24" for HEALTH

La Revista Digital de la Asociación Española de Médicos de Baloncesto

2019 NÚM4

Carta del Presidente

Estimados compañeros y compañeras,

Quiero presentaros el nuevo número de 24” for Health.

Creo que encontrareis tremendamente interesante este nuevo número ya que contiene una gran variedad de temas relacionados con la práctica médica y el baloncesto (traumatología, fisiología, Entrenamiento, Dopaje y hasta obstetricia) y que os sean de utilidad para ampliar nuestros conocimientos.

Me gustaría animaros a colaborar con artículos, casos clínicos, etc. a todos aquellos que estéis interesados en compartir vuestras experiencias con todos nosotros.

Por último quiero agradecer a todos los compañeros y compañeras que hacen posible esta publicación su dedicación.

Un saludo.

Juan José Pérez Toledano
Presidente de la AEMB.

AEMB Asociación Española de Médicos de Baloncesto

Grupo de trabajo de la AEMB

Rosario Ureña Durán
Especialista en MD y MF.
Área médica de la FEB.
Comisión Médica FIBA y COE.
rosariourenaduran@hotmail.com

Nuria Herranz Urbasos
Especialista en MD y MF.
Área médica de la FEB.
nuriaherrazurbasos@gmail.com

Javier Borrego-Rodríguez
Médico Interno Residente de Cardiología.
Complejo Asistencial Universitario de León.
Colaborador Área Médica FEB.
jborrego458@gmail.com

Elena Quintas Miranda
Máster en Medicina Clínica.
Médico responsable de Domusvi en Outeiro de Rei.
Colaboradora médica selecciones formación.
Jugadora de baloncesto.
ele_peke_88@hotmail.com

Francisco Romero Quintero
Licenciado en Medicina.
Servicio Andaluz de Salud.
Colaborador Área Árbitros FEB.
fmromeroquintero@gmail.com

Marta Sarasa Roca
Residente de Cirugía Ortopédica y Traumatología.
HCU Lozano Blesa.
martasarasa93@gmail.com

Índice de artículos

On the Court: A Comprehensive Analysis of Basketball Facial Trauma.

01

Craniomaxillofac Trauma Reconstr. 2019 Dec;12(4):266-270.

Othman S, Cohn JE, McKinnon B.

With basketball gradually becoming increasingly popular across the United States, it is necessary for health care providers to understand injuries associated with the sport. We aim to determine the incidence of basketball-related facial injuries and further describe their patterns with regard to age, mechanism of injury, and degree of injury. An analysis of emergency department visits under the National Electronic Injury Surveillance System was conducted from 2015 through 2017. Chi-squared testing (χ^2) was performed to compare categorical variables. After a review of results, a total of 4,578 patients were included for analysis spanning a 3-year time period (2015-2017). Lacerations were the most common injury overall (57.9%). Nasal fractures were by far the most common fracture (76.1%), and elbows to the face and collisions with other players were the most common types of injury mechanisms (31 and 28.7%, respectively). Adolescents (aged 12-18 years) were the most frequently injured group (42.5%), although young adults (aged 19-34 years) were also frequently affected (30.1%). Basketball facial trauma remains a prominent issue. Our research, in correlation with previous research, shows that current precautions to injury are not widely observed or are ineffective to the extent of need for further reform. It thus becomes necessary to provide patient education and develop more practical methods for decreasing player injury.

https://www.ncbi.nlm.nih.gov/pubmed/31719950

Epidemiology of Lumbar Spine Injuries in Men's and Women's National Collegiate Athletic Association Basketball Athletes.

02

Orthop J Sports Med. 2019 Oct 31;7(10)

Makovicka JL, Deckey DG, Patel KA, Hassebrock JD, Chung AS, Tummala SV, Hydrick TC, Pena A, Chhabra A.

Lumbar spine injuries (LSIs) are common in both men's and women's National Collegiate Athletic Association (NCAA) basketball players and can frequently lead to reinjuries and persistent pain.

PURPOSE:

To describe the epidemiology of an LSI in collegiate men's and women's basketball during the 2009-2010 through 2013-2014 academic years.

STUDY DESIGN:

Descriptive epidemiology study.

METHODS:

The incidence and characteristics of LSIs were identified utilizing the NCAA Injury Surveillance Program (ISP). Rates of injury were calculated as the number of injuries divided by the total number of athlete-exposures (AEs). AEs were defined as any student participation in 1 NCAA-sanctioned practice or competition. Incidence rate ratios (IRRs) were then calculated to compare the rates of injury between season, event type, mechanism, injury recurrence, and time lost from sport.

