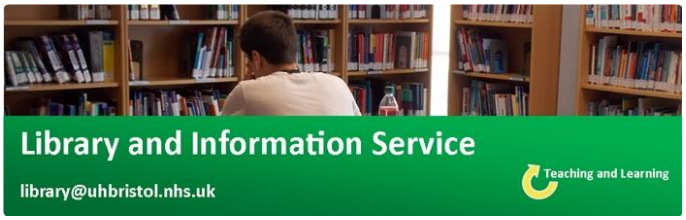
University Hospitals Bristol NHS
NHS Foundation Trust

# Musculoskeletal & Soft Tissue Clinic

## Current Awareness Newsletter

## December/January 2015

Respecting everyone
Embracing change
Recognising success
Working together
**Our hospitals.**



# Lunchtime Drop-in Sessions

## January - June 2016

The **Library and Information Service** provides free specialist information skills training for all UHBristol staff and students.

To book a place, email: **library@uhbristol.nhs.uk**

If you're unable to attend we also provide **one-to-one** or **small group** sessions. Contact **library@uhbristol.nhs.uk** to arrange a session.

### Literature Searching

An in-depth guide to formulating an effective search strategy and getting the most out of searching key healthcare databases.

### Understanding Articles

How to assess the strengths and weaknesses of research methods.

Examining different research designs, bias and validity, and frameworks for systematically appraising a medical paper.

### Medical Statistics

A basic introduction to the key statistics in medical articles.

Giving an overview of statistics that compare risk, test confidence, analyse clinical investigations, and test difference.

### Information Resources

A comprehensive overview of Library subscription resources, freely available online resources and 'grey literature'.

### January (1pm)

| | |
|---|---|
| Mon 4th | **Literature Searching** |
| Tues 12th | **Understanding articles** |
| Weds 20th | **Statistics** |
| Thurs 28th | **Information resources** |

### February (12pm)

| | |
|---|---|
| Fri 5th | **Literature Searching** |
| Mon 8th | **Understanding articles** |
| Tues 16th | **Statistics** |
| Weds 24th | **Information resources** |

### March (1pm)

| | |
|---|---|
| Thurs 3rd | **Literature Searching** |
| Fri 11th | **Understanding articles** |
| Mon 14th | **Statistics** |
| Tues 22nd | **Information resources** |
| Weds 30th | **Literature Searching** |

### April (12pm)

| | |
|---|---|
| Thurs 7th | **Understanding articles** |
| Fri 15th | **Statistics** |
| Mon 18th | **Information resources** |
| Tues 26th | **Literature Searching** |

### May (1pm)

| | |
|---|---|
| Weds 4th | **Understanding articles** |
| Thurs 12th | **Statistics** |
| Fri 20th | **Information resources** |
| Tues 31st | **Literature Searching** |

### June (12pm)

| | |
|---|---|
| Weds 8th | **Understanding articles** |
| Thurs 16th | **Statistics** |
| Fri 24th | **Information resources** |

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## Your Local Librarian

Whatever your information needs, the library is here to help. As your outreach librarian I offer **literature searching services** as well as training and guidance in **searching the evidence** and **critical appraisal** – just email me at library @uhbristol.nhs.uk

**OUTREACH**: Your Outreach Librarian can help facilitate evidence-based practise, as well as assisting with academic study and research. We can help with **literature searching, obtaining journal articles and books**, and setting up individual **current awareness alerts**. We also offer one-to-one or small group training in **literature searching, accessing electronic journals, and critical appraisal**. Get in touch: library@uhbristol.nhs.uk

**LITERATURE SEARCHING**: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a 1 to 1 session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence. Please email requests to library@uhbristol.nhs.uk

# OpenAthens de-mystified…

## What is OpenAthens?

OpenAthens is a way of authenticating that you have permission to access our subscription e-resources. To access our electronic resources you will need a UH Bristol Athens username/password.

## How can I get an Athens login?

Click here to complete the online registration form. You will need to register using a Trust PC and a UH Bristol email address. Once you have successfully completed the form, you will be sent an email to you UH Bristol account with an authentication link.
https://openathens.nice.org.uk/

## I have an Athens account from another Trust/University. Do I still need a UH Bristol account?

You will need a UH Bristol account to access our local subscription resources. You can either update the settings of your existing account by logging in and selecting 'change organisation', or you can set up a new UH Bristol account by clicking here (you will need to register using a Trust PC and a UH Bristol email address).

https://openathens.nice.org.uk/

## My Athens account has expired. What should I do?

You can register for a new account here.

https://openathens.nice.org.uk/

## I have forgotten my Athens Username / Password. How can I reset it?

**Password**: If you are on a Trust PC, follow the link to https://register.athensams.net/nhs/forgotten_password.php.

**Username and password**: You should email athens.sdhct@nhs.net with your full name, full work address, work telephone number and the email address you used to register for the account. In the email subject line put 'Forgotten username and password'. It may take up to five working days to receive your username and a reset password.

