24" for HEALTH

N°2, 2018.

Carta del Presidente

Queridos amigos, tras la buena acogida del primero, llega el segundo número de **24" FOR HEALTH**.

Como comentamos en el primer número se trata de un proyecto trimestral de nuestra Asociación, y el compromiso se mantiene intacto.

Quiero animaros, en nombre de todo el Grupo de Trabajo que lo elabora, a participar en el proyecto a través de casos clínicos, experiencias y comentarios que puedan enriquecer al resto de asociados.

Sólo me queda hacer hincapié en el contenido del siguiente número que aparecerá en septiembre.

Con motivo del FIBA WOMEN´S Basketball World Cup que se celebrará en esas fechas en Tenerife, se está preparando un monográfico dedicado al baloncesto femenino. Conocéis el interés de nuestra Asociación en dar al baloncesto femenino el valor que merece, y por ello esperamos vuestras aportaciones.

Un saludo y nos vemos en Barcelona.

Dr. Francisco José Sarasa Oliván
Presidente de la AEMB.

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J Orthop Sports Phys Ther. 2018 Apr 6:1-38. doi: 10.2519/jospt.2018.7192. [Epub ahead of print]

Considerations in the Diagnosis and Accelerated Return to Sport of a Professional Basketball Player With a Triceps Surae Injury: A Case Report.

Anloague PA1, Strack DS2.

Abstract

Study Design Case report. Background Acute injuries of the triceps surae and Achilles tendon are common in sports. Rupture of the plantaris tendon can be challenging to diagnose. There is limited evidence detailing the diagnosis, rehabilitation, and accelerated return to sport of elite professional basketball players who have suffered calf injuries. Case Description A 25-year-old male professional basketball player sustained injury to his calf during a professional basketball game. This case report details the presumptive diagnosis, graduated progression of intervention, and return to play of a professional sports person with a likely isolated plantaris tendon tear. Outcomes The patient returned to post season competition 10-days post injury. Objective measures were tracked throughout rehabilitation and compared to baseline assessments. Before returning to play the athlete showed improvements beyond the minimal clinically important difference for ankle girth (2 cm) and Numeric Pain Rating (4 points, scale 0-10). Functional testing was conducted that included the Y-Balance Lower Quarter test and the Functional Movement Screen with results that exceeded or returned the athlete to pre-season levels. Discussion This report demonstrates a case where a professional basketball player returned to competitive play in an accelerated time frame following injury to his calf. Diagnosing a plantaris tendon rupture can be challenging, and anatomical variations of this muscle should be considered. It was demonstrated in this case that physical therapy (PT) rehabilitation was helpful in making a treatment based clinical diagnosis when imaging was unclear. Level of Evidence Therapy, level 5. J Orthop Sports Phys Ther, Epub 6 Apr 2018. doi:10.2519/jospt.2018.7192.

KEYWORDS:

Achilles tendinopathy; calf strain; plantaris rupture; return to sport

PMID:29623750 DOI: 10.2519/jospt.2018.7192

Knee Surg Sports Traumatol Arthrosc. 2018 Mar 6. doi: 10.1007/s00167-018-4888-4. [Epub ahead of print]

Greater body mass index and hip abduction muscle strength predict noncontact anterior cruciate ligament injury in female Japanese high school basketball players.

Shimozaki K1, Nakase J2, Takata Y1, Shima Y3, Kitaoka K4, Tsuchiya H1.

Abstract

PURPOSE:

This 3-year prospective study assessed risk factors for noncontact anterior cruciate ligament (ACL) injuries in female Japanese high school basketball players. Players suffering noncontact ACL injuries were assumed to demonstrate poorer hip abductor, knee flexor, and knee extensor muscle strength, as well as static balance, than those without injuries.

METHODS:

One hundred and ninety-five new female high school basketball players underwent baseline examinations for various parameters during their first year of high school. After the baseline data were collected, all ACL injuries occurring over the subsequent 3 years were recorded. The assessment parameters between the noncontact ACL injury group and the control group were compared.

