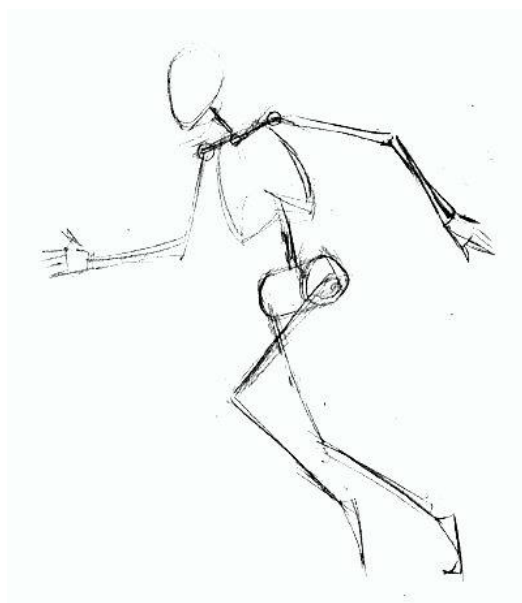


Trauma & Orthopaedics

Current Awareness Bulletin



Quarterly: Summer 2016

Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.

Training Calendar 2016

All sessions are 1 hour

August (12pm)

Tue 2nd **Critical Appraisal**
Wed 10th **Statistics**
Thurs 18th **Information resources**
Fri 26th **Literature Searching**

September (1pm)

Fri 2nd **Critical Appraisal**
Mon 5th **Statistics**
Tue 18th **Information resources**
Wed 21st **Literature Searching**
Thurs 29th **Critical Appraisal**

October (12pm)

Fri 7th **Statistics**
Mon 10th **Information resources**
Tue 18th **Literature Searching**
Wed 26th **Critical Appraisal**

November (1pm)

Thurs 3rd **Statistics**
Fri 11th **Information resources**
Mon 14th **Literature Searching**
Tues 22nd **Critical Appraisal**
Wed 30th **Statistics**

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Injury; Vol. 46, iss. 8, August 2015	Error! Bookmark not defined.
Strategies in Trauma and Limb Construction; Vol. 10, iss. 1, April 2015	Error! Bookmark not defined.
Clinical Orthopaedics and Related Research; Vol. 473, iss. 8, August 2015	Error! Bookmark not defined.

Your Outreach Librarian

Jo Hooper

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OUTREACH: Your Outreach Librarian can help facilitate evidence-based practise for all in the Orthopaedics team, 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

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New Activity in Up-to-Date

NICE National Institute for
Health and Care Excellence

[VTE prophylaxis in orthopaedic surgery \[PDF\]](#)

Source: [British Orthopaedic Association - BOA - 01 August 2016 -](#)

Publisher: [British Orthopaedic Association \(BOA\)](#)

The BOA, via the Professional Practice Committee (PPC), has decided to launch a 'living document' so that members, patients and the general public can reference up to date guidance on this matter of crucial importance. The living document will be regularly updated as new evidence and research become available.

UpToDate[®]

OpenAthens login required. Register here: <https://openathens.nice.org.uk/>

[General principles of fracture management: Early and late complications](#)

Author: [Allyson S Howe, MD, FAAFP, CAQ Sports Medicine](#)

Literature review current through: Jul 2016. | **This topic last updated:** Apr 20, 2016.

INTRODUCTION — Fractures are associated with a range of potential complications. Acute complications occur as a direct result of the trauma sustained and can include damage to vascular structures, nerves, or soft tissue. Delayed complications may occur after initial treatment or in response to treatment. Therefore, reevaluation at regular intervals during healing is prudent in most cases.

Major acute and long-term complications of fractures are described here. The management of specific fractures and some specific complications are discussed in detail separately. (See ["Acute compartment syndrome of the extremities"](#) and ["Treatment and prevention of osteomyelitis following trauma in adults"](#) and ["Approach to the diagnosis and therapy of lower extremity deep vein thrombosis"](#).)

 **Cochrane**
Library

No current relevant evidence

Current Awareness Database Articles related to Orthopaedics

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

- Diagnosis
- Reconstruction
- Patient care and management

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

Diagnosis

Title: Surgical Management of Complex Lower-Extremity Trauma With a Long Hindfoot Fusion Nail: A Case Report.

Citation: Foot & ankle specialist, Aug 2016, vol. 9, no. 4, p. 354-360

Author(s): Jain, Nickul S, Lopez, Gregory D, Bederman, S Samuel, Wirth, Garrett A,

Abstract: High-energy injuries can result in complete or partial loss of the talus. Ipsilateral fractures to the lower limb increase the complexity of surgical management, and treatment is guided by previous case reports of similar injuries. A case of complex lower-extremity trauma with extruded and missing talar body and ipsilateral type IIIB open tibia fracture is presented. Surgical limb reconstruction and salvage was performed successfully with a single orthopaedic implant in a manner not described previously in the literature. The purpose of this case report is to present the novel use of a single orthopaedic implant for treatment of a complex, open traumatic injury. Previous case reports in the literature have described the management of complete or partial talar loss. We describe the novel use of a long hindfoot fusion nail and staged bone grafting to achieve tibiocalcaneal arthrodesis for the treatment of complex lower-extremity trauma. Therapeutic, Level IV: Case study. © 2015 The Author(s).

Title: Minimally invasive plate osteosynthesis using posterolateral approach for distal tibial and tibial shaft fractures.

Citation: Injury, Aug 2016, vol. 47, no. 8, p. 1862-1866

Author(s): Yamamoto, Norio, Ogawa, Kenichi, Terada, Chuji, Okazaki, Yoshiki, Munetomo, Kazuo, Noda, Tomoyuki, Ozaki, Toshifumi

Abstract: The objective of the study was to evaluate the effectiveness of the posterolateral minimally invasive plate osteosynthesis (MIPO) method for managing distal tibial or tibial shaft fractures with severe anterior and medial soft tissue injuries. Five consecutive patients with three distal tibial and two tibial shaft fractures (three open fractures) at a level-1 trauma and tertiary referral center were retrospectively reviewed. All patients were definitively treated and followed to bone union. Main outcome was measured by American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot score, complications, and bone union on radiographs. The average follow-up period was 15.8 months (range, 12-24 months). The average AOFAS score was 88.2 (range, 81-90). There were no complications, such as incision breakdown, deep infection, or impingement of the flexor hallucis longus tendon. Bone union was achieved in all cases. Posterolateral MIPO is a feasible option when treating these fractures, especially in cases with severe anterior and medial soft tissue injuries. Copyright © 2016 Elsevier Ltd. All rights reserved.

Title: "Fracturoscopy" is Superior to Fluoroscopy in the Articular Reconstruction of Complex Tibial Plateau Fractures-An Arthroscopy Assisted Fracture Reduction Technique.

Citation: Journal of orthopaedic trauma, Aug 2016, vol. 30, no. 8, p. 437-444

Author(s): Krause, Matthias, Preiss, Achim, Meenen, Norbert M, Madert, Jürgen, Frosch, Karl-Heinz

Abstract: To analyze the anatomic accuracy of fracture reduction controlled by fluoroscopy as compared with arthroscopically assisted reduction ("fracturoscopy") in patients with complex tibial plateau fractures (AO/OTA 41-C). Quality of fracturoscopy-guided reduction was checked with postoperative computed tomography. Prospective observational study. Urban level 1 trauma center. Seventeen consecutive patients, with a complex, bicondylar tibial plateau fracture. The intraoperative, open insertion of an arthroscope (2.4-mm or 2.8-mm optics), to visualize the articular surface and fracture reduction. Ability to detect residual fracture depression or gap after previous open reduction under fluoroscopic guidance. An open fracture reduction with fluoroscopic guidance was performed in all cases. In 7 cases, open reduction and fluoroscopy resulted in satisfactory fracture reduction (fluoroscopy group). In 10 of 17 cases, subsequent "fracturoscopy" showed persistent fracture depression (≥ 2 mm, fracturoscopy group) with the need for intraoperative correction. Patients in the fracturoscopy group demonstrated significantly greater preoperative fragment depression (12.55 ± 6.56 mm) and a larger preoperative fracture gap (7.83 ± 5.49 mm) compared with patients with a satisfactory reduction under fluoroscopy (depression 4.97 ± 4.02 mm, $P = 0.016$; gap 2.47 ± 1.07 mm, $P = 0.023$). Fluoroscopy was not successful in achieving satisfactory reduction in cases in which the postero-latero-central

region was affected ($P = 0.004$, χ test). Postoperative computed tomography demonstrated satisfactory articular reconstruction in all cases. Intraoperative arthroscopy permitted a significantly improved visualization of fracture fragment displacement, specifically in the postero-latero-central region of the tibial plateau, as compared with fluoroscopy. Arthroscopy is recommended for fractures involving the postero-latero-central region of the tibial plateau. Therapeutic Level IV. See Instructions for Authors for a complete description of levels of evidence.