# New from Cochrane Library

## Self management programme for ankylosing spondylitis

Authors: Sally Spencer, Jane H Martindale, Elizabeth MacPhie, Paul Montgomery

**First published:** 15 December 2015

**Editorial Group:** Cochrane Musculoskeletal Group

**Abstract:**

This is the protocol for a review and there is no abstract. The objectives are as follows:

To assess the benefits and harms of self management programmes for people with AS/Axial SpA.

http://onlinelibrary.wiley.com/enhanced/doi/10.1002/14651858.CD006977.pub2

# New Activity in Up-to-Date

### New updates in point-of-care evidence summarising tools Up-To-Date

## Overview of running injuries of the lower extremity

Author: Lisa R Callahan, MD

**Literature review current through:** Dec 2015. | **This topic last updated:** Jan 14, 2016.

**INTRODUCTION** — Running is one of the world's most popular forms of exercise, with millions of regular participants. In the United States alone, up to 40 million people run regularly, with more than 10 million running at least 100 days a year [1]. Although running is an effective way to achieve many health benefits, it is associated with a high risk of injury; yearly, up to half of runners report an injury [2]. Although some injuries are traumatic, most are due to overuse.

Given the popularity of running and the high rate of associated overuse injuries amenable to nonsurgical management, the primary care physician is likely to manage many injured runners and should be familiar with the diagnosis and treatment of the more common problems. The diagnosis and management of common lower extremity injuries associated with running are reviewed here. Detailed discussions of some specific injuries are found separately.

## Hamstring muscle and tendon injuries

Authors: Karl B Fields, MD; Spencer T Copland, MD; John S Tipton, MD

**Literature review current through:** Dec 2015. | **This topic last updated:** Dec 15, 2015.

**INTRODUCTION** — Hamstring muscle injuries occur frequently among recreational and elite athletes. Several terms, including posterior thigh injury, hamstring strain, hamstring tendinopathy, and hamstring tear, are used to describe such injuries, but they are not

always synonymous. In most cases, the severity of the injury determines treatment and the amount of time the athlete must take off from sport [1-9].

For the purpose of this review, we will define hamstring injury as any strain or tear, including avulsion, of any of the muscles or tendons within the hamstring group, including the biceps femoris, semitendinosus, and semimembranosus muscles.

The diagnosis, management, risk factors, and prevention of hamstring muscle and tendon injuries are reviewed here. Other musculoskeletal injuries of the lower extremity are discussed separately

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**Anatomy.tv**

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*library@uhbristol.nhs.uk*

# Current Awareness Database Articles related to Musculoskeletal Soft Tissue

**Below is a selection of articles recently added to the healthcare databases, grouped in the following categories:**

- **Acute Soft Tissue injuries**
- **Musculoskeletal**
- **Sports Injuries**

**If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk**

## Acute soft tissue injuries

**Title:** Management of the Morel-Lavallée Lesion.

**Citation:** The Orthopedic clinics of North America, Jan 2016, vol. 47, no. 1, p. 115-125

**Author(s):** Greenhill, Dustin, Haydel, Christopher, Rehman, Saqib

**Abstract:** Morel-Lavallée lesions are closed degloving injuries sustained during violent soft tissue shear that separate the subdermal fat from its strong underlying fascia. Lesions most often occur in the peritrochanteric region, and patients may have concomitant polytrauma. As a result, a hematoma develops that has a high rate of acute bacterial colonization and chronic recurrence. Conservative treatment outcomes are best for those managed acutely. However, diagnosis is often delayed or missed. Furthermore, there is no universally accepted treatment algorithm. Diagnosis and treatment depend on a surgeon's thorough understanding of the cause, pathophysiology, imaging characteristics, and treatment options of Morel-Lavallée lesions. Copyright © 2016 Elsevier Inc. All rights reserved.

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**Title:** Medial Patellofemoral Ligament Injuries in Children With First-Time Lateral Patellar Dislocations: A Magnetic Resonance Imaging and Arthroscopic Study.

**Citation:** The American journal of sports medicine, Jan 2016, vol. 44, no. 1, p. 152-158

**Author(s):** Askenberger, Marie, Arendt, Elizabeth A, Ekström, Wilhelmina, Voss, Ulrika, Finnbogason, Throstur, Janarv, Per-Mats

**Abstract:** A lateral patellar dislocation (LPD) is the most common knee injury in children with traumatic knee hemarthrosis. The medial patellofemoral ligament (MPFL), the

important passive stabilizer against LPDs, is injured in more than 90% of cases. The MPFL injury pattern is most often defined in adults or in mixed-age populations. The injury pattern in the skeletally immature patient may be different. To describe MPFL injuries in the skeletally immature patient by magnetic resonance imaging (MRI), and to compare the results with the injury pattern found at arthroscopic surgery. Case series; Level of evidence, 4. This was a prospective series of patients aged 9 to 14 years with acute, first-time traumatic LPDs in whom clinical examinations, radiographs, MRI, and arthroscopic surgery were performed within 2 weeks from the index injury. The MPFL injury was divided into 3 different groups according to the location: patellar site, femoral site, or multifocal. The MPFL injury site was confirmed on MRI by soft tissue edema. The length of the MPFL injury at the patellar site was measured at arthroscopic surgery, and those ≥2 cm were defined as total ruptures. A total of 74 patients (40 girls and 34 boys; mean age, 13.1 years) were included; 73 patients (99%) had an MPFL injury according to MRI and arthroscopic surgery. The MRI scans showed an isolated MPFL injury at the patellar attachment site in 44 of 74 patients (60%), a multifocal injury in 26 patients (35%), an injury at the femoral site in 3 patients (4%), and no injury in 1 patient (1%). Arthroscopic surgery disclosed an isolated MPFL injury at the patellar site in 60 of 74 patients (81%) and a multifocal injury in 13 patients (18%); the MPFL injury at the patellar site was a total rupture in 49 patients (66%). Edema at the patellar attachment site on MRI was proven to be an MPFL rupture at the same site at arthroscopic surgery in 99% of the patients. A patellar-based injury, isolated or as part of a multifocal injury, was present on MRI in 95% (n = 70) of the patients, with a false-negative rate of 5% (n = 4) of patients compared with arthroscopic surgery. Skeletally immature children are more prone to sustaining an MPFL injury at the patellar attachment site. Arthroscopic surgery and MRI complement each other in the investigation of MPFL injuries. © 2015 The Author(s).

