



PRACTICE-CHANGING UPDATES

ARTICLES

1 [Consensus recommendations for managing osteoarthritic pain with topical NSAIDs in Asia-Pacific.](#) FULL ARTICLE ACCESS

Rafanan BS Jr, Valdecañas BF, Lim BP, Malairungsakul A, Tassanawipas W, Shiyi C, Tse LF, Luong TK.

Pain Manag. 2018 Mar;8(2):115-128.

PMID: 29251544

Osteoarthritis (OA) prevalence in the Asia-Pacific region is rising rapidly due to population aging. Identifying safe and effective therapies to manage associated pain is a priority. The Asia-Pacific Experts on Topical Analgesics Advisory Board developed consensus statements for use of topical NSAIDs in musculoskeletal pain based on reviewed evidence. Best available evidence indicates topical NSAIDs have moderate effect in relieving osteoarthritic pain, comparable to that of oral NSAIDs but with better risk-benefit ratio. International clinical practice guidelines recommend topical NSAIDs on par with or ahead of oral NSAIDs for pain management in patients with hand and knee OA and as 1st line therapy in persons aged ≥75 years.

2 [New Recommendations on Sport-Related Concussions: Stronger Methodology, Practical Messages, and Remaining Challenges.](#) FULL ARTICLE ACCESS

Frémont P, Schneider K.

Clin J Sport Med. 2018 Jan 11.

PMID: 29337723

The 5th International Consensus Statement on Concussion in Sport introduced new recommendations. 18 months of work preceded the consensus conference involving multidisciplinary experts. The methodology involved a Delphi technique defining 12 key questions- each of which led to a systematic review of evidence and consensus on recommendations. A summary on best practices in sport-related concussion (SRC) including safe return to normal activities, was provided. Recommendations included the Concussion Recognition Tool 5 (CRT5) to assist parents, coaches, players etc. where onsite medical personnel may not be available, to recognise a possible concussion and give recommendations on removal from play and follow-up. Individualised, graduated return to school (RTSc) before that to sport (RTSp) is recommended, as is return to the previous step in CRT5 and medical clearance obtained if symptoms worsen or recur. All suspected SRC should be assessed by a physician or licensed healthcare provider and the importance of identifying concurrent injuries (e.g. cervical injury, post-traumatic headaches, vestibulo-ocular dysfunction) is emphasised. The statement is available with associated tools at [\[https://bjsm.bmj.com/content/bjsports/51/11/838.full.pdf\]](https://bjsm.bmj.com/content/bjsports/51/11/838.full.pdf).



TECHNOLOGY AND MEDICINE

ARTICLES	
1	<p>Interactive Virtual Reality Reduces Quadriceps Pain during High-Intensity Cycling. <i>Wender CLA, Ahn SJ, O'Connor PJ.</i> Med Sci Sports Exerc. 2019 Oct;51(10):2088-2097. PMID: 31033903</p> <p>Brief, high-intensity cycling allows physiological benefits in a short workout time, but burning quadriceps pain is a barrier to engaging in this type of exercise. Virtual reality (VR) can temporarily decrease pain, but its effect on muscle pain during high-intensity exercise is unknown. This randomised study determined if interactive VR (I-VR) could reduce quadriceps pain or improve performance in high-intensity cycling. 94 recreationally-active adults completed 3 sprint interval cycling trials at high resistance (adjusted for gender and body weight). Participants cycled wearing a head-mounted display, viewing either a dynamically changing cityscape (I-VR) or static picture of the cityscape (static VR). Compared to static VR control, I-VR reduced quadriceps pain intensity by 13.3% and 11.8% at sprint intervals 2 and 3 respectively, without reducing performance.</p>

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SPORTS MEDICINE ARTICLES

ARTICLES

- 1 [Elite football teams that do not have a winter break lose on average 303 player-days more per season to injuries than those teams that do: a comparison among 35 professional European teams.](#) FULL ARTICLE ACCESS

Ekstrand J, Spreco A, Davison M.

