

24 " for HEALTH N°4, 2018.



Carta del Presidente

Estimados amigos y compañeros,

Me complace presentaros el nuevo número de nuestra publicación "24"for Health", que en esta ocasión cuenta con un contenido muy variado.

En él destacamos los resúmenes de varios estudios de patología muy común en nuestra práctica diaria como son las lesiones del ligamento cruzado anterior, patología de tobillo, patología del tendón patelar y del cartílago articular. Por otro lado, hay varios artículos muy interesantes sobre aspectos cardiológicos en la práctica deportiva.

Espero que estos artículos sean de vuestro interés.

Desde aquí quiero agradecer a todos los compañeros y compañeras el trabajo que realizan para hacer posible que esta publicación.

Por último, no quiero desaprovechar la ocasión para desearos unas Felices Fiestas y que disfrutéis de un gran año 2019.



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Epidemiology of Recurrent Anterior Cruciate Ligament Injuries in National Collegiate Athletic Association Sports: The Injury Surveillance Program, 2004-2014.

Orthop J Sports Med. 2018 Jun 13;6(6):2325967118777823.

Gans I1, Retzky JS2, Jones LC1, Tanaka MJ1.

An anterior cruciate ligament (ACL) rupture is a serious injury that can be career-ending in collegiate athletics. A rerupture after primary ACL reconstruction occurs in 1% to 11% of all athletes.

PURPOSE:

To describe the epidemiology of recurrent ACL ruptures in the 25 National Collegiate Athletic Association (NCAA) sports in the NCAA Injury Surveillance Program (ISP) and to identify and compare sport-specific risk factors for a recurrent ACL rupture.

STUDY DESIGN:

Descriptive epidemiology study.

METHODS:

Athletes who experienced a primary or recurrent ACL rupture between 2004 and 2014 were identified using data from the NCAA ISP. ACL ruptures occurred in 12 of 25 sports during the study period. We assessed the rates and patterns of primary and recurrent ACL ruptures and reported them as events per 10,000 athlete-exposures (AEs). Sex-comparable sports were compared using rate ratios. Rupture rates were compared using odds ratios, with P values <.05 indicating significance. Regular-season and postseason data were combined because of low counts of postseason events.

RESULTS:

Of 350,416 AEs, there were 1105 ACL ruptures, 126 of which were recurrent. The highest rates of recurrent ACL ruptures (per 10,000 AEs) were among male football players (15), female gymnasts (8.2), and female soccer players (5.2). Of sports played by athletes of both sexes, women's soccer had a significantly higher rate of recurrent ACL ruptures than men's soccer (rate ratio, 3.8 [95% CI, 1.3-15]). Among all sports, men had a significantly higher rate of recurrent ACL ruptures (4.3) than women (3.0) (P = .04). Overall, the ratio of recurrent to primary ACL ruptures decreased over the 10-year study period. Both women and men had a decreasing trend of recurrent to primary ACL ruptures, although women had a steeper decrease.

CONCLUSION:

These data can help identify athletes who are most at risk of recurrent ACL ruptures after ACL reconstruction and who may benefit from injury prevention programs.

KEYWORDS:

Injury Surveillance Program; National Collegiate Athletic Association; anterior cruciate ligament; primary rupture; recurrent rupture

Free PMC Article <https://www.ncbi.nlm.nih.gov/pubmed/29977938>



10-Year Epidemiology of Ankle Injuries in Men's and Women's Collegiate Basketball.
Orthop J Sports Med. 2018 Nov 5;6(11):2325967118805400.
Tummala SV1, Hartigan DE2, Makovicka JL2, Patel KA2, Chhabra A2.

Ankle injury is the most common injury in men's and women's basketball, regardless of the level of competition.

PURPOSE:

To use the National Collegiate Athletic Association (NCAA) Injury Surveillance Program/System (ISP/ISS) to review the 10-year epidemiology of ankle injuries in men's and women's collegiate basketball players.

STUDY DESIGN:

Descriptive epidemiology study.

METHODS:

The NCAA ISP was queried for men's and women's collegiate basketball ankle injury data from the 2004 through 2014 academic years. Ankle injury rates were calculated based on injuries per athlete-exposure (AE). Injury proportion ratios (IPRs) were determined by comparing variables between sexes. Activity and position of injury were also studied.