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**Title:** Incontinence-associated dermatitis and pressure ulcers in geriatric patients.

**Citation:** Giornale italiano di dermatologia e venereologia : organo ufficiale, Società italiana di dermatologia e sifilografia, Dec 2015, vol. 150, no. 6, p. 717-729 (December 2015)

**Author(s):** Kottner, J, Beeckman, D

**Abstract:** The key characteristics of geriatric patients are advanced age, multimorbidity, a decrease of psychical performance and care dependency. In addition, advanced age, chronic and acute diseases and treatments (e.g. polypharmacy) lead, either directly or indirectly, to a wide range of skin and tissue problems. Incontinence-associated dermatitis and pressure ulcers (PUs) belong to the most prevalent in geriatric settings. Prolonged exposure of the skin to urine and/or stool can cause an irritant contact dermatitis. Skin surface 'wetness', increased skin surface pH, digestive intestinal enzymes, repeated skin cleansing activities, and a possible occlusive environment contribute to irritation and inflammation. Prevention and treatment includes activities to maintain and to enhance continence and to limit, to reduce exposure of the skin to urine and stool, and to promote healing and reepithelialisation. In frail aged skin, it is recommended to use incontinence products with smooth and breathable materials with maximum absorption capacity. Immediate skin cleansing after soiling using mild cleansers and protective and caring leave-on products are recommended. PUs are localized injuries to the skin and/or underlying tissue caused by

sustained deformations of skin and underlying soft tissues. PUs management includes risk assessment, repositioning and mobilization, and the use of appropriate support surfaces. Patients must be never positioned directly on an existing PU. Especially at end of life, the PU closure and wound healing may not be the primary therapeutic goal.

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**Title:** Abductor muscle necrosis due to iliopsoas bursal mass after total hip arthroplasty.

**Citation:** Journal of clinical orthopaedics and trauma, Dec 2015, vol. 6, no. 4, p. 288-292

**Author(s):** DeFrancesco, Christopher J, Kamath, Atul F

**Abstract:** While symptomatic iliopsoas bursal lesions have been reported after total hip arthroplasty (THA), mass effect of the collection causing abductor muscle damage has not been reported in the literature. This report discusses the presentation, clinical findings, and operative management of a patient, status post metal-on-polyethylene THA, with a large psoas bursal collection with resulting abductor muscle injury and deep venous thrombosis from compression of the femoral vein. Despite the improved wear characteristics of modern-generation THA implants, physicians must be aware of the possibility of soft tissue irritation of the iliopsoas as a cause of soft tissue swelling, persistent pain, and potential adverse complications. It is also important to recognize the variety of effects and spectrum of severity for associated lesions, including muscle damage. This report highlights the rare findings of abductor muscle necrosis, as well as acute thrombosis, related to iliopsoas bursitis. It also highlights a review of the available literature.

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**Title:** Accuracy of simple plain radiographic signs and measures to diagnose acute scapholunate ligament injuries of the wrist.

**Citation:** European radiology, Dec 2015, vol. 25, no. 12, p. 3488-3498

**Author(s):** Dornberger, Jenny E, Rademacher, Grit, Mutze, Sven, Eisenschenk, Andreas,

**Abstract:** To determine the accuracy of common radiological indices for diagnosing ruptures of the scapholunate (SL) ligament, the most relevant soft tissue injury of the wrist. This was a prospective diagnostic accuracy study with independent verification of index test findings by a reference standard (wrist arthroscopy). Bilateral digital radiographs in posteroanterior (pa), lateral and Stecher's projection were evaluated by two independent expert readers. Diagnostic accuracy of radiological signs was expressed as sensitivity, specificity, positive (PPV) and negative (NPV) predictive values with 95 % confidence intervals (CI). The prevalence of significant acute SL tears (grade ≥ III according to Geissler's classification) was 27/72 (38 %, 95 % CI 26-50 %). The SL distance on Stecher's projection proved the most accurate index to rule the presence of an SL rupture in and out. SL distance on plain pa radiographs, Stecher's projection and the radiolunate angle contributed independently to the final diagnostic model. These three simple indices explained 97 % of the diagnostic variance. In the era of computed tomography and magnetic resonance imaging, plain radiographs remain a highly sensitive and specific primary tool to triage patients with a suspected SL tear to further diagnostic work-up and surgical care. • Scapholunate ligament (SL) lesions are the most relevant soft tissue wrist injuries. • Missed and untreated SL

ruptures can cause painful and disabling post-traumatic wrist osteoarthritis. • Reliable threshold values of radiographic indices should prompt further imaging or surgical care. • Plain radiographs deliver conclusive clinical information if certain hand positions are used.

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**Title:** Heterotopic ossification: a systematic review.