Title: Achieving Anatomic Acetabular Fracture Reduction-When is the Best Time to Operate?

Citation: Journal of orthopaedic trauma, Aug 2016, vol. 30, no. 8, p. 426-431

Author(s): Dailey, Steven K, Phillips, Caleb T, Radley, Joseph M, Archdeacon, Michael T

Abstract: We hypothesize that earlier operative intervention for acetabular fractures improves the probability of achieving an anatomic reduction. Retrospective review. Academic level I trauma center. Six hundred fifty acetabular fractures treated through open reduction and internal fixation (ORIF) between September 2001 and February 2014. Acetabular fracture ORIF. Reduction quality was assessed through postoperative radiographs. Displacement of ≤ 1 mm was considered an anatomic reduction, 2-3 mm imperfect, and >3 mm poor. Anatomic reductions were observed in 85% ($n = 553$) of cases, imperfect reductions in 11% ($n = 74$) of cases, and poor reductions in 4% ($n = 23$) of cases. Patients with anatomic reductions had significantly shorter times from injury to ORIF [odds ratio (OR) interval] (median, 3 d) when compared with either imperfect (median, 4.5 days, $P = 0.02$) or poor reductions (median, 7 days, $P < 0.001$) reductions. The OR interval of imperfect reductions was also significantly shorter than that of poor reductions ($P = 0.02$). Logistic regression analysis demonstrated that OR interval had an effect of -0.12, meaning that the log odds of anatomic reduction decreases by 0.12 with each day from injury to ORIF. The interval from injury to operative fixation of acetabular fractures affects reduction quality. Earlier intervention improves the probability of achieving an anatomic reduction; therefore, ORIF should be performed as early as possible, provided the patient is optimized for surgery. Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence.

Title: Surgical site infections in patients with type 3 open fractures: comparing antibiotic prophylaxis with cefazolin plus gentamicin versus piperacillin/tazobactam

Citation: Journal of Orthopaedic Trauma, August 2016, vol./is. 30/8(415-419),

Author(s): Redfern J., Wasilko S.M., Groth M.E., Mcmillian W.D., Bartlett C.S.

Abstract: Objectives: The purpose of this study was to compare rates of surgical site infection (SSI) in patients with type 3 open fractures who had received cefazolin plus gentamicin versus piperacillin/tazobactam for antibiotic prophylaxis. Design: Retrospective cohort study. Setting: Level 1 trauma center. Patients: Seven hundred sixty-six patients admitted between January 1, 2004, and December 31, 2012, with open fractures were identified using the National Trauma Data Bank by searching International Classification of

Diseases, Ninth Revision (ICD-9) codes. Electronic medical record review revealed 134 patients with type 3 open fractures, of which 72 were included in the final analysis. Intervention: Administration of cefazolin plus gentamicin or piperacillin/tazobactam for type 3 open fracture antibiotic prophylaxis. Main Outcome Measurements: SSI, nonunion, death, and rehospitalization rates at 1 year. Results: Surgical site infection at 1 year occurred in 12 of 37 patients (32.4%) in the cefazolin plus gentamicin group and 11 of 35 patients (31.4%) in the piperacillin/tazobactam group (P 1.000). Nonunion, death, and rehospitalization rates at 1 year were similar between the 2 groups. Although there was no statistically significant difference in SSI at 30 days between groups, the rate was higher in the cefazolin plus gentamicin group (21.6% vs. 11.4%; P 0.246). Conclusions: At our institution, use of piperacillin/tazobactam as compared with cefazolin plus gentamicin for antibiotic prophylaxis in patients with type 3 open fractures showed similar rates of SSI, nonunion, mortality, and rehospitalization at 1 year after injury. Level of Evidence: Therapeutic Level III. See Instructions for Authors for a complete description of levels of evidence.

Title: Outcomes of Proximal Humerus Fracture Open Reduction Internal Fixation with Concomitant Ipsilateral Shoulder Girdle Injuries: a Case Control Study.

Citation: HSS journal : the musculoskeletal journal of Hospital for Special Surgery, Jul 2016, vol. 12, no. 2, p. 105-110

Author(s): Berkes, Marschall B, Little, Milton T M, Pardee, Nadine C, Schottel, Patrick C, Lazaro, Lionel E, Lorich, Dean G

Abstract: Proximal humerus fractures treated in the face of ipsilateral injuries to the shoulder girdle may be predisposed to worse clinical outcomes. The purpose of this investigation was to examine outcomes of proximal humerus fractures treated with open reduction internal fixation (ORIF) using an endosteal augment in the presence of a concomitant shoulder girdle injury in comparison to isolated proximal humerus fractures treated with ORIF and endosteal augment. A prospective database was used to identify proximal humerus fractures with ipsilateral shoulder girdle injuries (glenohumeral and acromioclavicular dislocation, fractures of the acromion, clavicle, scapula, or humeral diaphysis). These were compared to isolated proximal humerus fractures treated in the same fashion (ORIF with endosteal augment). Minimum of 1 year follow-up was required for inclusion. Outcomes assessed included range of motion (ROM), development of avascular necrosis (AVN), hardware-related complications, reoperation, and subjective outcome assessments including the Disabilities of Arm Shoulder and Hand questionnaire (DASH), Constant score, UCLA rating scale, and the Short Form-36 (SF-36). Fifteen ipsilateral injuries were seen in 14 patients. Seventy-seven isolated proximal humerus fractures were available for comparison. The ipsilateral injury group had significantly worse forward flexion (141 vs 156°, p = 0.02), external rotation (56 vs 64°, p = 0.03), higher rates of avascular necrosis (4 of 14, 28.6% vs 1 of 77, 1.3%, p = 0.002), and inferior SF-36 physical health scores (48.5 vs 63.5; p = .04). Despite these differences, no significant differences were seen with hardware-related complications or DASH, Constant score, or UCLA rating scale results. No patients required secondary reconstructive procedures. Despite a statistically higher rate of AVN and decreased ROM, patient-based outcomes of proximal humerus fractures with ipsilateral shoulder injuries approached those seen in isolated proximal humerus fractures. This

suggests that these injuries can achieve similarly good clinical results provided any associated shoulder pathology is identified and treated appropriately.

Title: Definitive management of open tibia fractures using limb reconstruction system

Citation: Journal of Clinical and Diagnostic Research, July 2016, vol./is. 10/7(RC01-RC04),

Author(s): Patil M.Y., Gupta S.M., Kurupati S.K.C., Agarwal S., Chandarana V.