RESULTS:

The NCAA ISP reported 124 LSIs from an average of 28 and 29 men's and women's teams, respectively. These were used via validated weighting methodology to estimate a total of 5197 LSIs nationally. The rate of LSIs in women was 2.16 per 10,000 AEs, while men suffered LSIs at a rate of 3.47 per 10,000 AEs. Men were 1.61 times more likely to suffer an LSI compared with women. In men, an LSI was 3.48 times more likely to occur in competition when compared with practice, while in women, an LSI was 1.36 times more likely to occur in competition than in practice. Women suffered the highest LSI rate during the postseason, while the highest rate in men was during the regular season. The majority of both female (58.9%; n = 1004) and male (73.1%; n = 2353) athletes returned to play within 24 hours of injury.

CONCLUSION:

To date, this is the largest study to characterize LSIs in NCAA basketball and provides needed information on the prevalence and timing of these injuries. The majority of injuries in both sexes were new, and most athletes returned to play in less than 24 hours. Injury rates were highest during competition in both sexes.

https://www.ncbi.nlm.nih.gov/pubmed/31700939

Epidemology of Neck Injuries Accompanying Sport Concussions in Youth Over a 13-Year Period in a Community-Based Healthcare System.

03

Int J Sports Phys Ther. 2019 Jun;14(3):334-344.

Carmichael JP, Staton EW, Blatchford PJ, Stevens-Lapsley J.

The same trauma that produces concussion may also produce neck injury. The signs of concussion and neck injury are similar, and symptoms after acceleration-deceleration trauma to the head-neck complex do not accurately discriminate between them. Research on the epidemiology of neck injury among sport-concussed youth is sparse.

PURPOSE:

The purpose of this study was to investigate the epidemiology of diagnosed neck injury in non-sport-related concussion (Non-SRC) versus sport-related concussion (SRC) in youth by age, sex, and sport.

STUDY DESIGN:

Cross-sectional epidemiologic study.

METHODS:

De-identified data from community-based electronic health records over 13 years were extracted to analyze rates and characteristics of neck injuries among non-SRCs and SRCs in youth aged five to 21. Neck injury diagnosis prevalence rates and odds ratios were calculated to estimate risk of neck injury among concussed youth, comparing non-SRCs to SRCs by age and sex.

RESULTS:

Sixteen thousand, eight hundred eighty-five concussion records were extracted, of which 3,040 SRCs and 2,775 non-SRCs in youth aged five to 21 were identified by cross-filtering sport-related keywords (e.g., football, basketball, soccer, running, swimming, batting, horseback riding, skiing, etc.) with all ICD-9 and ICD-10 concussion codes. The prevalence of neck injuries diagnosed among SRCs (7.2%) was significantly different than the prevalence of neck injuries diagnosed among non-SRCs (12.1%, $p < 0.000$). Neck injury diagnoses were significantly more prevalent in females overall ($p < 0.000$) and among non-SRCs ($p < 0.000$). The prevalence of neck injury diagnoses was not significantly higher in concussed females versus concussed males with SRC ($p = 0.164$).Among youth aged five to 21 exposed to concussions, non-SRCs were more likely to be accompanied by a neck injury diagnosis than SRCs (OR 1.66; 95% CI 1.39 to 1.98; $p < 0.000$). Similarly, female-to-male neck injury proportion ratios were significantly higher in females in non-SRCs compared to SRCs (IPR 1.90, 95% CI 1.60 to 2.25, $p < 0.000$).Sports with highest prevalence of concussion differ from sports with highest prevalence of concussion-related neck injury in both sexes.

CONCLUSIONS:

The overall prevalence of diagnosed neck injuries in youth was higher in non-SRCs compared to SRCs (12.1 vs. 7.2%, $p < 0.001$), with the highest prevalence at age 14 in both sexes. The risk of neck injury diagnosis accompanying concussion was significantly higher in females compared to males (6.1% difference; $p < 0.000$).

https://www.ncbi.nlm.nih.gov/pubmed/31681492

Return to Play and Long-term Participation in Pivoting Sports After Anterior Cruciate Ligament Reconstruction.

04

Am J Sports Med. 2019 Dec;47(14):3339-3346.

Lindanger L, Strand T, Mølster AO, Solheim E, Inderhaug E.

Rupture of the anterior cruciate ligament (ACL) is a common and feared injury among athletes because of its potential effect on further sports participation. Reported rates of return to pivoting sports after ACL reconstruction (ACLR) vary in the literature, and the long-term consequences of returning have rarely been studied.