**Citation:** Journal of the Royal Army Medical Corps, Dec 2015, vol. 161, no. 4, p. 315-321,

**Author(s):** Edwards, Dafydd S, Clasper, J C

**Abstract:** Heterotopic ossification (HO) is the formation of mature lamellar bone in extraskeletal soft tissues. It was first described 1000 years ago in the healing of fractures, and in relation to military wounds, texts from the American Civil War and World War I refer to HO specifically. It continues to cause problems to injured service personnel; the consequences of wound and soft tissue complications in traumatic amputations pose particular problems to rehabilitation and prosthetic use. While HO is seen in rare genetic conditions, it is most prevalent after joint replacement surgery and trauma. In the civilian setting HO has been commonly described in patients after traumatic brain injuries, spinal cord injuries and burns. Militarily, as a consequence of recent operations, and the characteristic injury of blast-related amputations, a renewed interest in HO has emerged due to an increased incidence seen in casualties. The heterogeneous nature of a blast related amputation makes it difficult for a single aetiological event to be identified, although it is now accepted that blast, amputation through the zone of injury, increased injury severity and associated brain injuries are significant risk factors in HO formation. The exact cellular event leading to HO has yet to be identified, and as a consequence its prevention is restricted to the use of anti-inflammatory medication and radiation, which is often contraindicated in the acute complex military casualty. A systematic review in PubMed and the Cochrane Database identified research articles related to HO to illustrate the military problem of HO and its management, current research concepts and experimental theories regarding HO. This also served as a gap analysis providing the researchers detail of any knowledge deficit in this field, in particular to the military aspects of HO; 637 out of 7891 articles initially identified that referenced HO were relevant to this review.

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**Title:** Systematic review of outcomes following fixed angle intramedullary fixation of distal radius fractures

**Citation:** International Orthopaedics, December 2015, vol./is. 39/12(2381-2387)

**Author(s):** Hardman J., Al-Hadithy N., Hester T., Anakwe R.

**Abstract:** Purpose: There remains little consensus regarding the optimal management of distal radius fractures. Fixed angle volar devices have gained recent popularity, but have also been associated with soft tissue complications. Intramedullary (IM) devices offer fixed angle stabilisation with minimally invasive surgical technique and low, IM profile. No formal review of outcomes could be identified. Methods: We conducted a systematic review of clinical studies regarding the use of fixed angle IM devices in acute extra-articular or simple intra-articular distal radius fractures. Preferred Reporting Items for Systematic Reviews

(PRISMA) guidance was followed. Numerical data regarding functional scores, ranges of movement, radiological outcomes and complications were pooled to produce aggregate means and standard deviation. Results: A total of 310 titles and abstracts were identified. Fourteen papers remained for analysis. Total patient number was 357, mean age 63.72 years and mean follow-up 12.77 months. Mean functional scores were all rated as 'excellent'. Aggregate means: flexion 53.62degree, extension 56.38degree, pronation 69.10degree, supination 70.29degree, ulnar deviation 28.35degree, radial deviation 18.12degree, radial height 8.98 mm, radial inclination 16.51degree, volar tilt 5.35degree, ulnar variance 0.66 mm and grip strength 90.37 %. Overall complication rate was 19.6 %. Tendon rupture was unreported. Tendon irritation was 0.88 %. Radial nerve paraesthesia was 11.44 %. Conclusions: Fixed angle IM devices facilitate excellent functional outcomes, with radiological and clinical parameters at least equivalent to volar plate devices. Low rates of tendon irritation and absence of tendon rupture are advantageous. Significant limitations include a lack of application for complex articular injuries and the propensity to cause a transient neuritis of the superficial branch of the radial nerve.

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**Title:** Acute Management of Traumatic Knee Dislocations for the Generalist.

**Citation:** The Journal of the American Academy of Orthopaedic Surgeons, Dec 2015, vol. 23, no. 12, p. 761-768

**Author(s):** Boyce, Robert H, Singh, Keerat, Obremskey, William T

**Abstract:** Acute knee dislocations are an uncommon injury that can result in profound consequences if not recognized and managed appropriately on presentation. Patients presenting with knee pain in the setting of high- or low-energy trauma may have sustained a knee dislocation that spontaneously reduced. Prompt reduction of the dislocated knee and serial neurovascular examinations are paramount. Damage to the popliteal artery is a common associated injury that can be diagnosed on physical examination using ankle brachial indices (ABIs), CT angiography, or standard angiography. After reduction, patients with a normal pulse examination and an ABI ≥0.9 may be observed, with serial examination performed to document vascular status and monitor for compartment syndrome. Patients with asymmetric pulses or an ABI <0.9 in the presence of pulses may be treated urgently depending on the results of additional vascular imaging, and patients with absent pulses and clear signs of vascular compromise should be treated emergently. Some knee dislocations are not reducible and should be taken emergently to the operating room for an open reduction. Persistent joint subluxation or severe soft-tissue injuries after reduction require temporary external fixation before definitive repair or reconstruction of ligaments is performed. Copyright 2015 by the American Academy of Orthopaedic Surgeons.

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# Musculoskeletal

**Title:** Decreased Knee Joint Loading Associated With Early Knee Osteoarthritis After Anterior Cruciate Ligament Injury.