Abstract: Introduction: Open fractures are treated as surgical emergency and early administration of intravenous antibiotic coupled with early irrigation and debridement decreases the infection rate dramatically. Limb Reconstruction System (LRS) is a unilateral rail system which consists of Shanz pins, rail rods and sliding clamps. It is specifically designed to enable the surgeon to perform simple and effective surgery as it offers rigid fixation of fracture fragments, allowing early weight bearing and reduces economic burden. Aim: To determine the efficacy of Limb Reconstruction System for treatment of compound tibia fractures. Materials and Methods: A prospective study was carried out where in 54 cases out of 412 compound tibia fractures having Modified Gustilo Anderson Type IIIA and IIIB with a mean age of 42+/-5 years were treated using LRS over a period of 26 months. Limb reconstruction system was used in acute docking mode or with corticotomy and bone transport was done depending upon the bone loss. The soft tissue condition was assessed and split thickness skin grafting and flap repairs were done as per the need. Clinical and radiological assessment was done at every follow-up. Bony and functional assessment was done by Association for the Study and Application of the Methods of Illizarov (ASAMI) criteria. Results: Among 54 patients, bony results as per ASAMI score were excellent in 36, good in 14, fair in 2 and poor in 2 patients. Functional results were excellent in 43, good in 7, fair in 4 patients. The average fracture union time was 8 months. Post-surgery patient satisfaction was excellent since fixation allowed weight bearing immediately. Average hospital stay was 7 days and financial burden was reduced by 40% as compared to multi staged surgery. The average time of return to work was 20 days. Conclusion: LRS is an easy, simple and definitive surgical procedure that allows immediate full weight bearing walking. It reduces hospital stay, is cost effective with excellent patient compliance and can also be used for bone lengthening/transportation.

Title: The Management of Soft Tissue and Bone Loss in Type IIIB and IIIC Pediatric Open Tibia Fractures.

Citation: Journal of pediatric orthopedics, Jul 2016, vol. 36, no. 5, p. 453-458

Author(s): Laine, Jennifer C, Cherkashin, Alexander, Samchukov, Mikhail, Birch, John G, Rathjen, Karl E

Abstract: Type III B and C open tibia fractures in children pose a challenge to the orthopaedic surgeon. Limb salvage is the initial goal for the majority of patients, but managing soft-tissue defects and bone loss can be a challenge. The purpose of this study was to evaluate the use of circular external fixation in the management of these injuries. In this retrospective review, we examined children with type IIIB and IIIC open tibial fractures

treated with circular external fixation and soft-tissue coverage between 1990 and 2010. Chart review included: mechanism and severity of injury, degree of bone and soft-tissue loss, technique and duration of external fixation, additional procedures, clinical and radiographic outcomes, and complications. Eight patients were identified whose average age at the time of injury was 10.4 years (range, 3.8 to 15.3 y). There were 7 type IIIB and 1 type IIIC fractures. All patients received free or rotational soft-tissue flaps. Average bone loss was 5.4 cm (range, 0 to 12 cm). Three techniques of circular external fixation were used, including: (1) static stabilization to allow for soft-tissue coverage and fracture healing, (2) acute shortening with plan for later limb lengthening, and (3) stabilization of the extremity for soft-tissue coverage and intended bone transport. Seven of 8 limbs were salvaged. Of those 7, all were followed to skeletal maturity and ambulating without assistive devices at final follow-up. Three patients had a clinically relevant leg-length discrepancy (≥ 2 cm). Four of 8 patients required secondary or contralateral procedures. Pediatric type IIIB and IIIC tibia fractures are limb-threatening injuries that require dynamic thinking and management as the bone and soft-tissue injuries evolve. We have proposed a general algorithm to guide the treatment of these severe injuries. In our experience, circular external fixation, in conjunction with this algorithm, provides the appropriate stability and environment for managing soft tissue and bone loss and can facilitate limb salvage. Level IV.

Title: BMP-2 delivered via sucrose acetate isobutyrate (SAIB) improves bone repair in a rat open fracture model.

Citation: Journal of orthopaedic research : official publication of the Orthopaedic Research Society, Jul 2016, vol. 34, no. 7, p. 1168-1176

Author(s): Cheng, Tegan L, Schindeler, Aaron, Little, David G

Abstract: Human bone morphogenetic proteins (BMPs) are an alternative to bone graft for the treatment of high-energy open fractures. The standard delivery system for BMP-2 is a porous collagen sponge, but we have previously found that the biocompatible, high viscosity carrier, Sucrose acetate isobutyrate (SAIB) is an effective and potentially less invasive alternative. The efficacy of SAIB as a BMP-2 delivery system was examined in an open fracture model featuring a femoral osteotomy with periosteal stripping in 9-week-old male Sprague Dawley rats. SAIB containing BMP-2 (SAIB/BMP-2) was delivered into the fracture site during surgery and an additional group was further co-treated with zoledronic acid and hydroxyapatite nanoparticles (SAIB/BMP-2/HA/ZA). These were compared to untreated fractures and SAIB carrier alone (negative controls), and BMP-2 loaded collagen sponge (positive control). The rate of radiographic union and the biomechanical properties of the healed fractures were compared after 6-week. Untreated and SAIB-treated fractures showed poor repair, with 53% and 64%, respectively, not bridged at 6 week. In contrast, collagen/BMP-2, SAIB/BMP-2, and SAIB/BMP-2/HA/ZA showed significantly increased union (100%, 100%, and 94%, respectively, $p < 0.05$). Four-point bend testing revealed that collagen/BMP-2 and SAIB/BMP-2/HA/ZA restored the strength of fractured femora to that of intact femora by 6 week, whereas untreated and SAIB remained less than intact controls by 60% and 67%, respectively ($p < 0.05$). Overall, the SAIB/BMP-2/HA/ZA formulation was comparable to BMP-2 infused collagen sponge in terms of promoting open fractures repair, but with the additional potential for less invasive delivery. © 2015 Orthopaedic Research

Society. Published by Wiley Periodicals, Inc. J Orthop Res 34:1168-1176, 2016. © 2015 Orthopaedic Research Society. Published by Wiley Periodicals, Inc.

Title: Outcomes over a decade after surgery for unstable ankle fracture: Functional recovery seen 1 year postoperatively does not decay with time

Citation: Journal of Orthopaedic Trauma, July 2016, vol./is. 30/7(e236-e241)

Author(s): Regan D.K., Gould S., Manoli A., Egol K.A.

Abstract: Objectives: To evaluate long-term clinical and radiographic outcomes after surgical fixation of unstable ankle fractures. Design: Prospective follow-up study. Setting: Academic medical center with 2 Level-I trauma centers and a tertiary care center. Patients: One hundred forty-one patients who underwent surgical repair of an unstable ankle fracture. Intervention: Open reduction internal fixation of an unstable ankle fracture. Main Outcome Measurements: Short Musculoskeletal Function Assessment (SMFA) scores and radiographic outcomes based on the van Dijk criteria at a mean of 11.6 years follow-up. Results: Of the 281 patients meeting the inclusion criteria for this study, follow-up data were obtained from 141 patients (50%), at a mean of 11.6 years after surgery. Overall, mean long-term SMFA scores were improved when compared with scores at 1 year. The American Society of Anesthesiologists class 1 or 2 was found to be a significant predictor of recovery based on SMFA scores. Sixty-three percent of follow-up radiographs demonstrated evidence of radiographic arthritis, including 31% with mild osteoarthritis, 22% with moderate osteoarthritis, and 10% with severe osteoarthritis. Fracture dislocation at injury was found to be a significant predictor of radiographic posttraumatic osteoarthritis at latest follow-up. One patient (0.7%) underwent a tibiotalar fusion secondary to symptomatic posttraumatic arthrosis. One patient (0.7%) underwent total ankle replacement due to severe osteoarthritis. Conclusions: Our data indicate that over a decade after ankle fracture fixation, most of the patients are doing well. Despite the presence of radiographic arthritis in 63% of patients, few experience pain or have restrictions in function, and mean long-term functional outcome scores are improved when compared with scores at 1 year. Patients undergoing operative fixation of unstable ankle fractures can anticipate functional outcomes that are maintained over time.

