroup was upper respiratory infection (14.8% of all diagnoses).

Conclusions: Otorhinolaryngology represented the most frequently encountered diagnostic category (30.6%) followed by orthopedics (14.0%). Upper respiratory infection represented the most common individual diagnosis among all diagnoses (14.8%).

Clinical relevance: There is currently a paucity of data with regards to medical encounters in a dedicated university athlete training room clinic. The results reported in this study provide novel data, coincide with current literature suggesting increased rates of acute infection in athletes, and may be useful in directing future care and research of university athletes.

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