PURPOSE:

To examine the rate and level of return to pivoting sports after ACLR, the duration of sports participation, and long-term consequences of returning to pivoting sports.

STUDY DESIGN:

Cohort study; Level of evidence, 2.

METHODS:

All primary ACLRs with a bone-patellar tendon-bone autograft between 1987 and 1994 (N = 234) in athletes participating in team handball, basketball, or soccer before injury were selected from a single-center quality database. A long-term evaluation (median, 25 years; range, 22-30 years) was performed using a questionnaire focusing on return to pivoting sports, the duration of sports activity after surgery, later contralateral ACL injuries, revision surgery, and knee replacement surgery. Participants were stratified into 2 groups depending on the time between injury and surgery (early, <24 months; late, ≥24 months).

RESULTS:

A total of 93% of patients (n = 217) responded to the questionnaire. Although 83% of patients returned to pivoting sports after early ACLR, only 53% returned to preinjury level. Similar return-to-sport rates were observed in males and females (P > .05), but males had longer sports careers (median, 10 years; range, 1-23 years) than females (median, 4 years; range, 1-25 years; P < .001). The incidence of contralateral ACL injuries was 28% among athletes who returned to sports versus 4% among athletes who did not return (P = .017) after early ACLR. The pooled reinjury rate after return to preinjury level of sports was 41% (30%, contralateral injuries; 11%, revision surgery). The incidence of contralateral ACL injuries was 32% among females versus 23% among males (P > .05) and, for revision surgery, was 12% among females versus 7% among males (P > .05) after returning to sports. Having a late ACLR was associated with an increased risk of knee replacement surgery (9% vs 3%; P = .049) when compared with having an early ACLR.

CONCLUSION:

ACLR does not necessarily enable a return to preinjury sports participation. By returning to pivoting sports after ACLR, athletes are also facing a high risk of contralateral ACL injuries. Long-term evaluations in risk assessments after ACLR are important, as a significant number of subsequent ACL injuries occur later than the routine follow-up.

https://www.ncbi.nlm.nih.gov/pubmed/31633994

Effectiveness of Warm-Up Routine on the Ankle Injuries Prevention in Young Female Basketball Players: A Randomized Controlled Trial.

05

Medicina (Kaunas). 2019 Oct 16;55(10).

Padua E, D'Amico AG, Alashram A, Campoli F, Romagnoli C, Lombardo M, Quarantelli M, Di Pinti E, Tonanzi C, Annino G.

Introduction:

The use of dietary supplements is increasing among athletes, year after year. Related to the high rates of use, unintentional doping occurs. Unintentional doping refers to positive anti-doping tests due to the use of any supplement containing unlisted substances banned by anti-doping regulations and organizations, such as the World Anti-Doping Agency (WADA). The objective of this review is to summarize the presence of unlabeled doping substances in dietary supplements that are used in sports. Methodology: A review of substances/metabolites/markers banned by WADA in ergonutritional supplements was completed using PubMed. The inclusion criteria were studies published up until September 2017, which analyzed the content of substances, Metabolites and markers banned by WADA.

Results:

446 studies were identified,23 of which fulfilled all the inclusion criteria. In most of the studies, the purpose was to identify doping substances in dietary supplements. Discussion: Substances prohibited by WADA were found in most of the supplements analyzed in this review. Some of them were prohormones and/or stimulants. With rates of contamination between 12 and 58%, non-intentional doping is a point to take into account before establishing a supplementation program. Athletes and coaches must be aware of the problems related to the use of any contaminated supplement and should pay special attention before choosing a supplement, informing themselves fully and confirming the guarantees offered by the supplement.

www.mdpi.com/journal/nutrients

Genomic Prediction of Tendinopathy Risk in Elite Team Sports.

07

Int J Sports Physiol Perform. 2019 Oct 14:1-7. [Epub ahead of print]

Rodas G, Osaba L, Arteta D, Pruna R, Fernández D, Lucia A.

Purpose:

The authors investigated the association between risk of tendinopathies and genetic markers in professional team sports.