Title: Infection and nonunion after fasciotomy for compartment syndrome associated with tibia fractures: A matched cohort comparison

Citation: Journal of Orthopaedic Trauma, July 2016, vol./is. 30/7(392-396)

Author(s): Blair J.A., Stoops T.K., Doarn M.C., Kemper D., Erdogan M., Griffing R., Sagi H.C.

Abstract: Objectives: The objective was to compare the rates of union and infection in patients treated with and without fasciotomy for acute compartment syndrome (ACS) in operatively managed tibia fractures. Design: This was a retrospective review. Setting: The study was conducted at both a Level 1 and Level II trauma center. Patients/Participants: Patients operated for tibial plateau fractures (group 1) and tibial shaft fractures (group 3) with ACS requiring fasciotomy were matched to patients without ACS (plateau: group 2,

shaft: group 4) in a 1:3 ratio for age, sex, fracture pattern, and open/closed injury. Intervention: Surgical treatment was provided with plates/screws (plateau fractures) or intramedullary rod (shaft fractures). Patients with ACS were treated with a 2-incision 4-compartment fasciotomy. Main Outcome Measurements: Time to union and incidence of deep infection, nonunion, and delayed union. Results: One hundred eighty-four patients were included-group 1: 23 patients, group 2: 69 patients, group 3: 23 patients, and group 4: 69 patients. Time to union averaged 26.8 weeks for groups 1 and 3 and 21.5 weeks for groups 2 and 4 ($P > 0.05$). Nonunion occurred in 20% for groups 1 and 3 and in 5% for groups 2 and 4 ($P = 0.003$). Deep infection developed in 20% for groups 1 and 3 and in 4% for groups 2 and 4 ($P = 0.001$). There was a significant increase in infection in group 1 versus group 2 and nonunion in group 3 versus group 4. There were significantly more smokers for those with fasciotomies (46%) than without (20%, $P < 0.001$), though all statistical results remained similar after a binary regression analysis. Conclusion: Four-compartment fasciotomies in patients with tibial shaft or plateau fractures is associated with a significant increase in infection and nonunion.

Title: Outcomes after plating of olecranon fractures: A multicenter evaluation

Citation: Injury, July 2016, vol./is. 47/7(1466-1471)

Author(s): De Giacomo A.F., Tornetta P., Sinicrope B.J., Cronin P.K., Althausen P.L., Bray T.J., Kain M.S., Marcantonio A., Sagi C., James C.R.

Abstract: Introduction The aim of this study was to report the physical and functional outcomes after open reduction internal fixation of the olecranon in a large series of patients with region specific plating across multiple centres. Patients/methods Between January 2007 and January 2014, 182 consecutive patients with a displaced olecranon fracture treated with open reduction internal fixation were included in this study. Retrospective review across four trauma centres collected elbow range of motion, DASH scores, hardware complications, and hardware removal. Postoperative visits in the outpatient clinic were at two, six, and twenty-four weeks. After 24 weeks, patients were eligible for hardware removal if symptomatic. All patients were contacted, at least 1 year following surgery, to determine if hardware was removed. Results 182 patients (75 women, 105 men) average age 50 (16-89) with 162 closed and 19 open displaced olecranon fractures were treated with one region specific plate. Nineteen were lost to followup leaving 163 for analysis with all patients united. The most common deficiency was a lack of full extension with 39% lacking at least 10degree of extension. Hardware was asymptomatic in 67%, painful upon leaning in 20%, and restricted activities in 11% resulting in a 15% rate of hardware removal. Hardware complaints were more common if a screw was placed in the corner of the plate ($P = 0.004$). When symptomatic, the area of the plate that was bothersome encompassed the whole plate in 39%, was at the edge of the plate in 33%, and was a screw head in 28%. The DASH scores, collected at final follow-up of 24 weeks, was 10.1 +/- 16, indicating moderate disability was still present. Patients who lacked 10degree of extension had a DASH of 12.3 as compared with 10.5 for those with near full extension, but this was not significant ($P = 0.5$). Conclusion Plating of the olecranon leads to predictable union. The most common complication was lack of full extension with 39% lacking more than 10degree, although this

did not have any effect on DASH scores. Overall results indicate that disability still exists after 6 months with an average DASH score of 10. Level of evidence Therapeutic level III.

Title: Outcomes Over a Decade After Surgery for Unstable Ankle Fracture: Functional Recovery Seen 1 Year Postoperatively Does Not Decay With Time.

Citation: Journal of orthopaedic trauma, Jul 2016, vol. 30, no. 7, p. e236.

Author(s): Regan, Deirdre K, Gould, Stephen, Manoli, Arthur, Egol, Kenneth A

Abstract: To evaluate long-term clinical and radiographic outcomes after surgical fixation of unstable ankle fractures. Prospective follow-up study. Academic medical center with 2 Level-I trauma centers and a tertiary care center. One hundred forty-one patients who underwent surgical repair of an unstable ankle fracture. Open reduction internal fixation of an unstable ankle fracture. Short Musculoskeletal Function Assessment (SMFA) scores and radiographic outcomes based on the van Dijk criteria at a mean of 11.6 years follow-up. Of the 281 patients meeting the inclusion criteria for this study, follow-up data were obtained from 141 patients (50%), at a mean of 11.6 years after surgery. Overall, mean long-term SMFA scores were improved when compared with scores at 1 year. The American Society of Anesthesiologists class 1 or 2 was found to be a significant predictor of recovery based on SMFA scores. Sixty-three percent of follow-up radiographs demonstrated evidence of radiographic arthritis, including 31% with mild osteoarthritis, 22% with moderate osteoarthritis, and 10% with severe osteoarthritis. Fracture dislocation at injury was found to be a significant predictor of radiographic posttraumatic osteoarthritis at latest follow-up. One patient (0.7%) underwent a tibiotalar fusion secondary to symptomatic posttraumatic arthrosis. One patient (0.7%) underwent total ankle replacement due to severe osteoarthritis. Our data indicate that over a decade after ankle fracture fixation, most of the patients are doing well. Despite the presence of radiographic arthritis in 63% of patients, few experience pain or have restrictions in function, and mean long-term functional outcome scores are improved when compared with scores at 1 year. Patients undergoing operative fixation of unstable ankle fractures can anticipate functional outcomes that are maintained over time. Therapeutic Level IV. See Instructions for Authors for a complete description of levels of evidence.

Title: Long-term Clinical Outcome and Functional Status after Arterial Reconstruction in Upper Extremity Injury

Citation: European Journal of Vascular and Endovascular Surgery, July 2016, vol./is. 52/1(119-123)

Author(s): Frech A., Pellegrini L., Fraedrich G., Goebel G., Klocker J.

Abstract: Objective/Background To analyse long term outcome, including functional status and prognostic factors, in patients who have undergone arterial repair of civilian upper limb injury. Retrospective data analysis of prospectively collected data was performed. Methods This was a retrospective data analysis of prospectively collected data. Records of all patients who had undergone repair of traumatic arterial lesions in the upper limb between 1989 and

2010 were reviewed, and clinical follow up was performed. End points were: long term patency, measured by color Doppler ultrasound; vascular re-intervention; limb salvage rate; and long term functional status using the Disabilities of Arm, Shoulder, and Hand (DASH) questionnaire. The DASH questionnaire is an instrument used to identify a patient's disabilities, in which everyday activities are assessed by 30 questions. The DASH answers are summarized and, using a conversion formula, lead to a score between 0 (full recovery) and 100 (severe disability). The DASH questionnaire was sent to all German-speaking individuals for data supplementation after completion of a clinical follow up study. Results A total of 117 arterial repairs were performed in 108 patients (87 men, median age 35.7 years). Blunt trauma was the predominant cause of injury (n = 96; 82%). Accompanying nerve lesions (n = 39; 36%) and/or orthopedic injuries (n = 65; 60%) were present in 84 patients (78%). After a median follow up time of 5.3 years (range 0.5-19.7 years), 65 patients (60%) were re-investigated: long-term patency was 97%. The DASH questionnaire was answered by 57 patients (53%). Functional impairment was frequently seen, and determined by neurological injury (including neurological lesions, median DASH score was 40.3 [range 3.5-69.8] vs. 0.8 [range 0-5.8] without; p <.001) and ischemia at time of injury (median DASH score with ischemia 4.2 [range 0-16.9] vs. 0.0 [0-1.7] without; p <.04). Conclusion Favorable long term patency rates after arterial repair in upper extremity injuries can be achieved. Long term functional impairment is a significant problem and determined by associated neurological injury, as well as ischemia at time of injury.