Br J Sports Med. 2019 Oct;53(19):1231-1235.

PMID: 30442720

A prospective study of 56 professional men's football teams from 15 European countries, followed for 7 seasons, to compare injury rates of teams that have a winter break in their league season to that in teams which do not. Individual training, match exposure and time-loss injuries were recorded. English teams had no winter break while other European teams had a mean winter break of 10 days. Teams with no winter break had higher incidence of severe injuries and lost a mean 303 days/ season more from injuries than teams which did. Findings suggest absence of a winter break is linked to higher injury burden before and during the two periods after the time many European teams take a winter break.

- 2 [Risk Factors for Prolonged Symptoms of Mild Traumatic Brain Injury: A Pediatric Sports Concussion Clinic Cohort.](#)

Fehr SD, Nelson LD, Scharer KR, Traudt EA, Veenstra JM, Tarima SS, Liu XC, Walter KD.

Clin J Sport Med. 2019 Jan;29(1):11-17.

PMID: 29084034

A retrospective review examining predictors of prolonged symptom duration from mild traumatic brain injury (mTBI) in a specific population of patients at an outpatient pediatric sports medicine clinic. 549 patients (age 10-18 years) with concussions were reviewed in an outpatient clinic mainly managing sports-related injuries (77.3%). Those meeting criteria for mTBI and symptomatic at 1st visit (n=431) were included in the final analysis. Patient history, injury, recovery variables and predictors of prolonged time to self-reported symptom recovery were evaluated. Median time to symptom recovery was 40 days and 3 predictors of prolonged symptom recovery were: loss of consciousness, female sex and concussion symptom score at 1st clinic visit.



3 [Loss of patellofemoral cartilage thickness over 5 years following ACL injury depends on the initial treatment strategy: results from the KANON trial.](#)

Culvenor AG, Eckstein F, Wirth W, Lohmander LS, Frobell R.

Br J Sports Med. 2019 Sep;53(18):1168-1173.

PMID: 30737199

A randomised controlled trial evaluating changes in patellofemoral cartilage (PFC) thickness over 5 years post-anterior cruciate ligament (ACL) injury and determine the impact of treatment strategy. 97% of patients had available MRI (<4 weeks post-ACL rupture) and ≥ 1 follow-up measurement (2, 5 years). Patellar, trochlear and total patellofemoral cartilage thickness changes were compared between as-randomised (early ACL reconstruction (ACLR) vs. optional delayed ACLR) and as-treated groups (early ACLR vs. optional delayed ACLR vs. no ACLR). All patients also underwent standard rehabilitation. Results showed PFC thickness loss in young adults following acute ACL rupture. Early ACLR was associated with greater PFC thickness loss over 5 years compared with optional delayed ACLR, indicating early surgical intervention may be associated with greater short-term structural PFC deterioration compared with optional delayed surgery.

4 [Multiple Platelet-Rich Plasma Injections Versus Single Platelet-Rich Plasma Injection in Early Osteoarthritis of the Knee: An Experimental Study in a Guinea Pig Model of Early Knee Osteoarthritis.](#)

Chouhan DK, Dhillon MS, Patel S, Bansal T, Bhatia A, Kanwat H.

Am J Sports Med. 2019 Aug;47(10):2300-2307.

PMID: 31268737

Platelet-rich plasma (PRP) is a promising treatment for early knee osteoarthritis (OA) but no consensus on dosing schedules exists. This study assessed if multiple (3) PRP injections provide better short- and long-term outcomes than single PRP injection in a guinea pig model of knee OA. Animals were assigned to 3 groups- DC (disease control), G1 (single PRP), G2 (multiple PRP), with a separate group for preparing allogenic PRP. Respective number of injections were administered to the intervention knee and the contralateral injected with normal saline. No injections were given to the DC group. $\frac{1}{2}$ were sacrificed at 3 months and the rest at 6 months for histological examination of articular cartilage and synovium. Both single and multiple PRP injections have short-term synovial anti-inflammatory effects, but only with multiple injections is this sustained in the long term and associated with short-term chondroprotection.