RESULTS:

Of the 195 players, 24 were excluded due to pre-existing injuries present during the initial examination, quitting the basketball club during the follow-up period, or missing data. The remaining 171 players were observed for 3 years; unilateral noncontact ACL injuries were occurred in 12 players. Significantly lower general joint laxity and greater hip abductor strength were observed in the ACL injury group than in the control group. Body mass index (BMI) and hip abductor strength were significantly greater in the ACL injury group than in the control group, based on logistic regression analysis.

CONCLUSIONS:

Greater BMI and hip abductor muscle strength were independent risk factors for noncontact ACL injuries in female Japanese high school basketball players. Although performing complete screens may be difficult, attention should be given to ACL injuries, particularly in highly competitive players with strong muscles.

LEVEL OF EVIDENCE:

III.

KEYWORDS:

Anterior cruciate ligament injury; Body mass index; Female; Hip abduction muscle; Japanese high school basketball players; Noncontact

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PLoS One. 2018 Jan 9;13(1):e0191077. doi: 10.1371/journal.pone.0191077. eCollection 2018.

Knee strength ratios in competitive female athletes.

Kabacinski J1, Murawa M1, Mackala K2, Dworak LB3.

Abstract

Knee strength ratios are related to the movement patterns, sport-specific training and knee injuries in athletes. The purpose of this study was to determine the ratios in the concentric isokinetic strength of the hamstrings and quadriceps and the isometric strength of the knee extensors. In female basketball players (n = 14) and female volleyball players (n = 12) were evaluated: the hamstrings to quadriceps peak torque ratio (H/Q) and side-to-side peak torque ratio (TR) for hamstrings and quadriceps; the ratio of the maximal bilateral strength to the summed maximal unilateral strength (B/U) and side-to-side maximal strength ratio (SR) for knee extensors. For the H/Q values, a 2 × 2 × 3 mixed-factorial analysis of variance and Bonferroni post hoc test were computed. The H/Q values increased from 48.0 (3.9)% at 60°/s to 70.4 (7.9)% at 300°/s. Furthermore, there were significant differences in the H/Q values between 300°/s and 180°/s, 300°/s and 60°/s in basketballand volleyball athletes, and between 180°/s and 60°/s only in basketball athletes ($p < .05$). Significantly higher H/Q results at 60°/s demonstrated basketball players than volleyball players ($p < .05$). Differences in the TR and SR mean values ranged from 4.4% to 8.6% and indicated no significant side-to-side strength deficits ($p > .05$). In both groups, greater isometric strength developed bilaterally was found (B/U > 100%). The findings revealed the magnitude of knee strength ratios in female athletes determined by sport-specific movements in basketball and volleyball. This study highlighted the importance of the bilateral strength deficit and muscular balance between the hamstrings and quadriceps in basketball and volleyball athletes in activities related to their movement patterns and specific training.

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Free PMC Article https://www.ncbi.nlm.nih.gov/pubmed/29315348

Neurourol Urodyn. 2018 Feb 21. doi: 10.1002/nau.23538. [Epub ahead of print]

Prevalence and risk of sport types to stress urinary incontinence in sportswomen: A cross-sectional study.

Hagovska M1, Švihra J2, Buková A3, Dračková D3, Švihrová V4.

Abstract

OBJECTIVE:

The objective of our study was to investigate the prevalence and risk of developing stress urinary incontinence (SUI) in each type of high-intensity sport, and the associated impact on quality of life in sportswomen.

METHODS:

This cross-sectional study was conducted between March and November 2016. The study included 278 sportswomen. The basic inclusion criteria were being nulliparous and engaging in high-intensity physical activity. The exclusion criteria were childbirth, surgical treatment of gynecological and urological illnesses and urinary tract infection. For evaluation were used: The International Physical Activity Questionnaire (IPAQ), The International Consultation on Incontinence Questionnaire Urinary Incontinence (ICIQ-UISF), the Overactive Bladder Questionnaire (OAB-q), the Urinary Incontinence Quality of Life Scale (I-QOL).