Title: Bioabsorbable versus metallic interference screws for graft fixation in anterior cruciate ligament reconstruction

Citation: Cochrane Database of Systematic Reviews, July 2016, vol./is. 2016/7(no pagination)

Author(s): Debieux P., Franciozi C.E.S., Lenza M., Tamaoki M.J., Magnussen R.A., Faloppa F., Belloti J.C.

Abstract: Background: Anterior cruciate ligament (ACL) tears are frequently treated with surgical reconstruction with grafts, frequently patella tendon or hamstrings. Interference screws are often used to secure the graft in bone tunnels in the femur and tibia. This review examines whether bioabsorbable interference screws give better results than metal interference screws when used for graft fixation in ACL reconstruction. Objectives: To assess the effects (benefits and harms) of bioabsorbable versus metallic interference screws for graft fixation in ACL reconstruction. Search methods: We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register, CENTRAL (the Cochrane Library), MEDLINE, Embase, LILACS, trial registers and reference lists of articles. Date of search: January 2016. Selection criteria: We included randomised controlled trials and quasi-randomised trials comparing bioabsorbable with metallic interferences screws in ACL reconstruction. The main outcomes sought were subjective-rated knee function, failure of treatment, and activity level. Data collection and analysis: At least two review authors selected eligible trials, independently assessed risk of bias, and cross-checked data. Data were pooled whenever relevant and possible. Requests for further information were sent to the original study authors. Main results: We included 12 trials (11 randomised and one quasi-randomised) involving a total of 944 participants, and reporting follow-up results for 774.

Participants in the 12 trials underwent ACL reconstruction with either hamstring tendon grafts (five trials) or patellar tendon grafts (seven trials). Trials participants were randomly allocated to bioabsorbable or metallic interference screws for graft fixation in both femur and tibia (seven trials); femur only (three trials); tibia only (one trial); location was not reported in the remaining trial. A variety of materials was used for the bioabsorbable screws, Poly-L-lactic acid (PLLA) being the most common. The metallic screws, where reported, were titanium. All trials were at high risk of bias, which invariably included performance bias. Seven trials were at high risk of attrition bias and eight at high risk of reporting bias. The quasi-randomised trial was assessed as being at high risk for selection bias. Based on these study limitations and insufficiency of the available data, we judged the quality of evidence for all outcomes was very low. The majority of the available data for patient-reported knee function was presented as Lysholm scores (0 to 100; higher scores = better function). There was very low quality but consistent evidence of no clinically important differences between the two groups in Lysholm scores at 12 months follow-up (mean difference (MD) -0.08, 95% confidence interval (CI) -1.48 to 1.32; three trials, 168 participants); 24 months (MD 0.35, 95% CI -1.27 to 1.98; three trials, 113 participants) or five or more years follow-up (MD 1.23, 95% CI -2.00 to 4.47; two trials, 71 participants). This lack of between-group differences was also reported for Lysholm scores in several trials that did not provide sufficient data for pooling as well as for other self-reported knee function scores reported in several trials. Treatment failure was represented by the summed data for implant breakage during surgery and major postoperative complications (implant failure, graft rupture, symptomatic foreign body reactions, effusion and treated arthrofibrosis and related conditions) that were usually described in the trial reports as requiring further substantive treatment. There is very low-quality evidence of greater treatment failure in the bioabsorbable screw group (60/451 versus 29/434; risk ratio (RR) 1.94 favouring metallic screw fixation, 95% CI 1.29 to 2.93; 885 participants, 11 studies). In a population with an assumed risk (based on the median control group risk) of 56 participants per 1000 having treatment failure after metallic screw fixation, this equates to 53 more (95% CI 17 to 108 more) per 1000 participants having treatment failure after bioabsorbable screw fixation. All 16 intraoperative complications in the bioabsorbable screw group were implant breakages upon screw insertion. Treatment failure defined as postoperative complications only still favoured the metallic screw group but the 95% CI also included the potential for a greater risk of treatment failure after metallic screw fixation: 44/451 versus 29/434; RR 1.44, 95% CI 0.93 to 2.23. Based on the assumed risk of 56 participants per 1000 having postoperative treatment failure after metallic screw fixation, this equates to 25 more (95% CI 4 fewer and 69 more) per 1000 participants having this outcome after bioabsorbable screw fixation. There was very low-quality evidence of very similar activity levels in the two groups at 12 and 24 months follow-up measured via the Tegner score (0 to 10; higher scores = greater activity): 12 months (MD 0.08, 95% CI -0.39 to 0.55; 122 participants, two studies); 24 months (MD 0.01, 95% CI -0.54 to 0.57; 72 participants, two studies). Authors' conclusions: There is very low-quality evidence of no difference in self-reported knee function and levels of activity between bioabsorbable and metallic interference screws for graft fixation in ACL reconstruction. There is very low-quality evidence that bioabsorbable screws may be associated with more overall treatment failures, including implant breakage during surgery. Further research does not appear to be a priority, but if undertaken, should also examine costs.

Title: Success of free flap anastomoses performed within the zone of trauma in acute lower limb reconstruction.

Citation: Journal of plastic, reconstructive & aesthetic surgery : JPRAS, Jul 2016, vol. 69, no. 7, p. 888-893

Author(s): Bendon, Charlotte L, Giele, Henk P

Abstract: Traditionally, in free flap cover of lower limb injuries, every attempt is made to perform anastomoses proximal to the zone of injury. We report on the success of anastomoses within the zone of trauma, at the level of the fracture, avoiding further dissection and exposure. The records of free flap reconstructions for fractures of the lower extremity at a tertiary trauma centre between 2004 and 2010 were retrospectively reviewed. A total of 48 lower limb fractures required free flap reconstruction, performed at 28 days post injury (0-275 days). Anastomoses were proximal (21), distal (5) or within the zone of trauma (22). There was no significant difference ($p > 0.05$) in return to theatre, revision of anastomosis or flap survival between groups. Of the 22 performed within the zone of injury, five returned to theatre but only two for revision of anastomosis and 20 (91%) of these flaps survived. Of the 48 free flaps, arterial anastomoses were end to end in 34 (71%) and end to side in 14 (30%). There was no significant difference ($p > 0.05$) in return to theatre, revision of anastomosis or flap survival between the end-to-end and end-to-side groups. There was a tendency for arterial anastomoses to be performed end to end outside the zone of trauma (23/26) compared to within the zone of trauma (11/22). Our data suggest that free flap anastomoses can be performed safely in the zone of trauma in lower limb injuries. Copyright © 2016 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

Title: Plastic surgical operative workload in major trauma patients following establishment of the major trauma network in England: A retrospective cohort study.