5 [Positive Effect of Platelet-Rich Plasma on Pain in Plantar Fasciitis: A Double-Blind Multicenter Randomized Controlled Trial.](#)

Peerbooms JC, Lodder P, den Oudsten BL, Doorgeest K, Schuller HM, Gosens T.

Am J Sports Med. 2019 Nov;47(13):3238-3246.

PMID: 31603721

A corticosteroid injection is often given when nonoperative treatment for chronic plantar fasciitis (PF) fails. Platelet-rich plasma (PRP) is a safe therapeutic option treating tendon, muscle, bone and cartilage injuries. This randomised controlled trial compared the efficacy of PRP with corticosteroid injections for chronic PF. Patients with chronic PF were randomised to receiving steroid injection or PRP. 1° outcome- Foot Function Index (FFI) Pain score and 2° outcome measures- function (scored by FFI Activity, FFI Disability, and AOFAS Ankle-Hindfoot Scale) and quality of life (scored by the WHOQOL-BREF) were measured at baseline, 4, 12, 26 weeks and 1-year post-procedure. 73% and 69% of patients receiving PRP and corticosteroid injection (control) respectively, completed the study. FFI Pain scores decreased quickly and remained stable during follow-up in the control group, whereas reduction was more modest but reached a lower point at 12 months in the PRP group. The PRP group showed significantly lower disability and pain scores vs. control at 1-year, with more (84.4% vs. 55.6%) experiencing ≥25% pain score improvement. Results suggest PRP reduces pain and increases function more than corticosteroid injections in chronic PF.

FULL ARTICLE ACCESS

6 [Protein Supplementation Does Not Augment Adaptations to Endurance Exercise Training.](#)

Jonvik KL, Paulussen KJM, Danen SL, Ceelen IJM, Horstman AM, Wardenaar FC, VAN Loon LJC, VAN Dijk JW.

Med Sci Sports Exerc. 2019 Oct;51(10):2041-2049.

PMID: 31525168

It is speculated that protein supplementation may augment adaptations to chronic endurance exercise training. This double-blind, randomised, placebo-controlled trial of 60 recreationally active males, assessed the effect of protein supplementation during chronic endurance exercise training on whole-body oxidative capacity ($\dot{V}O_2\text{max}$) and endurance exercise performance. Participants underwent 12 weeks of endurance exercise training and ingested either a protein supplement (PRO) or isoenergetic carbohydrate placebo (PLA) after each session and each night before sleep. Results showed no difference between groups in terms of increase in $\dot{V}O_2\text{max}$ or reduced time to time trial completion. Increased lean leg mass was noted in both groups- greater in PRO compared to PLA.



7

[Running to Lower Resting Blood Pressure: A Systematic Review and Meta-analysis.](#)

Igarashi Y, Nogami Y.

Sports Med. 2019 Nov 1. doi: 10.1007/s40279-019-01209-3. [Epub ahead of print]

PMID: 31677122

Studies suggest a complex relationship between regular running, resting blood pressure (RBP) changes and form of exercise. This systematic review investigates the effects of regular running on RBP and most effective form of running for reducing RBP. Randomized controlled trials of healthy or hypertensive adults where only the exercise group (EG) ran regularly, control group (CG) did not exercise and mean resting systolic blood pressure (RSBP) and/or diastolic blood pressure (RDBP) reported, were included (22 trials; 736 subjects). Mean difference (MD) in RBP in each trial was calculated as: (mean value at post-intervention in the EG - mean value at baseline in the EG) - (mean value at post-intervention in the CG - mean value at baseline in the CG). Weighted MD (WMD) was the synthesis of all MD. Total exercise time and intensity [percentage (%) of maximum heart rate] throughout intervention were explanatory variables and MD in RBP the objective variable in analysis. In trials involving healthy or hypertensive subjects only, WMD in RSBP and RDBP decreased significantly in statistical correlation with % maximum heart rate. In trials of hypertensive subjects of mean age ≥ 40 years only, total exercise time throughout intervention was associated with WMD in RDBP. Results show regular running decreases RBP but changes differ depending on total exercise time or intensity in hypertensive subjects- in whom regular, moderate intensity running at restrained volume to lower RBP is advised.