RESULTS:

The highest percentage of SUI was found in athletes (23.8%), followed by volleyball players (19.6%). We found that cumulative metabolic equivalent (MET) did not affect SUI, but the type of sport did. The risk of SUI was highest in volleyball sportswomen (odds ratio[OR] = 2.16,95% confidence interval[CI] = 0.96-4.89, P < 0.05) and athletes (OR = 2.56,95%CI = 0.87-7.51, P = 0.08). As assessed by the I- QOL, SUI in people who participated in fitness and athletics (e.g., basketball, volleyball and handball) had a negative impact on quality of life including behavior, psychosocial impacts and social embarrassment score.

CONCLUSION:

Volleyball players have a 116% chance of getting SUI compared to women who play other types of sports that were analyzed as part of this study. Healthcare professionals should inform the population of sportswomen with risk factors for SUI in order to implement preventive physiotherapy for strengthening pelvic floor muscles.

KEYWORDS:

prevalence; quality of life; risk of development; sportswomen; stress urinary incontinence; types of sports

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https://onlinelibrary.wiley.com/doi/abs/10.1002/nau.23538

Br J Sports Med. 2018 Feb;52(4):261-268. doi: 10.1136/bjsports-2016-096005. Epub 2016 Jun 30.

Injuries sustained in National Collegiate Athletic Association men's and women's basketball, 2009/2010-2014/2015.

Zuckerman SL1, Wegner AM2, Roos KG3, Djoko A3, Dompier TP3, Kerr ZY3.

Abstract

OBACKGROUND/AIM:

Recent rule changes regarding the safety of basketball athletes necessitate up-to-date reports of injury incidence. This study describes the epidemiology of injuries in men's and women's National Collegiate Athletic Association (NCAA) basketball during the 2009/2010-2014/2015 seasons.

METHODS:

Basketball injury data originate from the 2009/2010-2014/2015 academic years from the NCAA Injury Surveillance Program (NCAA-ISP) from 78 men's and 74 women's NCAA basketball programmes which provided 176 and 181 team-seasons, respectively. A reportable injury occurred during organised practice or competition and required attention from an athletic trainer (AT) or physician. Injury rates, injury proportions and rate ratios (RRs) were calculated. All 95% CIs not containing 1.0 were considered statistically significant.

RESULTS:

A total of 2308 and 1631 injuries were reported in men's and women's basketball, respectively, for injury rates of 7.97 and 6.54/1000 athlete-exposures (AEs). The rate was higher in men than women (RR=1.22; 95% CI 1.15 to 1.30). Non-time-loss (NTL) injuries (resulting in participation restriction time under 24 hours) accounted for 64.8% and 53.6% of men's competition and practice injuries, respectively, and 53.9% and 51.3% of women's competition and practice injuries, respectively. Injuries to the lower extremity were the most common in competitions (men: 54.9%; women: 59.0%) and practices (men: 62.4%; women: 67.3%). The most common injury in men's and women's basketball was ankle sprain (17.9% and 16.6%, respectively).

CONCLUSIONS:

NTL injuries account for over half of all injuries in basketball. Most injuries were lower extremity injuries, specifically ankle sprains. While rule changes have been implemented to make basketball safer, continued research is needed to assess the effectiveness of these changes.

KEYWORDS:

Ankle; Basketball; Concussion; Sporting injuries

PMID:27364907DOI:10.1136/bjsports-2016-096005

Investigation performed at Kerlan-Jobe Orthopaedic Clinic, Los Angeles, California, USA

Vitamin D Insufficiency Among Professional Basketball Players A Relationship to Fracture Risk and Athletic Performance

Jason A. Grieshober,† MD, Nima Mehran,† MD, Christos Photopolous,† MD, Matthew Fishman,† MD, Stephen J. Lombardo,† MD, and F. Daniel Kharrazi,† MD*

Background:

Vitamin D is believed to play a role in influencing fracture risk and athletic performance. Insufficiency of vitamin D affects an estimated three-quarters of the United States population. Hypovitaminosis D has also been demonstrated to be quite common among professional basketball players in the National Basketball Association (NBA). Purpose: To determine whether a relationship exists between vitamin D levels and fracture risk and athletic performance (as measured by NBA draft status) among elite basketball players. Study Design: Descriptive epidemiology study. Methods: Data were obtained from the NBA regarding combine participants from 2009 through 2013. This information included vitamin D level, demographic information, fracture history, and NBA draft status. The data were analyzed to determine associations between vitamin D level and fracture risk and NBA draft status. Results: Vitamin D levels were measured for 279 players at the NBA Combine from 2009 through 2013. Vitamin D deficiency (30 ng/mL) were present in only 26.5%. A total of 118 players had a history of at least 1 fracture. Vitamin D level was not predictive of fracture risk. Contrary to our hypothesis, players with a history of stress fracture had a significantly greater mean vitamin D level than those without such history (30.7 vs 25.1 ng/mL; P ¼ .04). A majority (79.6%) of participants were selected in the NBA draft. Players with deficient vitamin D levels had a significantly lower rate of being drafted into the NBA (P ¼ .027). The NBA draft rate was found to increase with increasing levels of vitamin D (P ¼ .007). Conclusion: Hypovitaminosis D is quite common among NBA Combine participants, affecting 73.5%. While no significant relationship was found between vitamin D level and fracture history, patients with a history of stress fracture had significantly greater mean vitamin D levels. Additionally, participants with greater vitamin D levels were more likely to be drafted into the NBA. This information supports the potential role of vitamin D in influencing athletic performance.

Keywords:

vitamin D insufficiency; stress fractures; athletic performance; professional basketball

http://journals.sagepub.com/doi/10.1177/2325967118774329

Biomed Res Int. 2018 Apr 24;2018:4523849. doi: 10.1155/2018/4523849. eCollection 2018.

Plantar Stress-Related Injuries in Male Basketball Players: Variations on Plantar Loads during Different Maximum-Effort Maneuvers.

Chen Y1,2, Li JX3, Hong Y4, Wang L1,2.

Author information

Abstract

This study aims to compare the insole load of three maximum-effort cutting tasks in basketball. Sixteen male basketball players were recruited to participate in the study. The Pedar Mobile system was used to record the insole plantar load distribution during three cutting tasks (45° cutting, 90° cutting, and sideward cutting). The peak pressures (PP) and maximum force (MF) at the total foot and at each foot mask were used in data analysis. ANOVA with repeated measures was employed to investigate the differences in the measures among these cutting tasks. At the total foot, the highest MF value was showed when performing sideward cutting. At the heel, the highest PP and MF were found when performing 90° cutting. The PP and MF were lower when performing 90° cutting than when conducting 45° and sideward cuttings at the medial midfoot and the central forefoot. Furthermore, the MF value was lower when performing 45° cutting than when conducting sideward cutting at the medial midfoot and the central forefoot. These findings corroborate the fact that plantar loads differed during the three maximum-effort cutting maneuvers. Differences in the plantar loads for different cutting may be potential risks for overuse-related injuries to the lower extremities of basketball players.

PMID: 29854756 PMCID: PMC5941807 DOI:10.1155/2018/4523849 Free PMC Article
https://www.ncbi.nlm.nih.gov/pubmed/29854756

Phys Ther Sport. 2018 Apr 17;32:133-139. doi: 10.1016/j.ptsp.2018.04.011. [Epub ahead of print]

Head coaches' attitudes towards injury prevention and use of related methods in professional basketball: A survey.

Wilke J1, Niederer D2, Vogt L2, Banzer W2.

Abstract
OBJECTIVES:

To investigate the practices and attitudes of professional basketball head coaches towards injury prevention.

DESIGN:

Survey.

SETTING:

Elite-level basketball.

PARTICIPANTS:

Head coaches of all 366 German professional teams.

MAIN OUTCOME MEASURES:

Use of injury risk screening methods, rated importance of different musculoskeletal injuries and rated effectiveness of preventive interventions.