Citation: Journal of plastic, reconstructive & aesthetic surgery : JPRAS, Jul 2016, vol. 69, no. 7, p. 881-887

Author(s): Hendrickson, S A, Khan, M A, Verjee, L S, Rahman, K M A, Simmons, J,

Abstract: The introduction of major trauma centres (MTCs) in England has led to 63% reduction in trauma mortality.⁽¹⁾ The role of plastic surgeons supporting these centres has not been quantified previously. This study aimed to quantify plastic surgical workload at an urban MTC to determine the contribution of plastic surgeons to major trauma care. All Trauma Audit and Research Network (TARN)-recorded major trauma patients who presented to an urban MTC in 2013 and underwent an operation were identified retrospectively. Patients who underwent plastic surgery were identified and the type and date of procedure(s) were recorded. The trauma operative workload data of another tertiary surgical specialty and local historical plastics workload data from pre-MTC go-live were collected for comparison. Of the 416 major trauma patients who required surgical intervention, 29% ($n = 122$) underwent plastic surgery. Of these patients, 43% had open lower limb fractures, necessitating plastic surgical involvement according to British

Orthopaedic Association Standards for Trauma (BOAST) 4 guidance. The overall plastic surgery operative workload increased sevenfold post-MTC go-live. A similar proportion of the same cohort required neurosurgery (n = 115; p = 0.589). This study quantifies plastic surgery involvement in major trauma and demonstrates that plastic surgical operative workload is at least on par with other tertiary surgical specialties. It also reports one centre's experience of a significant change in plastic surgery activity following designation of MTC status. The quantity of plastic surgical operative workload in major trauma must be considered when planning major trauma service design and workforce provision, and for plastic surgical postgraduate training. Copyright © 2016 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

Title: Epidemiology of Operative Procedures in an NCAA Division I Football Team Over 10 Seasons.

Citation: Orthopaedic journal of sports medicine, Jul 2016, vol. 4, no. 7, p.

Author(s): Mehran, Nima, Photopoulos, Christos D, Narvy, Steven J, Romano, Russ, Gamradt, Seth C, Tibone, James E

Abstract: Injury rates are high for collegiate football players. Few studies have evaluated the epidemiology of surgical procedures in National Collegiate Athletic Association (NCAA) Division I collegiate football players. To determine the most common surgical procedures performed in collegiate football players over a 10-year period. Descriptive epidemiological study. From the 2004-2005 season through the 2013-2014 season, all surgical procedures performed on athletes from a single NCAA Division I college football team during athletic participation were reviewed. Surgeries were categorized by anatomic location, and operative reports were used to obtain further surgical details. Data collected over this 10-season span included type of injury, primary procedures, reoperations, and cause of reoperation, all categorized by specific anatomic locations and position played. From the 2004-2005 through the 2013-2014 seasons, 254 operations were performed on 207 players, averaging 25.4 surgical procedures per year. The majority of surgeries performed were orthopaedic procedures (92.1%, n = 234). However, there were multiple nonorthopaedic procedures (7.9%, n = 20). The most common procedure performed was arthroscopic shoulder labral repair (12.2%, n = 31). Partial meniscectomy (11.8%, n = 30), arthroscopic anterior cruciate ligament (ACL) reconstruction (9.4% n = 24), and arthroscopic hip labral repair (5.9% n = 15) were the other commonly performed procedures. There were a total of 29 reoperations performed; thus, 12.9% of primary procedures had a reoperation. The most common revision procedure was a revision open reduction internal fixation of stress fractures in the foot as a result of a symptomatic nonunion (33.33%, n = 4) and revision ACL reconstruction (12.5%, n = 3). By position, relative to the number of athletes at each position, linebackers (30.5%) and defensive linemen (29.1%) were the most likely to undergo surgery while kickers (6%) were the least likely. In NCAA Division I college football players, the most commonly performed surgeries conducted for injuries were orthopaedic in nature. Of these, arthroscopic shoulder labral repair was the most common, followed closely by partial meniscectomy. Nonorthopaedic procedures nonetheless accounted for a sizable portion of surgical volume. Familiarity with this injury and surgical spectrum is of utmost importance for the team physician treating these high-level contact athletes.

Title: Direct Repair of Chronic Achilles Tendon Ruptures Using Scar Tissue Located Between the Tendon Stumps.

Citation: The Journal of bone and joint surgery. American volume, Jul 2016, vol. 98, no. 14, p. 1168-1175

Author(s): Yasuda, Toshito, Shima, Hiroaki, Mori, Katsunori, Kizawa, Momoko, Neo, Masashi

Abstract: Several surgical procedures for chronically ruptured Achilles tendons have been reported. Resection of the interposed scar tissue located between the tendon stumps and reconstruction using normal autologous tissue have been well described. We developed a direct repair procedure that uses scar tissue, which obviates the need to use normal autologous tissue. Thirty consecutive patients with Achilles tendon ruptures with a delay in diagnosis of >4 weeks underwent removal of a section of scar and healing tissue with direct primary suture of the ends of the tendon without the use of allograft or autograft. Patients were followed for a mean time of 33 months. Preoperative and postoperative clinical outcomes were measured with the Achilles Tendon Total Rupture Score (ATRS) and the American Orthopaedic Foot & Ankle Society (AOFAS) ankle-hindfoot score. In addition, the patients underwent preoperative and postoperative functional measurements and magnetic resonance imaging. Lastly, we evaluated the histology of the interposed healing tissue. The mean AOFAS scores were 82.8 points preoperatively and 98.1 points postoperatively. The mean postoperative ATRS was 92.0 points. At the time of the latest follow-up, none of the patients had experienced tendon reruptures or difficulties in walking or climbing stairs, and all except 2 patients could perform a single-limb heel rise. All athletes had returned to their pre-injury level of sports participation. Preoperative T2-weighted magnetic resonance imaging showed that 22 Achilles tendons were thickened with diffuse intratendinous high-signal alterations, and 8 Achilles tendons were thinned. Postoperative T2-weighted magnetic resonance imaging findings included fusiform-shaped tendon thickening and homogeneous low-signal alterations of the tendons in all patients. Histologically, the interposed scar tissue consisted of dense collagen fibers. Shortening of the tissue between the 2 tendon ends that included healing scar and direct repair of healing tendon without allograft or autograft can be effective for treatment-delayed or neglected Achilles tendon rupture. Therapeutic Level IV. See Instructions for Authors for a complete description of levels of evidence. Copyright © 2016 by The Journal of Bone and Joint Surgery, Incorporated.

Reconstruction

Title: MRI signal intensity of anterior cruciate ligament graft after transtibial versus anteromedial portal technique (TRANSIG): Design of a randomized controlled clinical trial

Citation: BMC Musculoskeletal Disorders, October 2016, vol./is. 17/1(no pagination)

Author(s): Ruiter S.J.S., Brouwer R.W., Meys T.W.G.M., Slump C.H., Van Raay J.J.A.M.

Abstract: Background: There are two primary surgical techniques to reconstruct the anterior cruciate ligament (ACL), transtibial (TT) technique and anteromedial portal (AMP) technique. Currently, there is no consensus which surgical technique elicits the best clinical and functional outcomes. MRI-derived measures of the signal intensity (SI) of the ACL graft have been described as an independent predictor of graft properties. The purpose of this study is to compare the MRI derived SI measurements of the ACL graft one year after ACL reconstruction, in order to compare the outcomes of both the AMP and TT ACL reconstruction technique. Methods/design: Thirty-six patients will be included in a randomized controlled trial. Patients who are admitted for primary unilateral ACL reconstruction will be included in the study. Exclusion criteria are a history of previous surgery on the ipsilateral knee, re-rupture of the ipsilateral ACL graft, associated ligamentous injuries or meniscal tear of the ipsilateral knee, unhealthy contralateral knee, contra-indications for MRI and a preference for one of the two surgical techniques and/or orthopaedic surgeon. Primary outcome is MRI Signal intensity ratio (SIR) of the ACL graft. Secondary outcome measures are the International Knee Documentation Committee (IKDC) Knee Examination Form, the Knee injury and Osteoarthritis Outcome Scores (KOOS) and the Anterior Cruciate Ligament OsteoArthritis Score (ACLOAS). Differences between MRI SIR assessment with the current MRI protocol (proton density weighted imaging protocol) and the additional T2-weighted gradient-echo protocol will be assessed. Discussion: There is no consensus regarding the TT or AMP ACL reconstruction technique. SI measurements with MRI have been used in other clinical studies for evaluation of the ACL graft and maturation after ACL reconstruction compared to clinical and functional outcomes. This randomized controlled trial has been designed to compare the TT technique with the AMP technique with the use of MRI SI of the graft after ACL reconstruction. Trial registration: Netherlands Trial Registry NTR5410 (registered on August 24, 2015).