**Citation:** The American journal of sports medicine, Jan 2016, vol. 44, no. 1, p. 143-151

**Author(s):** Wellsandt, Elizabeth, Gardinier, Emily S, Manal, Kurt, Axe, Michael J, Buchanan, Thomas S, Snyder-Mackler, Lynn

**Abstract:** Anterior cruciate ligament (ACL) injury predisposes individuals to early-onset knee joint osteoarthritis (OA). Abnormal joint loading is apparent after ACL injury and reconstruction. The relationship between altered joint biomechanics and the development of knee OA is unknown. Altered knee joint kinetics and medial compartment contact forces initially after injury and reconstruction are associated with radiographic knee OA 5 years after reconstruction. Case-control study; Level of evidence, 3. Individuals with acute, unilateral ACL injury completed gait analysis before (baseline) and after (posttraining) preoperative rehabilitation and at 6 months, 1 year, and 2 years after reconstruction. Surface electromyographic and knee biomechanical data served as inputs to an electromyographically driven musculoskeletal model to estimate knee joint contact forces. Patients completed radiographic testing 5 years after reconstruction. Differences in knee joint kinetics and contact forces were compared between patients with and those without radiographic knee OA. Patients with OA walked with greater frontal plane interlimb differences than those without OA (nonOA) at baseline (peak knee adduction moment difference: 0.00 ± 0.08 N·m/kg·m [nonOA] vs -0.15 ± 0.09 N·m/kg·m [OA], P = .014; peak knee adduction moment impulse difference: -0.001 ± 0.032 N·m·s/kg·m [nonOA] vs -0.048 ± 0.031 N·m·s/kg·m [OA], P = .042). The involved limb knee adduction moment impulse of the group with osteoarthritis was also lower than that of the group without osteoarthritis at baseline (0.087 ± 0.023 N·m·s/kg·m [nonOA] vs 0.049 ± 0.018 N·m·s/kg·m [OA], P = .023). Significant group differences were absent at posttraining but reemerged 6 months after reconstruction (peak knee adduction moment difference: 0.02 ± 0.04 N·m/kg·m [nonOA] vs -0.06 ± 0.11 N·m/kg·m [OA], P = .043). In addition, the OA group walked with lower peak medial compartment contact forces of the involved limb than did the group without OA at 6 months (2.89 ± 0.52 body weight [nonOA] vs 2.10 ± 0.69 body weight [OA], P = .036). Patients who had radiographic knee OA 5 years after ACL reconstruction walked with lower knee adduction moments and medial compartment joint contact forces than did those patients without OA early after injury and reconstruction. © 2015 The Author(s).

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**Title:** Acute Lower Extremity Injury Rates Increase after Concussion in College Athletes.

**Citation:** Medicine and science in sports and exercise, Dec 2015, vol. 47, no. 12, p. 2487-2492 (December 2015)

**Author(s):** Lynall, Robert C, Mauntel, Timothy C, Padua, Darin A, Mihalik, Jason P

**Abstract:** Dynamic postural control deficits and disrupted cortical pathways have been reported to persist beyond an athlete's return to activity after concussion, potentially increasing the risk of acute lower extremity musculoskeletal injury. This study aimed to investigate acute lower extremity musculoskeletal injury rates before and after concussion in athletes with concussion and their matched control. College athletes with concussion (n = 44; age, 20.0 ± 1.2 yr) were physician-diagnosed. Nonconcussed college athletes (n = 58; age, 20.5 ± 1.3 yr) were matched to individuals with concussion. Acute lower extremity musculoskeletal injury data were collected for 2 yr (±1 yr of the diagnosed concussion) using

electronic medical records. Control participants' 2-yr window for exposure and musculoskeletal injury data were anchored to their match's concussion injury date. Pre- and postconcussion musculoskeletal injury rates were calculated for 90-, 180-, and 365-d periods for both study cohorts. Risk ratios were calculated to determine differences within and between groups for all periods. Within 1 yr after concussion, the group with concussion was 1.97 (95% confidence interval (CI), 1.19-3.28; P = 0.01) times more likely to have experienced an acute lower extremity musculoskeletal injury after concussion than before concussion and 1.64 times (95% CI, 1.07-2.51; P = 0.02) more likely to have experienced an acute lower extremity musculoskeletal injury after concussion than their matched nonconcussed cohort over the same period. Up to 180 d after concussion, the group with concussion was 2.02 (95% CI, 1.08-3.78; P = 0.02) times more likely to have experienced an acute lower extremity musculoskeletal injury after concussion than before concussion. Previous literature has identified dynamic postural control deficits along with increased motor evoked potential latency and decreased amplitude after concussion, suggesting that the brain may be unable to effectively coordinate movement. Our findings underscore the need to explore functional movement and dynamic postural control assessments in postconcussion injury assessment protocols.

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**Title:** Biological variation in musculoskeletal injuries: current knowledge, future research and practical implications.

**Citation:** British journal of sports medicine, Dec 2015, vol. 49, no. 23, p. 1497-1503

**Author(s):** Collins, Malcolm, September, Alison V, Posthumus, Michael

**Abstract:** Evidence from familial and genetic association studies have reported that DNA sequence variants play an important role, together with non-genetic factors, in the aetiology of both exercise-associated and occupational-associated acute and chronic musculoskeletal soft tissue injuries. The associated variants, which have been identified to date, may contribute to the interindividual variation in the structure and, by implication, mechanical properties of the collagen fibril and surrounding matrix within musculoskeletal soft tissues, as well as their response to mechanical loading and other stimuli. Future work should focus on the establishment of multidisciplinary international consortia for the identification of biologically relevant variants involved in modulating injury risk. These consortia will improve the limitations of the published hypothesis-driven genetic association studies, since they will allow resources to be pooled in recruiting large well-characterised cohorts required for whole-genome screening. Finally, clinicians and coaches need to be aware that many direct-to-consumer companies are currently marketing genetic tests directly to athletes without it being requested by an appropriately qualified healthcare professional, and without interpretation alongside other clinical indicators or lifestyle factors. These specific genetic tests are premature and are not necessarily required to evaluate susceptibility to musculoskeletal soft tissue injury. Current practice should rather consider susceptibility through known risk factors such as a positive family history of a specific injury, a history of other tendon and/or ligament injuries and participation in activities associated with the specific musculoskeletal injuries. Potential susceptible athletes may then be individually managed to reduce their risk profile.