RESULTS:

Eighty-three of 366 invited coaches (23%) responded to the survey. No non-response bias was detected. Only one of three teams conducts systematic injury screenings. The most commonly used test was the functional movement screen (73.1% of users), while balance and strength testing (both 38.5%) were least prevalent. Top-rated preventive interventions included balance and strength training, training of functional movement patterns, and stretching. In contrast, passive interventions, e.g. the use of orthoses, were not considered effective. The involvement of a health professional (e.g. physiotherapist) was associated with the performance of injury screening, but not with the choice of specific tests or preventive strategies.

CONCLUSIONS:

The methods applied to conduct injury screening and prevent musculoskeletal disorders in German professional basketballteams seem only partially backed by scientific evidence. Although not correlated with the tests and interventions used, the involvement of health-related stakeholders might help to identify players at increased injury risk.

KEYWORDS:

Preventive strategies; Screening; Sports injuries; Warm-up

J Strength Cond Res. 2018 Jun;32(6):1723-1730. doi: 10.1519/JSC.0000000000002043.

Anthropometric Parameters, Age, and Agility as Performance Predictors in Elite Female Basketball Players.

Garcia-Gil M1, Torres-Unda J, Esain I, Duñabeitia I, Gil SM, Gil J, Irazusta J.

Abstract

Garcia-Gil, M, Torres-Unda, J, Esain, I, Duñabeitia, I, Gil, SM, Gil, J, and Irazusta, J. Anthropometric parameters, age, and agility as performance predictors in elite female basketball players. J Strength Cond Res 32(6): 1723-1730, 2018-In addition to technical, tactical, and psychological skills, performance in playing basketball depends on anthropometry and physical fitness. However, limited information is available regarding such features in women. We hypothesized that anthropometry and physical fitness are associated with female basketballperformance, and consequently, performance could be predicted using the results of certain anthropometric measures and fitness tests. Body parameters (age, height, body mass, skinfold thicknesses, limb perimeters, and lengths) were measured. Physical fitness capacities (jumping, agility with and without the ball, and speed) were measured by specific tests. In addition, game performance was assessed using technical statistics (rebounds, assists, and points) and the performance index rating (PIR). Teams ranked better in the regular season had smaller mean fat skinfold thickness and spent less time in the agility tests (T-Drill). Correlation analyses indicated that players with better PIR were older, taller, and had a longer arm span and greater contracted arm perimeter (CAP). Furthermore, those players had better results in the T-Drill test. Multiple regression analysis indicated that combined age, height, CAP, fat skinfold thickness, and time in T-Drill test yielded a strong predictor of PIR per time played. In conclusion, the results of the present study indicate that some anthropometric and physical fitness characteristics of female elite basketball teams and players are highly associated with performance-related parameters. In addition, a regression model has been developed to predict the performance of female basketball players.

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Orthop J Sports Med. 2018 Apr 20;6(4):2325967118767077. doi: 10.1177/2325967118767077. eCollection 2018 Apr.

Defining Platelet-Rich Plasma Usage by Team Physicians in Elite Athletes.

Kantrowitz DE1, Padaki AS1, Ahmad CS1, Lynch TS1.

Abstract

BACKGROUND:

The indications for the use of platelet-rich plasma (PRP) are vaguely defined despite the frequency of its use as a treatment for athletes. While select studies have advocated for its efficacy, the majority of orthopaedic research conducted on the topic has been equivocal.

PURPOSE:

To define the use of PRP in elite athletes by team physicians from professional sports leagues.

STUDY DESIGN:

Cross-sectional study.

METHODS:

A survey assessing treatment timing, usage patterns, indications, and complications was generated by fellowship-trained sports medicine orthopaedic surgeons. The survey was distributed to team physicians from the National Football League, National BasketballAssociation, Major League Baseball, National Hockey League, Major League Soccer, and the "Power 5" Division I conferences of the National Collegiate Athletic Association. From a compilation of publicly available email addresses and those available from professional team physician associations, 149 team physicians were sent this PRP assessment tool.