Title: Synthesis of and in vitro and in vivo evaluation of a novel TGF-1-SF-CS three-dimensional scaffold for bone tissue engineering

Citation: International Journal of Molecular Medicine, August 2016, vol./is. 38/2(367-380)

Author(s): Tong S., Xu D.-P., Liu Z.-M., Du Y., Wang X.-K.

Abstract: The role of transforming growth factor-1 (TGF-1) in normal human fracture healing has been previously demonstrated. The objective of the present study was to examine the biocompatibility of TGF-1-silk fibroin-chitosan (TGF-1-SF-CS) three-dimensional (3D) scaffolds in order to construct an ideal scaffold for bone tissue engineering. We added TGF-1 directly to the SF-CS scaffold to construct a 3D scaffold for the first time, to the best of our knowledge, and performed evaluations to determine whether it may have potential applications as a growth factor delivery device. Bone marrow-derived mesenchymal stem cells (BMSCs) were seeded on the TGF-1-SF-CS scaffolds and the silk fibroin-chitosan (SF-CS) scaffolds. On the TGF-1SF-CS and the SF-CS scaffolds, the cell adhesion rate increased in a time-dependent manner. Using a Cell Counting Kit-8 (CCK-8) assay and analyzing the alkaline phosphatase (ALP) expression proved that TGF-1 significantly enhanced the growth and

proliferation of BMSCs on the SF-CS scaffolds in a time-dependent manner. To examine the in vivo biocompatibility and osteogenesis of the TGF-1SF-CS scaffolds, the TGF-1-SF-CS scaffolds and the SF-CS scaffolds were implanted in rabbit mandibles and studied histologically and microradiographically. The 3D computed tomography (CT) scan and histological examinations of the samples showed that the TGF-1-SF-CS scaffolds exhibited good biocompatibility and extensive osteoconductivity with the host bone after 8 weeks. Moreover, the introduction of TGF-1 to the SF-CS scaffolds markedly enhanced the efficiency of new bone formation, and this was confirmed using bone mineral density (BMD) and biomechanical evaluation, particularly at 8 weeks after implantation. We demonstrated that the TGF-1SF-CS scaffolds possessed as good biocompatibility and osteogenesis as the hybrid ones. Taken together, these findings indicate that the TGF-1-SF-CS scaffolds fulfilled the basic requirements of bone tissue engineering, and have the potential to be applied in orthopedic, reconstructive and maxillofacial surgery. Thus, TGF-1-SF-CS composite scaffolds represent a promising, novel type of scaffold for use in bone tissue engineering.

Title: Application of bioabsorbable screw fixation for anterior cervical decompression and bone grafting.

Citation: Clinics (São Paulo, Brazil), Jul 2016, vol. 71, no. 6, p. 320-324

Author(s): Zhao, Bo, Qiu, Xiaowen, Wang, Dong, Li, Haopeng, He, Xijing

Abstract: To examine the application of bioabsorbable screws for anterior cervical decompression and bone grafting fixation and to study their clinical effects in the treatment of cervical spondylosis. From March 2007 to September 2012, 56 patients, 36 males and 20 females (38-79 years old, average 58.3±9.47 years), underwent a novel operation. Grafts were fixed by bioabsorbable screws (PLLA, 2.7 mm in diameter) after anterior decompression. The bioabsorbable screws were inserted from the midline of the graft bone to the bone surface of the upper and lower vertebrae at 45 degree angles. Patients were evaluated post-operatively to observe the improvement of symptoms and evaluate the fusion of the bone. The Japanese Orthopaedic Association (JOA) score was used to evaluate the recovery of neurological functions. All screws were successfully inserted, with no broken screws. The rate of symptom improvement was 87.5%. All of the grafts fused well with no extrusion. The average time for graft fusion was 3.8±0.55 months (range 3-5 months). Three-dimensional reconstruction of CT scans demonstrated that the grafts fused with adjacent vertebrae well and that the screws were absorbed as predicted. The MRI findings showed that the cerebrospinal fluid was unobstructed. No obvious complications appeared in any of the follow-up evaluations. Cervical spondylosis with one- or two-level involvement can be effectively treated by anterior decompression and bone grafting with bioabsorbable screw fixation. This operative method is safe and can avoid the complications induced by metal implants.

Title: Anterior cervical discectomy and fusion for noncontiguous cervical spondylotic myelopathy.

Citation: Indian journal of orthopaedics, Jul 2016, vol. 50, no. 4, p. 390-396

Author(s): Qizhi, Sun, Peijia, Li, Lei, Sun, Junsheng, Chen, Jianmin, Li

Abstract: Noncontiguous cervical spondylotic myelopathy (CSM) is a special degenerative disease because of the intermediate normal level or levels between supra and infraabnormal levels. Some controversy exists over the optimal procedure for two noncontiguous levels of CSM. The study was to evaluate the outcomes of the anterior cervical discectomy and fusion (ACDF) with zero-profile devices for two noncontiguous levels of CSM. 17 consecutive patients with two noncontiguous levels of CSM operated between December 2009 and August 2012 were included in the study. There were 12 men and 5 women with a mean age of 60.7 years (range 45-75 years). Involved disc levels were C3/4 and C5/6 in 11 patients and C4/5 and C6/7 in six patients. Preoperative plain radiographs, computed tomography (CT) with 3-D reconstruction and magnetic resonance imaging (MRI) of the cervical spine were taken in all patients. All radiographs were independently evaluated by 2 spine surgeons and 1 radiologist. The outcomes were assessed by the average operative time, blood loss, Japanese Orthopedic Association (JOA) score, improvement rate, neck dysfunction index (NDI), swallowing quality of life (SWAL-QOL) score, the cervical lordosis and complications. The mean followup was 48.59 months (range 24-56 months). The average operative time and blood loss was 105.29 min and 136.47 ml, respectively. The preoperative JOA score was 8.35, which significantly increased to 13.7 at the final followup ($P < 0.01$). The NDI score was significantly decreased from preoperative 13.06 to postoperative 3.35 ($P < 0.01$). The operation also provided a significant increase in the cervical lordosis ($P < 0.01$) from preoperative 10.17° to postoperative 17.06° . The fusion rate was 94.1% at 6 months postoperatively, and 100% at 12 months after surgery. The mean SWAL-QOL score decreased from preoperative 68.06 to immediate postoperatively 65.65 and then increased to 67.65 at final followup. There was a statistically significant difference between preoperative and immediate postoperatively values ($P < 0.05$), but none between preoperative and at final followup ($P > 0.05$). Cerebrospinal fluid leak, dysphagia and radiological adjacent segment degeneration occurred in one patient, respectively. The ACDF with zero-profile devices is generally effective and safe in treating two noncontiguous levels of CSM.

Patient care and pain management

Title: The assessment and management of pain in an orthopaedic out-patient setting: A case study

Citation: International Journal of Orthopaedic and Trauma Nursing, Aug 2016, vol. 22, p. 24-28

Author(s): Hall, Gillian, Gregory, Julie

Abstract: The management of pain is an important aspect of an orthopaedic nurse's role. The aim of this paper is to use an individual case study to demonstrate the role of an out-

patient orthopaedic nurse in the identification, assessment and management of pain. This paper describes how pain was identified and managed for a patient in the orthopaedic outpatient department, highlighting that pain and its management are not isolated to the in-patient setting. The case study illustrates the importance of recognising pain and taking into account the numerous factors that can influence pain perception. The assessment of an individual patient's pain led to obtaining help from the Acute Pain Team which led to improvement in the patient's pain management and quality of life. The nursing team reflected and discussed the issues identified by this case study which led to changes in practice being introduced. This has resulted in an increased knowledge of and confidence in pain management within the nursing team and development and improvement of pain management practice within the orthopaedic out-patient department. References

Title: The assessment and management of pain in an orthopaedic out-patient setting: A case study.