RESULTS:

Over the 10-year study period, most ankle injuries in collegiate basketball occurred in the preseason (female, 1.45/1000 AEs; male, 2.00/1000 AEs), were contact related (female, 50.4%; male, 57.6%), were treated conservatively (female, 98.5%; male, 99.3%), and were new injuries (female, 78.0%; male, 78.9%), resulting in a time loss of less than 7 days (female, 62.7%; male, 65.2%). The most common injury types were lateral ligament complex tears (female, 83.5%; male, 80.0%), deltoid ligament tears (female, 5.6%; male, 7.2%), and high ankle sprains (female, 7.1%; male, 7.0%). Guards experienced the highest rate of ankle injuries in competition (female, 50.1%; male, 43.3%), and rebounding was found to be the most common activity during an injury (female, 30.3%; male, 34.4%). The rate of ankle injuries was significantly lower in women than in men (IPR, 0.81 [95% CI, 0.75-0.88]).

CONCLUSION:

This study found that most ankle injuries in collegiate basketball occurred during the preseason, were contact related, were treated conservatively, and were new injuries that resulted in a time loss of less than 7 days.

KEYWORDS:

NCAA; ankle; basketball; prevention; sex comparison

<https://www.ncbi.nlm.nih.gov/pubmed/30480010>



Jumpers Knee.

StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2018-.2018 Oct 27
Santana JA1, Sherman AI2.

“Jumper's knee,” also called patellar tendinopathy, is a painful condition of the knee caused by small tears in the patellar tendon that mainly occurs in sports requiring strenuous jumping. The tears are typically caused by accumulated stress on the patellar or quadriceps tendon. As the name implies, the condition is common in athletes from jumping sports such as volleyball, track (long and high jump), and basketball. The condition has a male predominance. Contrary to traditional belief, jumper's knee does not involve inflammation of the knee extensor tendons. Studies dating back 40 years describe jumper's knee as a degenerative condition. Jumper's knee is a clinical diagnosis made through detailed history taking and a physical exam. Ultrasound can facilitate the diagnosis, as this imaging study is readily available and affordable. Treatment mainly revolves around conservative measures such as reducing activities that place loading impact on the knee. Once the pain subsides, restoration of function is achieved through physical and exercise therapy. Surgery usually remains the last resort for chronic refractory cases.

<https://www.ncbi.nlm.nih.gov/pubmed/30422564>



Return to Play Among Elite Basketball Players After Osteochondral Allograft Transplantation of Full-Thickness Cartilage Lesions

MD Investigation performed at Hospital for Special Surgery, New York, New York, USA
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Osteochondral allograft transplantation (OCA) is a recognized option for full-thickness articular cartilage defects of the knee, especially in the setting of large lesions or those involving the subchondral bone. Previous heterogenous studies of athletes have shown a 75% to 79% rate of return to play after the procedure. Purpose: To define return-to-play rates in a cohort of elite collegiate and professional basketball players following osteochondral allograft of the knee. Study Design: Case series; Level of evidence, 4. Methods: Prospectively collected data from an institutional cartilage repair registry were retrospectively reviewed. Patients were eligible for inclusion if they were collegiate or professional basketball players at the time of surgery. Patient demographics, lesion size and location, and surgical details were collected. Postoperative magnetic resonance imaging scans were scored with the OCAMRISS system. Time to return to play and pre- versus postoperative player performance were determined with publicly available internet resources. Results: Eleven athletes (4 professional, 7 collegiate) with a total of 14 treated lesions (1 to the medial femoral condyle, 6 to the lateral femoral condyle, 5 to the trochlea, and 2 to the patella) were eligible for study inclusion. Mean lesion size was 509 mm². All patients underwent OCA through an arthrotomy, with fresh grafts. The overall rate of return to play at the same level of competition was 80%. Median time to return to play was 14 months (range, 6-26 months). Among players with available statistics, there was no significant reduction in any performance category. Conclusion: OCA in elite basketball players results in an 80% return to previous level of competition, which is consistent with previous reports of athletes playing other sports. Osteochondral allografting is a reasonable option to consider for full-thickness cartilage lesions of the knee, even for elite jumping athletes. Keywords: osteochondral allograft transplantation; knee; return to sport basketball

Free PMC Article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6083754/>



A Comprehensive Return-to-Play Analysis of National Basketball Association Players With Operative Patellar Tendon Tears.

Orthop J Sports Med. 2018 Oct 12;6(10):2325967118800479. doi:

10.1177/2325967118800479. eCollection 2018 Oct.

Nguyen MV1, Nguyen JV2, Taormina DP3, Pham H3, Alaia MJ3.

BACKGROUND:

Patellar tendon tears impart potentially debilitating sequelae among professional basketball athletes.

HYPOTHESIS:

Professional basketball athletes with patellar tendon tears have decreased return-to-play performance in seasons after injury compared with preinjury statistics

STUDY DESIGN:

Case series; Level of evidence, 4.

METHODS:

Patellar tendon tears among National Basketball Association (NBA) athletes from the 1999-2000 to 2014-2015 seasons were identified. Player performance statistics for players who underwent operative patellar tendon repair were compared from 1 season before injury to 1 season after injury and 2 seasons before injury to 2 seasons after injury using the primary outcome of player efficiency rating (PER). Secondary performance outcomes were also analyzed.