RESULTS:

Of the 149 professional and collegiate team physicians contacted, 59 started the survey and 46 completed it, resulting in a 39.6% participation rate and a 30.9% completion rate. Approximately 93% of physicians stated that they use PRP in their practices, and 72% use ultrasonography for injection guidance. On average, collegiate team physicians and National Football League physicians treated the most players per season with PRP (69.4 and 60.4 players, respectively), while National Hockey League physicians treated the fewest (18.0 players). The majority of respondents reported no complications from PRP injections (70%), with pain being the most common complication reported (26%). There was no consensus on the most important aspect of PRP formulation, with the top 2 responses being platelet concentration (48%) and white blood cell concentration (39%). When grading the importance of indications to use PRP, physicians found athlete desire on average (7.5 ± 2.2 [SD]; out of 10) to be more important than reimbursement (2.2 ± 2.2) ($P < .001$). Importantly, physicians stated that they moderately (5.4 ± 2.3) believed in the evidence behind PRP. Physicians listed hamstring injuries as the most common injury treated with PRP. Hamstring injuries were treated with a mean 3.14 PRP injections, as opposed to 2.19 injections for nonhamstring injuries.

CONCLUSION:

Professional and collegiate team physicians frequently use PRP despite a lack of consensus regarding the importance of the formulation of the product, the timing of treatment, and the conditions that would most benefit from PRP treatment.

KEYWORDS:

PRP injection; biologic healing enhancement; hamstring; platelet-rich plasma
PMID: 29780836 PMCID: PMC5954340 DOI: 10.1177/2325967118767077 Free PMC Article

https://www.ncbi.nlm.nih.gov/pubmed/29780836

Heart. 2018 May 10. pii: heartjnl-2018-313088. doi: 10.1136/heartjnl-2018-313088. [Epub ahead of print]

T wave inversions in a young athlete.

Nguyen VP1, Prutkin JM1.

Abstract

CLINICAL INTRODUCTION:

A 21-year-old black athlete presented for a preparticipation medical examination prior to playing collegiate basketball. He had no exercise limitations, syncope, dizziness or palpitations. He took no medications. There was no family history of coronary artery disease, cardiomyopathy, sudden cardiac arrest, drowning or seizures. Physical examination revealed a tall, well-appearing young man with an athletic build. Blood pressure was 119/61 mm Hg. Cardiac examination was unremarkable with no murmurs. A screening ECG is shown in Figure 1.heartjnl;heartjnl-2018-313088v2/F1F1F1Figure 1Resting 12-lead ECG performed in clinic. Patient was asymptomatic at the time of acquisition.

QUESTION:

What is the next step in the evaluation of this patient?Transthoracic echocardiogram.Cardiac MRI.Holter monitor.Exercise treadmill stress test.No further testing indicated.

KEYWORDS:

ECG/electrocardiogram

PMID: 29748419 DOI: 10.1136/heartjnl-2018-313088
http://heart.bmj.com/content/early/2018/05/14/heartjnl-2018-313088 No es libre

J Orthop Sports Phys Ther. 2018 Apr 27:1-26. doi: 10.2519/jospt.2018.8088. [Epub ahead of print]

Diagnostic Accuracy of a Self-Report Measure of Patellar Tendinopathy in Youth Basketball.

Owoeye OBA1,2, Wiley JP1,3, Walker REA4,5, Palacios-Derflingher L1,6, Emery CA1,2,5,7.