Citation: International journal of orthopaedic and trauma nursing, Aug 2016, vol. 22, p. 24-28

Author(s): Hall, Gillian, Gregory, Julie

Abstract: The management of pain is an important aspect of an orthopaedic nurse's role. The aim of this paper is to use an individual case study to demonstrate the role of an outpatient orthopaedic nurse in the identification, assessment and management of pain. This paper describes how pain was identified and managed for a patient in the orthopaedic outpatient department, highlighting that pain and its management are not isolated to the in-patient setting. The case study illustrates the importance of recognising pain and taking into account the numerous factors that can influence pain perception. The assessment of an individual patient's pain led to obtaining help from the Acute Pain Team which led to improvement in the patient's pain management and quality of life. The nursing team reflected and discussed the issues identified by this case study which led to changes in practice being introduced. This has resulted in an increased knowledge of and confidence in pain management within the nursing team and development and improvement of pain management practice within the orthopaedic out-patient department. Copyright © 2015 Elsevier Ltd. All rights reserved.

Title: Treatment of Anterior Cruciate Ligament Injuries.

Citation: The Journal of the American Academy of Orthopaedic Surgeons, Aug 2016, vol. 24, no. 8, p. e81.

Author(s): Sanders, James O, Brown, Gregory A, Murray, Jayson, Pezold, Ryan, Sevarino, Kaitlyn S

Abstract: The American Academy of Orthopaedic Surgeons has developed the Appropriate Use Criteria (AUC) document Treatment of Anterior Cruciate Ligament Injuries. Evidence-based information, in conjunction with the clinical expertise of physicians, was used to develop the criteria to improve patient care and obtain the best outcomes while considering

the subtleties and distinctions necessary in making clinical decisions. The AUC clinical patient scenarios were derived from patient indications that generally accompany an anterior cruciate ligament injury, as well as from current evidence-based clinical practice guidelines and supporting literature. The 56 patient scenarios and 8 treatments were developed by the Writing Panel, a group of clinicians who are specialists in this AUC topic. Lastly, a separate, multidisciplinary Voting Panel (made up of specialists and nonspecialists) rated the appropriateness of treatment of each patient scenario using a 9-point scale to designate a treatment as Appropriate (median rating, 7 to 9), May Be Appropriate (median rating, 4 to 6), or Rarely Appropriate (median rating, 1 to 3).

Title: Traumatic Finger Injuries: What the Orthopedic Surgeon Wants to Know.

Citation: Radiographics : a review publication of the Radiological Society of North America, Inc, Jul 2016, vol. 36, no. 4, p. 1106-1128

Author(s): Wieschhoff, Ged G, Sheehan, Scott E, Wortman, Jeremy R, Dyer, George S M, Sodickson, Aaron D, Patel, Ketan I, Khurana, Bharti

Abstract: Traumatic finger injuries account for a substantial number of emergency visits every year. Imaging plays an important role in diagnosis and in directing management of these injuries. Although many injuries can be managed conservatively, some require more invasive interventions to prevent complications and loss of function. Accurate diagnosis of finger injuries can often be difficult, given the complicated soft-tissue anatomy of the hand and the diverse spectrum of injuries that can occur. To best serve the patient and the treating physician, radiologists must have a working knowledge of finger anatomy, the wide array of injury patterns that can occur, the characteristic imaging findings of different finger injuries, and the most appropriate treatment options for each type of injury. This article details the intricate anatomy of the hand as it relates to common finger injuries, illustrates the imaging findings of a range of injuries, presents optimal imaging modalities and imaging parameters for the diagnosis of different injury types, and addresses which findings have important management implications for the patient and the orthopedic surgeon. With this fund of knowledge, radiologists will be able to recommend the most appropriate imaging studies, make accurate diagnoses, convey clinically relevant imaging findings to the referring physician, and suggest appropriate follow-up examinations. In this way, the radiologist will help improve patient care and outcomes. Online supplemental material is available for this article. (©)RSNA, 2016.

Title: Postoperative pain control after arthroscopic rotator cuff repair

Citation: Journal of Shoulder and Elbow Surgery, July 2016, vol./is. 25/7(1204-1213)

Author(s): Uquillas C.A., Capogna B.M., Rossy W.H., Mahure S.A., Rokito A.S.

Abstract: Arthroscopic rotator cuff repair (ARCR) can provide excellent clinical results for patients who fail to respond to conservative management of symptomatic rotator cuff tears. ARCR, however, can be associated with severe postoperative pain and discomfort that requires adequate analgesia. As ARCR continues to shift toward being performed as an

outpatient procedure, it is incumbent on physicians and ambulatory surgical centers to provide appropriate pain relief with minimal side effects to ensure rapid recovery and safe discharge. Although intravenous and oral opioids are the cornerstone of pain management after orthopedic procedures, they are associated with drowsiness, nausea, vomiting, and increased length of hospital stay. As health care reimbursements continue to become more intimately focused on quality, patient satisfaction, and minimizing of complications, the need for adequate pain control with minimal complications will continue to be a principal focus for providers and institutions alike. We present a review of alternative modalities for pain relief after ARCR, including cryotherapy, intralesional anesthesia, nerve blockade, indwelling continuous nerve block catheters, and multimodal anesthesia. In choosing among these modalities, physicians should consider patient- and system-based factors to allow the efficient delivery of analgesia that optimizes recovery and improves patient satisfaction.

Title: Radiology's Emerging Role in 3-D Printing Applications in Health Care.

Citation: Journal of the American College of Radiology : JACR, Jul 2016, vol. 13, no. 7, p. 856

Author(s): Trace, Anthony P, Ortiz, Daniel, Deal, Adam, Retrouvey, Michele, Elzie, Carrie, Goodmurphy, Craig, Morey, Jose, Hawkins, C Matthew

Abstract: From its inception as a tool for prototype development in the early 1980s, three-dimensional (3-D) printing has made inroads into almost every sector of industry, including health care. Medical applications range from extra- and intracorporeal orthopedic devices to complex, temporal reconstructions of patient-specific anatomy that allow operative planning and education. In the contemporary climate of personalized medicine, the utility of tangible 3-D models extrapolated directly from patient imaging data seems boundless. The purpose of this review is to briefly outline the development of 3-D printing, discuss its applications across the many medical and surgical specialties, and attempt to address obstacles and opportunities facing radiology as this technology continues to be integrated into patient care. Copyright © 2016 American College of Radiology. Published by Elsevier Inc. All rights reserved.

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August 2016 Vol. 11, iss. 2

<http://link.springer.com/journal/11751/11/2/page/1>

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- ❖ Endocrinology and diabetes mellitus
- ❖ Family medicine
- ❖ Gastroenterology and hepatology
- ❖ General surgery
- ❖ Geriatrics
- ❖ Haematology
- ❖ Hospital Medicine
- ❖ Infectious diseases
- ❖ Nephrology and hypertension
- ❖ Neurology
- ❖ Obstetrics and gynaecology
- ❖ Oncology
- ❖ Paediatrics
- ❖ Primary care internal medicine
- ❖ Psychiatry
- ❖ Pulmonary, critical care and sleep medicine
- ❖ Rheumatology

How to access UpToDate

You can access UpToDate from any computer via www.uptodate.com.

You will need your NHS Athens username
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Library Opening Times

Staffed hours: 8am-5pm, Mon-Fri

Swipe-card access: 7am-11pm 7 days a week

Level 5, Education and Research Centre

University Hospitals Bristol

Contact your outreach librarian:

Jo Hooper, outreach librarian

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