FULL ARTICLE ACCESS

8

[Dose-Dependent Effects of Exercise and Diet on Insulin Sensitivity and Secretion.](#)

Ding C, Chooi YUC, Chan Z, Lo J, Choo J, Ding BTK, Leow MK, Magkos F.

Med Sci Sports Exerc. 2019 Oct;51(10):2109-2116.

PMID: 31033904

A study to evaluate relationships between insulin sensitivity and secretion after progressively greater negative energy balance induced by exercise or diet. Acute energy deficits (20% or 40% of weight maintenance needs) were induced by a single day of aerobic exercise (moderate intensity cycling) or dietary restriction in healthy men and women. Intravenous glucose tolerance tests and minimal modelling were performed the next morning, with blood glucose and insulin concentrations taken over 3 hours. Acute insulin response decreased in both groups. Insulin sensitivity increased linearly after exercise-induced energy deficits but not with that by diet. Disposition index and glucose effectiveness were unaffected by exercise, but both decreased after 40% dietary restriction. Results indicate insulin sensitivity and secretion are related to exercise energy expenditure in different fashions (insulin sensitivity increases linearly, whereas insulin secretion drops to a nadir with a low exercise dose but not further). These changes cannot be replicated by equivalent energy deficits from dietary restriction, suggesting exercise and diet have different effects on glucose homeostasis mechanisms.



9

[Sports-Related Sudden Cardiac Deaths in Singapore - An Eleven-Year Review.](#)

Oh YZ, Lee CT, Lim AT, Tong KL.

Ann Acad Med Singapore. 2019 May;48(5):156-160.

PMID: 31210253

The majority of sports-related sudden deaths in Singapore are due to sudden cardiac deaths (SCD)-occurring mainly in older males and most commonly 2° to IHD. In younger SCDs, IHD was also the most common cause- suggesting cardiovascular risk factor (CVRF) control should start as young as possible. Incidence of SCDs involving long distance endurance events in the last 11 years was low, with 1/3 due to silent congenital anomalous coronary arteries. Sports-related SCD prevalence was also relatively low and individually-tailored physical activity for patients with CVRFs should still be advocated to help them maintain a healthy lifestyle. SCDs from VT or VF may be reduced with public education on AED-use and bystander CPR, to improve resuscitation success.

10

[Defining the Process of a Cardiovascular Risk Assessment Program: Lessons Learnt From Cardiac Assessment of Elite Soccer Players in the United Kingdom.](#)

Speers C, Seth AN, Patel KC, Rakhit DJ, Gillett MJ

Clin J Sport Med. 2017 Dec 14. doi: 10.1097/JSM.0000000000000534. [Epub ahead of print]

PMID: 29256928

Sudden cardiac death (SCD) is an important cause of death in exercise. This descriptive, epidemiological study and retrospective analysis of the cardiac assessment process for elite soccer players also provides team physicians with a systematic guide to aid managing longitudinal cardiac risk. Cardiac assessment included clinical examination, 12-lead ECG, echocardiography and health questionnaire. 265 soccer players (13-37 years; from 5 professional clubs in England, UK) were included, with 11% having “not normal” assessments- of which 83% had structural cardiac features (including valvular abnormalities), functional cardiac features and ECG changes. After cardiology consultation, assessments were grouped into low, enhanced and high-risk categories for ongoing longitudinal risk management, with 2% having clear-cut pathology. Results show cardiovascular assessment is key in identifying athletes at risk of SCD and mitigate this risk through surveillance, intervention or participation restriction. Fitness to play requires robust risk assessment and input by a multidisciplinary team including team physician and cardiologist.