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**Title:** Imaging modalities for the in vivo surveillance of mesenchymal stromal cells

**Citation:** Journal of Tissue Engineering and Regenerative Medicine, November 2015, vol./is. 9/11(1217-1224)

**Author(s):** Hossain M.A., Chowdhury T., Bagul A.

**Abstract:** Bone marrow stromal cells exist as mesenchymal stromal cells (MSCs) and have the capacity to differentiate into multiple tissue types when subjected to appropriate culture conditions. This property of MSCs creates therapeutic opportunities in regenerative medicine for the treatment of damage to neural, cardiac and musculoskeletal tissues or acute kidney injury. The prerequisite for successful cell therapy is delivery of cells to the target tissue. Assessment of therapeutic outcomes utilize traditional methods to examine cell function of MSC populations involving routine biochemical or histological analysis for cell proliferation, protein synthesis and gene expression. However, these methods do not provide sufficient spatial and temporal information. In vivo surveillance of MSC migration to the site of interest can be performed through a variety of imaging modalities such as the use of radiolabelling, fluc protein expression bioluminescence imaging and paramagnetic nanoparticle magnetic resonance imaging. This review will outline the current methods of in vivo surveillance of exogenously administered MSCs in regenerative medicine while addressing potential technological developments. Furthermore, nanoparticles and microparticles for cellular labelling have shown that migration of MSCs can be spatially and temporally monitored. In vivo surveillance therefore permits time-stratified assessment in animal models without disruption of the target organ. In vivo tracking of MSCs is non-invasive, repeatable and non-toxic. Despite the excitement that nanoparticles for tracking MSCs offer, delivery methods are difficult because of the challenges with imaging three-dimensional systems. The current advances and growth in MSC research, is likely to provide a wealth of evidence overcoming these issues.

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# Sports Injuries

**Title:** Functional Outcomes After Treatment of Scaphoid Fractures in Children and Adolescents.

**Citation:** Journal of pediatric orthopedics, Jan 2016, vol. 36, no. 1, p. 13-18

**Author(s):** Bae, Donald S, Gholson, James J, Zurakowski, David, Waters, Peter M

**Abstract:** Little is known about longer-term functional outcomes of children treated for scaphoid fractures. We hypothesized that with appropriate treatment, functional outcomes would be consistent with population norms and would not vary between patients treated with cast-immobilization versus surgery. We further hypothesized that osteonecrosis and chronic nonunion would each be independent predictors of worse functional outcomes. Sixty-three of 312 patients (20%), age 8 to 18 years at the time of treatment, completed the

Disability of the Arm, Shoulder, and Hand (DASH) inventory, DASH work and sports modules, and the Modified Mayo Wrist Score (MMWS) at a median follow-up time of 6.3 years (range, 2.6 to 17.7 y) from injury. Thirty-nine patients presented initially with acute scaphoid fractures, and 24 patients presented with chronic nonunions. Six of the 39 acute fractures and 20 of 24 nonunions were treated surgically. Univariate analysis and multivariate linear regression were used to identify predictors of MMWS and DASH scores. All patients went on to successful bony healing. The median DASH score for the cohort was 1 (interquartile range [IQR]: 0 to 4), with more than 95% of respondents reporting functional status equivalent to or better than the general population. Multivariate analysis demonstrated that chronic fracture presentation (P<0.001) and osteonecrosis (P=0.013) were each independent predictors of a worse outcome. Results of the DASH Work and Sports Modules as well as the MMWS corroborated the results found using the DASH. Surgical treatment was not found to influence functional status. The median MMWS for both surgical and nonsurgical patients was 100, representing excellent functional outcome. Children and adolescents with scaphoid fractures that achieve union have excellent outcomes at mid-term follow-up, with no difference in outcomes between casting and surgery. Although patients treated for nonunions and osteonecrosis have significantly decreased wrist function compared with acute fractures, the median level of function for these patients is in accordance with general population means. Level III-Therapeutic.

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**Title:** Does Primary Hip Arthroscopy Result in Improved Clinical Outcomes? 2-Year Clinical Follow-up on a Mixed Group of 738 Consecutive Primary Hip Arthroscopies Performed at a High-Volume Referral Center.

**Citation:** The American journal of sports medicine, Jan 2016, vol. 44, no. 1, p. 74-82 (January 2016)

**Author(s):** Gupta, Asheesh, Redmond, John M, Stake, Christine E, Dunne, Kevin F, Domb, Benjamin G

**Abstract:** Hip arthroscopy has gained increasing popularity over the past decade. The need to develop metrics to evaluate success and complications in primary hip arthroscopy is an important goal. To evaluate 2-year patient-related outcome (PRO) scores and patient satisfaction scores for a single surgeon at a high-volume referral center for all primary hip arthroscopy procedures performed. Case series; Level of evidence, 4. During the study period between April 2008 and October 2011, data were collected on all patients who underwent primary hip arthroscopy. All patients were assessed pre- and postoperatively with 4 PRO measures: the modified Harris Hip Score (mHHS), Non-Arthritic Hip Score (NAHS), Hip Outcome Score-Activities of Daily Living (HOS-ADL), and Hip Outcome Score-Sport-Specific Subscale (HOS-SSS). Pain was estimated on the visual analog scale (VAS), and satisfaction was measured on a scale from 0 to 10. The number of patients who underwent revision arthroscopy, total hip arthroplasty (THA), or a resurfacing procedure during the study period was also reported. A total of 595 patients were included in the study. The score improvement from preoperative to 2-year follow-up was 61.29 to 82.02 for mHHS, 62.79 to 83.05 for HOS-ADL, 40.96 to 70.07 for HOS-SSS, 57.97 to 80.41 for NAHS, and 5.86 to 2.97 for VAS. All scores were statistically significantly different (P < .0001). Overall patient satisfaction was 7.86 ± 2.3 (range, 1-10). Forty-seven (7.7%) patients underwent revision hip