Methods:

The authors studied 363 (mean [SD]; 25 [6] y, 89% male) elite players (soccer, futsal, basketball, handball, and roller hockey) from a top-level European team (FC Barcelona, Spain). Of 363, 55% (cases) had experienced 1+ episodes of tendinopathy during 2008-2018 and 45% (controls) remained injury free. The authors first examined the association between single-nucleotide polymorphisms (SNPs) and tendinopathy risk in a hypothesis-free case-control genome-wide association study (495,837 SNPs) with additional target analysis of 58 SNPs that are potential candidates to influence tendinopathy risk based on the literature. Thereafter, the authors augmented the SNP set by performing synthetic variant imputation (1,419,369 SNPs) and then used machine learning-based multivariate modeling (support vector machine and random forest) to build a reliable predictive model.

Results:

Suggestive association ($P < 10\text{-}5$) was found for rs11154027 (gap junction alpha 1), rs4362400 (vesicle amine transport 1-like), and rs10263021 (contactin-associated protein-like 2). Carriage of 1+ variant alleles for rs11154027 (odds ratio = 2.11; 95% confidence interval, 1.07-4.19, $P = 1.01 \times 10\text{-}6$) or rs4362400 (odds ratio = 1.98; 95% confidence interval, 1.05-3.73, $P = 9.6 \times 10\text{-}6$) was associated with a higher risk of tendinopathy, whereas an opposite effect was found for rs10263021 (odds ratio = 0.42; 95% confidence interval, 0.20-0.91], $P = 4.5 \times 10\text{-}6$). In the modeling approach, one of the most robust SNPs was rs10477683 in the fibrillin 2 gene encoding fibrillin 2, a component of connective tissue microfibrils involved in elastic fiber assembly.

Conclusions:

The authors have identified previously undescribed genetic predictors of tendinopathy in elite team sports athletes, notably rs11154027, rs4362400, and rs10263021.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0221818

Relative Body Weight and Standardised Brightness-Mode Ultrasound Measurement of Subcutaneous Fat in Athletes: An International Multicentre Reliability Study, Under the Auspices of the IOC Medical Commission.

08

Sports Med. 2019 Sep 30. [Epub ahead of print]

Müller W, Fürhapter-Rieger A, Ahammer H, Lohman TG, Meyer NL, Sardinha LB, Stewart AD, Maughan RJ, Sundgot-Borgen J, Müller T, Harris M, Kirihennedige N, Magalhaes JP, Melo X, Pirstinger W, Reguant-Closa A, Risoul-Salas V, Ackland TR.

INTRODUCTION:

Fat is a metabolic fuel, but excess body fat is ballast mass, and therefore, many elite athletes reduce body fat to dangerously low levels. Uncompressed subcutaneous adipose tissue (SAT) thickness measured by brightness-mode ultrasound (US) provides an estimate of body fat content.

METHODS:

The accuracy for determining tissue borders is about 0.1-0.2 mm and reliability (experienced measurers) was within ± 1.4 mm (95% limit of agreement, LOA). We present here inter- and intra-measurer scores of three experienced US measurers from each of the centres C1 and C2, and of three novice measurers from each of the centres C3-C5. Each of the five centres measured 16 competitive adult athletes of national or international level, except for one centre where the number was 12. The following sports were included: artistic gymnastics, judo, pentathlon, power lifting, rowing, kayak, soccer, tennis, rugby, basketball, field hockey, water polo, volleyball, American football, triathlon, swimming, cycling, long-distance running, mid-distance running, hurdles, cross-country skiing, snowboarding, and ice hockey. SAT contour was detected semi-automatically: typically, 100 thicknesses of SAT at a given site (i.e., in a given image), with and without fibrous structures, were measured.

RESULTS:

At SAT thickness sums D_I (of eight standardised sites) between 6.0 and 70.0 mm, the LOA of experienced measurers was 1.2 mm, and the intra-class correlation coefficient ICC was 0.998; novice measurers: 3.1 mm and 0.988. Intra-measurer differences were similar. The median D_I value of all 39 female participants was 51 mm (11% fibrous structures) compared to 17 mm (18%) in the 37 male participants.

DISCUSSION:

D_I measurement accuracy and precision enables detection of fat mass changes of approximately 0.2 kg. Such reliability has not been reached with any other method. Although females' median body mass index and mass index were lower than those of males, females' median D_I was three times higher, and their percentage of fibrous structures was lower. The standardised US method provides a highly accurate and reliable tool for measuring SAT and thus changes in body fat, but training of measurers is important.

https://www.ncbi.nlm.nih.gov/pubmed/31571156

Review Intended or Unintended Doping? A Review of the Presence of Doping Substances in Dietary Supplements Used in Sports

09

J Sports Sci. 2019 Nov 29:1-10.

Burris K, Liu S, Appelbaum L.