Abstract

Study Design Prospective diagnostic accuracy validation study. Background Engaging clinicians for diagnosis of patellar tendinopathy in large surveillance studies is often impracticable. A self-report measure, the Oslo Sports Research Trauma Centre patellar tendinopathy (OSTRC-P) Questionnaire, an adaptation of the OSTRC Questionnaire may provide a viable alternative. Objectives To evaluate the diagnostic accuracy of the OSTRC-P Questionnaire in detecting patellar tendinopathy in youth basketball players when compared to clinical evaluation. Methods Following the Standards for Reporting of Diagnostic Accuracy Studies guidelines, 208 youth basketball players (aged 13-18 years) were recruited. Participants completed the OSTRC-P Questionnaire (index test) prior to a clinical evaluation (reference standard) by a physiotherapist blinded to OSTRC-P Questionnaire results. Sensitivity, specificity, predictive values (PVs), likelihood ratios (LRs) and posttest probabilities were calculated. Linear regression was used to examine the association between OSTRC-P Questionnaire severity score and patellar tendinopathy severity rating during single leg decline squat (SLDS). Results The final analysis included 169 players. The OSTRC-P Questionnaire had a sensitivity of 79% (95%CI: 65%, 90%), specificity of 98% (95%CI: 94%, 100%), positive PV of 95%, negative PV of 92%, positive LR of 48 and negative LR of 0.21. The posttest probabilities were 95% and 8% given positive and negative results, respectively. A positive association was found between OSTRC-P Questionnaire and SLDS rating [(β = .08 (95%CI: .03, .12) (p = .001)]. Conclusions The OSTRC-P Questionnaire is an acceptable alternative to clinical evaluation for self-reporting patellar tendinopathy and grading its severity in settings involving youth basketball players. Level of Evidence Diagnosis, level 1b. J Orthop Sports Phys Ther, Epub 27 Apr 2018. doi:10.2519/jospt.2018.8088.

KEYWORDS:

OSTRC questionnaire; epidemiology; jumper's knee; overuse injury

PMID: 29703124 DOI: 10.2519/jospt.2018.8088

Nutrition. 2018 Feb 5;53:34-37. doi: 10.1016/j.nut.2018.01.015. [Epub ahead of print]

Protein supplementation enhances cerebral oxygenation during exercise in elite basketballplayers.

Ho CF1, Jiao Y2, Wei B2, Yang Z2, Wang HY1, Wu YY3, Yang C3, Tseng KW3, Huang CY4, Chen CY5, Kuo CH6.

Abstract

OBJECTIVE:

The aim of the present study was to examine cerebral oxygenation during high-intensity exercise in elite basketball players who consumed supplements with different whey protein contents after a short postexercise recovery to determine whether changing whey protein content in carbohydrate-based supplementation influences cerebral hemodynamic response when the supplement was consumed during a 2-h recovery after a 1-h exercise challenge.

METHODS:

This was a randomized, counterbalanced crossover study. Fifteen Division 1 collegiate basketball players (18-20 y) consumed 6.25 kcal/kg of either high-protein (36% protein in total calorie) or an isocaloric low-protein (12% protein in total calorie) control supplement in a carbohydrate-based drink immediately after a 1-h cycling (70% of maximal oxygen consumption [VO2max]). After a 2-h rest, the athletes were challenged on a cycloergometer at 80% VO2max. Blood perfusion (total hemoglobin) and oxygen saturation of frontal brain were continuously measured by near-infrared spectroscopy during the cycling.

RESULTS:

Before the cycloergometer test, high-protein supplementation increased peak insulin response and lowered glucose increases during the recovery compared with the low-protein trial. High-protein supplementation enhanced increases in cerebral oxygen saturation ($P < 0.01$) and attenuated increases in cerebral blood perfusion (total hemoglobin; $P < 0.01$) during the cycloergometer exercise; and resulted in a 16% longer cycling time (from 474 ± 49 s to 553 ± 78 s, $P < 0.05$), compared with the low-protein trial.

CONCLUSION:

Enhanced fatigue recovery after consumption of a high-protein supplement is associated with enhanced cerebral oxygenation against exercise challenge, which spares brain blood demand for periphery.

KEYWORDS:

Endurance performance; Frontal brain; Hemodynamic; NIRS; Whey protein

PMID: 29631106 DOI: 10.1016/j.nut.2018.01.015
Articulo libre https://www.nutritionjrnl.com/article/S0899-9007(18)30039-X/pdf

24" for HEALTH

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