arthroscopy, and 54 (9.1%) patients underwent either THA or the hip resurfacing procedure during the study period. The multivariate regression analysis showed that increased age at time of surgery was a significant risk factor for conversion to THA, revision arthroscopy, and change in NAHS <10 points. Acute injury, acetabuloplasty, iliopsoas release, and patient sex were significant for 2 of these 3 types of failure. Primary hip arthroscopy for all procedures performed in aggregate had excellent clinical outcomes and patient satisfaction scores at short-term follow-up in this study. More studies must be conducted to determine the definition of a successful outcome. There was a 6.1% minor complication rate, which was consistent with previous studies. Patients should be counseled regarding the potential progression of degenerative change leading to arthroplasty as well as the potential for revision surgery. © 2015 The Author(s).

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**Title:** Unrecognised Acute Rupture of the Achilles Tendon in Severe Ankle Sprain

**Citation:** Journal of Orthopaedics, Trauma and Rehabilitation, December 2015, vol./is. 19/2(97-99)

**Author(s):** Lam K.W., Lui T.H.

**Language:** English

**Abstract:** Inversion ankle sprain is a common sport injury. It commonly refers to the injury of lateral collateral ligaments of the ankle. Failure to detect the concomitant injuries would lead to inappropriate treatment and suboptimal result. A case of unrecognised rupture of the Achilles tendon in a patient with severe inversion ankle sprain is reported.

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**Title:** Percutaneous repair followed by accelerated rehabilitation for acute Achilles tendon ruptures.

**Citation:** Journal of orthopaedic surgery (Hong Kong), Dec 2015, vol. 23, no. 3, p. 352-356

**Author(s):** Al-Mouazzen, L, Rajakulendran, K, Najefi, A, Ahad, N

**Abstract:** To evaluate the outcome after percutaneous repair followed by accelerated rehabilitation for acute Achilles tendon ruptures. 21 men and 9 women (mean age, 41 years) underwent percutaneous repair by a single senior surgeon for acute Achilles tendon ruptures, followed by early weight bearing and accelerated rehabilitation. Outcome measures included the Achilles tendon re-rupture rate, the Achilles tendon total rupture score (ATRS) at 3 and 6 months, the incidence of sural nerve injury, wound infection, wound dehiscence, patient satisfaction, and the time to return to pre-rupture activity. The mean follow-up period was 12.5 months. The mean ATRS score improved from 57.65 at 3 months to 86.95 at 6 months ($p<0.001$). No patient had intra-operative complications, tendon re-rupture, sural nerve injury, wound dehiscence, or deep infection. Two patients developed a superficial wound infection, which was resolved with oral flucloxacillin. Two patients had a mass at the transverse incision, but neither had any symptoms or functional restriction. All patients were able to bear full weight comfortably without the walker boot at 8 weeks, and return to their work by 3 months. The mean time to return to pre-rupture activity, including

sports, was 10.4 months. The mean satisfaction rate was 87% at 6 months. Percutaneous repair of the Achilles tendon followed by early weight bearing and accelerated rehabilitation achieves good functional outcome.

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**Title:** MRI does not add value over and above patient history and clinical examination in predicting time to return to sport after acute hamstring injuries: a prospective cohort of 180 male athletes.

**Citation:** British journal of sports medicine, Dec 2015, vol. 49, no. 24, p. 1579-1587 (December 2015)

**Author(s):** Wangensteen, Arnlaug, Almusa, Emad, Boukarroum, Sirine, Farooq, Abdulaziz, Hamilton, Bruce, Whiteley, Rodney, Bahr, Roald, Tol, Johannes L

**Abstract:** MRI is frequently used in addition to clinical evaluation for predicting time to return to sport (RTS) after acute hamstring injury. However, the additional value of MRI to patient history taking and clinical examination remains unknown and is debated. To prospectively investigate the predictive value of patient history and clinical examination at baseline alone and the additional predictive value of MRI findings for time to RTS using multivariate analysis while controlling for treatment confounders. Male athletes (N=180) with acute onset posterior thigh pain underwent standardised patient history, clinical and MRI examinations within 5 days, and time to RTS was registered. A general linear model was constructed to assess the associations between RTS and the potential baseline predictors. A manual backward stepwise technique was used to keep treatment variables fixed. In the first multiple regression model including only patient history and clinical examination, maximum pain score (visual analogue scale, VAS), forced to stop within 5 min, length of hamstring tenderness and painful resisted knee flexion (90°), showed independent associations with RTS and the final model explained 29% of the total variance in time to RTS. By adding MRI variables in the second multiple regression model, maximum pain score (VAS), forced to stop within 5 min, length of hamstring tenderness and overall radiological grading, showed independent associations and the adjusted R(2) increased from 0.290 to 0.318. Thus, additional MRI explained 2.8% of the variance in RTS. There was a wide variation in time to RTS and the additional predictive value of MRI was negligible compared with baseline patient history taking and clinical examinations alone. Thus, clinicians cannot provide an accurate time to RTS just after an acute hamstring injury. This study provides no rationale for routine MRI after acute hamstring injury. ClinicalTrials.gov Identifier: NCT01812564. Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to http://www.bmj.com/company/products-services/rights-and-licensing/

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**Title:** Meniscal tears associated with anterior cruciate ligament injury.