Elite athletes not only run faster, hit harder, and jump higher, but also see and react better. However, the specific visual-motor skills that differentiate high-achieving athletes are still not well understood. In this paper we examine 2317 athletes (1871 male) tested on the Nike SPARQ Sensory Station, a digital test battery measuring visual, perceptual and motor skills relevant for sports performance. We develop a multivariate Gaussian transformation model to robustly estimate visual-motor differences by level, gender, and sport type. Results demonstrate that visual-motor performance is superior for athletes at higher levels, with males faster at near-far eye movements and females faster at eye-hand reaction times. Interestingly, athletes who play interceptive sports such as baseball and tennis exhibit better measures of visual clarity, contrast sensitivity and simple reaction time, while athletes from strategic sports like soccer and basketball have higher measures of spatial working memory. These findings provide quantitative evidence of domain-specific visual expertise in athletes.

https://www.ncbi.nlm.nih.gov/pubmed/31782684

Core-Muscle Training and Neuromuscular Control of the Lower Limb and Trunk.

10

J Athl Train. 2019 Sep;54(9):959-969. PubMed

Sasaki S, Tsuda E, Yamamoto Y, Maeda S, Kimura Y, Fujita Y, Ishibashi Y.

Comprehensive injury-prevention training (plyometric, agility, balance, and core-stability exercises) has been shown to decrease sport-related injury. The relationship between trunk control and sport-related injury has been emphasized; however, the isolated effects of core-muscle training are unclear.

OBJECTIVE:

To investigate the effect of a simple 8-week core-muscle-training program on the neuromuscular control of the lower limb and trunk during jump landing and single-legged squatting.

DESIGN:

Controlled laboratory study.

SETTING:

Laboratory.

PATIENTS OR OTHER PARTICIPANTS:

Seventeen female collegiate basketball players were randomly divided into training (n = 9; age = 19.7 ± 0.9 years) and control (n = 8; age = 20.3 ± 2.5 years) groups.

INTERVENTION(S):

The training group completed the core-muscle-training program in addition to daily practice, and the control group performed only daily practice. Kinematic and kinetic data during a drop-jump test and single-legged squat were acquired using a 3-dimensional motion-analysis system.

MAIN OUTCOME MEASURE(S):

Three-dimensional hip, knee, and trunk kinematics; knee kinetics; and isokinetic muscle strength were measured at the pretraining and posttraining phases.

RESULTS:

For the drop-jump test, the maximal trunk-flexion angle increased (P = .008), and peak knee-valgus moment (P = .008) decreased in the training group. For the single-legged squat, the peak trunk-flexion angle increased (P = .04), and the total amount of trunk lateral-inclination angle (P = .02) and peak knee-valgus moment (P = .008) decreased in the training group. We observed no changes in the control group.

CONCLUSIONS:

A consecutive 8-week core-muscle-training program improved lower limb and trunk biomechanics. These altered biomechanical patterns could be favorable to preventing sport-related injuries.

https://www.ncbi.nlm.nih.gov/pubmed/31386583

Pressing Crowd Noise Impairs the Ability of Anxious Basketball Referees to Discriminate Fouls.

11

Front Psychol. 2019 Oct 21;10:2380

Sors F, Tomé Lourido D, Parisi V, Santoro I, Galmonte A, Agostini T, Murgia M.

The decision-making processes of referees in sports are affected by many factors, including the pressure of spectators. While the home/visitor bias has been previously investigated, the role of crowd noise has been less studied. In the present study, we investigated how the crowd noise (calm vs. pressing) influence the decisions of basketball referees, when examining videos of potential fouls. In doing so, we also considered the level of competitive anxiety of referees (low vs. high anxiety), as factor potentially interacting with the pressure exerted by the spectators. A 2 × 2 ANOVA (Crowd noise x Anxiety) revealed a significant interaction [$F(1,28) = 7.33$; $p < 0.05$; $\eta 2p = 0.21$; power = 0.74], with the highly anxious referees showing poorer performances in the pressing crowd condition [$t(14) = 2.24$; $p < 0.05$; $d = 0.64$]. The results indicate that the crowd noise does not seem to affect the referees' decisions, unless we consider the anxiety. The present findings suggest that the decisions of referees with high anxiety might be more easily influenced by external factors like crowd noise. Based on these results, referees' federations should consider the possibility to develop training protocols dedicated to highly anxious referees, to avoid their decisions from being biased by spectators' pressure.

https://www.ncbi.nlm.nih.gov/pubmed/31695657

24'' for HEALTH

AEM

Asociación Española de Médicos de Baloncesto