RESULTS:

A total of 13 patellar tendon tears (10 complete, 3 partial) were identified among 12 NBA athletes. Three players (25%) did not return to play in the NBA. No significant differences were found in PER in comparisons of 1 season before and after injury (16.6 ± 1.5 vs 14.3 ± 1.7 ; $P = .20$) or in comparisons of 2 seasons before and after injury (15.8 ± 0.8 vs 6.3 ± 2.3 ; $P = .49$). Diminished performance outcomes were noted for total minutes played (2598 ± 100 vs 1695 ± 78 ; $P = .01$), games played (74.8 ± 1.9 vs 60.5 ± 1.4 ; $P = .04$), and minutes per game (34.8 ± 1.5 vs 28.2 ± 1.8 ; $P = .02$) in comparisons of 1 season before and after injury. Total minutes played per season (2491 ± 190 vs 799 ± 280 ; $P = .045$) decreased in comparisons of 2 seasons before and after injury.

CONCLUSION:

Patellar tendon tears were not associated with diminished efficiency-adjusted performance, as measured by PER, games played, minutes per game played, points per 36 minutes, and rebounds per 36 minutes. However, decreases in total minutes played were observed following patellar tendon tear. Orthopaedic surgeons may be better prepared to counsel basketball athlete patients with patellar tendon tear given these findings.

KEYWORDS:

National Basketball Association; basketball; patellar tendon injury; patellar tendon tear; return to play; sports medicine

<https://www.ncbi.nlm.nih.gov/pubmed/30345321>



The quiet eye is sensitive to exercise-induced physiological stress.

Prog Brain Res. 2018;240:35-52. doi: 10.1016/bs.pbr.2018.08.008.

Epub 2018 Sep 27.

Wilson MR1, Webb A2, Wylie LJ2, Vine SJ2.

The current study sought to explore attentional mechanisms underpinning visuomotor performance degradation following acute exercise. Ten experienced basketball players took free throws while wearing mobile eye tracking glasses, before and after performing a bout of cycling exercise. Shooting accuracy was measured using a 6-point scoring system, and quiet eye duration (the final fixation to a target) was adopted as an objective measure of top-down attentional control. Four intensities of exercise (based on an initial ramp test) were performed in a counterbalanced order: rest, moderate, heavy and severe. The four intensities resulted in participants reaching $52\pm 4\%$, $58\pm 4\%$, $76\pm 6\%$ and $86\pm 5\%$ of their heart rate max, respectively. Performance and quiet eye were only significantly impaired (19% and 45% drops, respectively) between pre- and post-intervention at the severe intensity workload level. Additionally, exercise-induced changes in quiet eye predicted 33% of the subsequent change in performance accuracy. The results suggest that attentional disruptions may at least partially explain why sporting skills break down under acute fatigue. Implications for training to mitigate against these impairments are discussed.

KEYWORDS:

Attention; Basketball; Eye tracking; Fatigue; Psychophysiology

<https://www.ncbi.nlm.nih.gov/pubmed/30390839>



Cardiovascular Life Support Use of Antiarrhythmic Drugs During and Immediately After Cardiac Arrest

An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

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ABSTRACT:

Antiarrhythmic medications are commonly administered during and immediately after a ventricular fibrillation/pulseless ventricular tachycardia cardiac arrest. However, it is unclear whether these medications improve patient outcomes. This 2018 American Heart Association focused update on advanced cardiovascular life support guidelines summarizes the most recent published evidence for and recommendations on the use of antiarrhythmic drugs during and immediately after shock-refractory ventricular fibrillation/pulseless ventricular tachycardia cardiac arrest. This article includes the revised recommendation that providers may consider either amiodarone or lidocaine to treat shock-refractory ventricular fibrillation/pulseless ventricular tachycardia cardiac arrest.

J Strength Cond Res. 2018 Oct 5. doi: 10.1519/JSC.0000000000002876. [Epub ahead of print]



Competition-Based Heart Rate, Training Load, and Time Played Above 85% Peak Heart Rate in NCAA Division I Women's Basketball.

Sanders GJ, Boos B1, Rhodes J2, Kollock R03, Peacock CA4.