**Citation:** Archives of orthopaedic and trauma surgery, Dec 2015, vol. 135, no. 12, p. 1701-1706

**Author(s):** Hagino, Tetsuo, Ochiai, Satoshi, Senga, Shinya, Yamashita, Takashi, Wako, Masanori, Ando, Takashi, Haro, Hirotaka

**Abstract:** To investigate the frequency of meniscal tear and the location of tear associated with anterior cruciate ligament (ACL) injury. We studied 549 patients (552 knees) who were diagnosed with ACL injury by arthroscopy at our center between January 2006 and March 2014 (8 years and 3 months). The subjects comprised 289 males and 263 females ranging in age from 13 to 66 (mean 26.1) years. The cause of injury was sports-related in 89.1 %, and the mean interval from injury to initial arthroscopy was 23 months. The patients were divided into two groups: arthroscopy performed within 8 weeks after injury (acute group; 256 knees) and more than 8 weeks after injury (chronic group; 296 knees). Frequency of meniscal tear and location of tear were compared between two groups. The incidence of meniscal tear diagnosed by arthroscopic examination was 79.2 % (437 of 552 knees) in all subjects; 72.7 % (186 of 256 knees) in acute group and 84.8 % (251 of 296 knees) in chronic group, and was significantly higher in chronic group. Regarding the locations of meniscal tears, in acute group (186 knees), medial meniscal tear only was found in 20 knees (10.8 %), lateral meniscal tear only in 129 knees (69.4 %), and bilateral (including medial and lateral) meniscal tears in 37 knees (19.9 %). In chronic group (251 knees), medial meniscal tear only was found in 62 knees (24.7 %), lateral meniscal tear only in 85 knees (33.9 %), and bilateral meniscal tears in 104 knees (41.4 %). Lateral meniscal tear was commonly associated with acute ACL injury, while medial meniscal tear with chronic ACL injury. Bucket handle tear was observed in 25 knees (medial: 17 knees, lateral: 8 knees) in acute group, and 81 knees (medial: 69 knees, lateral: 12 knees) in chronic group, and was more common in the chronic group. The incidence of meniscal tear associated with ACL injury is higher in chronic cases; the number of medial meniscal tears is particularly high, many of which require meniscectomy. Early ACL reconstruction is recommended also for the prevention of secondary meniscal tear.

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**Title:** Hamstring Muscle Injuries, a Rehabilitation Protocol Purpose.

**Citation:** Asian journal of sports medicine, Dec 2015, vol. 6, no. 4, p. e25411.,

**Author(s):** Valle, Xavier, L Tol, Johannes, Hamilton, Bruce, Rodas, Gil, Malliaras, Peter, Malliaropoulos, Nikos, Rizo, Vicenc, Moreno, Marcel, Jardi, Jaume

**Abstract:** Hamstring acute muscle injuries are prevalent in several sports including AFL football (Australian Football League), sprinting and soccer, and are often associated with prolonged time away from sport. In response to this, research into prevention and management of hamstring injury has increased, but epidemiological data shows no decline in injury and re-injury rates, suggesting that rehabilitation programs and return to play (RTP) criteria have to be improved. There continues to be a lack of consensus regarding how to assess performance, recovery and readiness to RTP, following hamstring strain injury. The aim of this paper was to propose rehabilitation protocol for hamstring muscle injuries based on current basic science and research knowledge regarding injury demographics and management options. Criteria-based (subjective and objective) progression through the rehabilitation program will be outlined along with exercises for each phase, from initial injury to RTP.

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05 January 2016, 12:51:36 | Bonnin, M. P., Saffarini, M., Bossard, N., Dantony, E., Victor, J. Aims

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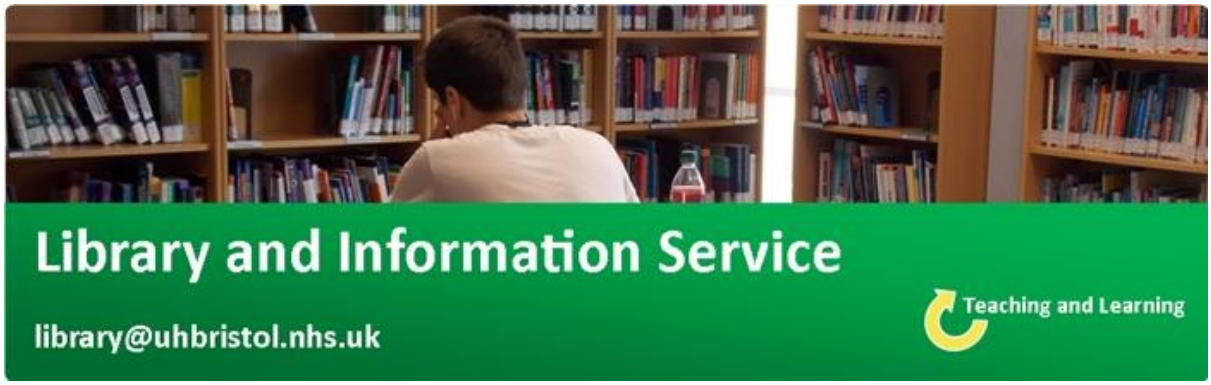


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