Sanders, GJ, Boos, B, Rhodes, J, Kollock, R0, and Peacock, CA. Competition-based heart rate, training load, and time played above 85% peak heart rate in NCAA division I women's basketball. *J Strength Cond Res XX(X): 000-000, 2018*-Basketball athletes frequently engage in intensities $\geq 85\%$ HRpeak throughout competition. Knowing the time spent competing at intensities $\geq 85\%$ HRpeak can improve training protocols. The purpose of the study was to assess heart rate responses across 4-quarter games ($N = 31$) in an NCAA division I women's basketball season. Ten female athletes were tested and monitored with heart rate-based wearable microsensor devices. Before the season, HRpeak was recorded through a peak metabolic test (V[Combining Dot Above]O₂peak). Average (HRavg) and HRpeak were recorded for each game, and time spent in 5 heart rate zones (HRZones) were recorded: HRZone1 = 50-60% HRpeak, HRZone2 = 60-70% HRpeak, HRZone3 = 70-76% HRpeak, HRZone4 = 77-84% HRpeak, and HRZone5 = 85-100% HRpeak. Training load was calculated with the summated-heart-rate-zone model (SHRZmod). There was a main effect of position ($p \leq 0.019$) and quarter ($p \leq 0.005$) on SHRZmod and on time spent in HRZone1-5. Athletes accumulated the most time in HRZone4 and HRZone5 and in the fourth quarter, and SHRZmod was the greatest in the fourth quarter. There was no main effect for HRavg and HRpeak ($p \geq 0.110$). Athletes averaged 34.5 minutes per game competing in HRZone5 or $\geq 85\%$ HRpeak with nearly one-third of those minutes accumulated in the fourth quarter. Although there were no differences in HRavg and HRpeak from quarter to quarter, SHRZmod increased from the first to fourth quarter. Utilizing time spent in heart rate zones and training load with SHRZmod can provide valuable information to practitioners regarding the intensity and physiological demands of competitive basketball games.

<https://www.ncbi.nlm.nih.gov/pubmed/30299392>



The role of echocardiography in the evaluation of cardiac re-modelling and differentiation between physiological and pathological hypertrophy in teenagers engaged in competitive amateur sports.

Cardiol Young. 2017 May;27(4):706-712. doi: 10.1017/S1047951116001116. Epub 2016 Oct 18.

Sulovic LS1, Mahmutovic M2, Lazic S3, Sulovic N4.

Aims "Athlete's heart" is a cardiac adaptation to long-term intensive training. The aims of this study were to show the prevalence of left ventricular hypertrophy in teenagers who participate in sports, to define the different types of cardiac re-modelling, and to differentiate between physiological and pathological hypertrophy.

METHOD:

Echocardiographic measurements were obtained by M-mode, two dimensional, and Doppler techniques of participants from sports and control groups.

RESULTS:

The echocardiographic examinations included 100 healthy teenagers taking part in dynamic sports such as football and basketball and 100 healthy teenagers taking part in static sports such as karate and judo. The control group (n=100) included healthy, sedentary teenagers. Sports participants had significantly higher left ventricular mass when compared with the control group, ($p < 0.05$). Respondents from both groups had E/A ratios (transmitral flow velocity ratio) > 1 , preserved diastolic function, and statistically they did not differ from the control group.

CONCLUSION:

Echocardiographic parameters show that physiological hypertrophy and cardiac re-modelling are present in teenagers who play sports. Unexpectedly, the prevalence of concentric and eccentric types of re-modelling is equally possible in the group of static sports participants.

KEYWORDS:

NCAA; ankle; basketball; prevention; sex comparison



Cardiac troponin elevation and exercise.

Int J Cardiol. 2016 Oct 15;221:609-21. doi: 10.1016/j.ijcard.2016.06.243.

Epub 2016 Jun 28.

Gresslien T1, Agewall S2.

ABSTRACT:

Cardiac troponins are the preferred biomarkers in diagnostic of myocardial infarction, but these markers also can rise in response to exercise. Multiple studies have assessed troponins post-exercise, but the results have varied and there have been disagreements about the mechanism of troponin release. The aim of this paper was to review the literature, and to consider factors and mechanisms regarding exercise-induced increase of troponin. 145 studies were found after a search in pubmed and inclusion of additional articles found in the reference list of the first articles. Results showed that troponin rises in 0-100% of subjects after prolonged heavy exercise like marathon, but also after short-term and intermittent exercise like 30min of running and basketball. The variation can be due to factors like intensity, age, training experience, variation in sample size, blood sample timing and troponin assay. The pattern of troponin level post-exercise corresponds to release from the cytosolic compartment of cardiomyocytes. Increased membrane permeability might be caused by production of reactive oxygen species or alterations in calcium, pH, glucose/fat metabolism or in communication between integrins. Other suggested mechanisms are increased cardiovascular stress, inflammation, vasculitis, release of troponin degradation products in "blebs", dehydration, impaired renal clearance and expression of cardiac troponin in skeletal muscle. It can be concluded that both heavy and light exercise may cause elevated troponin, which have to be considered when patient are suspected to have a myocardial infarction. Several factors probably influence post-exercise lev



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