Hand Rehabilitation

Current Awareness Newsletter

February 2016
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Lunchtime Drop-in Sessions
January - June 2016

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

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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.

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**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.

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A comprehensive overview of Library subscription resources, freely available online resources and ‘grey literature’.
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New from Cochrane Database of Systematic Reviews

No new evidence this month.

New from NICE –

No new evidence this month.
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- 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

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Overview of finger, hand, and wrist fractures
Authors: Sandeep Sebastin, MMed, FAMS, Kevin C Chung, MD, MS, Shimpei Ono, MD, PhD
Literature review current through: Jan 2016. | This topic last updated: Nov 23, 2015.
INTRODUCTION — Primary care of hand fractures involves accurate diagnosis, pain control, reduction as indicated, immobilization of the fracture, appropriate referral to a hand surgeon, and appropriate rehabilitation once the fracture is healed. This topic provides an overview of the initial evaluation, identification, and management of finger, hand, and wrist (carpal) fractures. Detailed discussions of specific injuries are found separately.

Scaphoid fractures
Author: Kevin deWeber, MD, FAAFP, FACSM
Literature review current through: Jan 2016. | This topic last updated: Apr 22, 2015.
INTRODUCTION — Scaphoid fractures are among the most common upper extremity injuries. They frequently occur following a fall onto an outstretched hand. Plain radiographs taken soon after the injury may not reveal a fracture, but the clinician should assume one is present until definitive proof otherwise is obtained. This topic will review the diagnosis and nonoperative management of scaphoid (navicular) fractures in adults. An overview of carpal fractures and distal radius fractures and discussions of how to evaluate wrist or thumb pain in adults are presented separately.
http://www.uptodate.com/contents/scaphoid-fractures?source=search_result&search=hand+injury&selectedTitle=5%7E29

History and examination of the adult with hand pain
Author: Philip E Blazar, MD
Literature review current through: Jan 2016. | This topic last updated: Nov 13, 2015.
INTRODUCTION — The multiple functions of the hand are extremely important for daily life, and any deviation from normal function can lead to disability. It is important for the clinician to recognize the various traumatic and nontraumatic disorders that can lead to hand pain and dysfunction. The history and evaluation of the adult with hand pain will be reviewed here. The differential diagnosis is lengthy, and this review will focus on some of the more common diagnoses. Thumb and wrist pain, as well as fractures and infections of the hand, are discussed in detail separately.
Current Awareness Database Articles

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

- Altered Neurodynamics upper limb
- Complex Regional Pain Syndrome (CRPS)
- De-Quervain's tenosynovitis
- Dupuytrens (fasciectomy)
- Dislocations Fingers (Proximal Interphalangeal Joints)
- Flexor and Tendon Injuries
- Mallet Finger/Thumb Deformity
- Nerve Injuries
- Soft tissue wrist injuries
- Trapeziectomy (Osteoarthritic thumb)
- Trigger finger/thumb
- Ulnar Collateral ligament Sprain - Thumb
- Wrist and Finger fractures (distal radius/scaphoid)

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

Altered Neurodynamics upper limb
No New Evidence this month

Complex Regional Pain Syndrome (CRPS)

Title: Prisms for pain. Can visuo-motor rehabilitation strategies alleviate chronic pain?

Citation: European journal of pain (London, England), Jan 2016, vol. 20, no. 1, p. 64-69

Author(s): Torta, D M, Legrain, V, Rossetti, Y, Mouraux, A

Abstract: Prism adaptation (PA) is a non-invasive procedure in which participants perform a visuo-motor pointing task while wearing prism goggles inducing a lateral displacement of the visual field and a mismatch between the seen and felt position of the pointing hand. PA is thought to induce a reorganization of sensorimotor coordination, and has been used successfully to rehabilitate neglect following right-hemisphere lesions. Because studies have shown that complex regional pain syndrome (CRPS) is associated with neglect-like symptoms, it was proposed that PA could be used to alleviate pain in these patients. A search for peer-reviewed articles on neglect-like symptoms in CRPS and on the use of prisms...
Title: Pamidronate effect compared with a steroid on complex regional pain syndrome type I: Pilot randomised trial.

Citation: The Netherlands journal of medicine, Jan 2016, vol. 74, no. 1, p. 30-35

Author(s): Eun Young, H, Hyeyun, K, Sang Hee, I

Abstract: This study aims to compare the effectiveness of a bisphosphonate (pamidronate) and a steroid (prednisolone) in complex regional pain syndrome (CRPS) type I during four weeks of follow-up in hemiplegic stroke patients. Twenty-one hemiplegic stroke patients with CRPS type I were enrolled in the study. Patients were randomly assigned to receive either intravenous pamidronate (n = 11; total cumulative dose of 180 mg) or oral prednisolone (n = 10). Subjective pain and hand oedema (circumference of the middle finger, CMF, and the wrist, CW) were measured at baseline and at one, two and four weeks after the end of treatment. Both groups showed significant improvement in subjective pain VAS scores at 1-week follow-up and this effect was maintained until 4-week follow-up.

De-Quervain's tenosynovitis

Title: Dissatisfaction After First Dorsal Compartment Release for de Quervain Tendinopathy.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 117-119 (January 2016)

Author(s): Rogozinski, Benjamin, Lourie, Gary M

Title: Clinical Relevance Commentary on: Hand therapy versus corticosteroid injections in the treatment of de Quervain's disease: A systematic review and meta-analysis.

Citation: Journal of hand therapy : official journal of the American Society of Hand Therapists, Jan 2016, vol. 29, no. 1, p. 12-13 (2016 Jan-Mar)

Author(s): Neiduski, Rebecca

Title: Mycobacterium marinum Infection After Exposure to Coal Mine Water.

Citation: Open forum infectious diseases, Jan 2016, vol. 3, no. 1, p. ofv205. (January 2016)

Author(s): Huaman, Moises A, Ribes, Julie A, Lohr, Kristine M, Evans, Martin E

Abstract: Mycobacterium marinum infection has been historically associated with exposure to aquariums, swimming pools, fish, or other marine fauna. We present a case of M marinum left wrist tenosynovitis and elbow bursitis associated with a puncture injury and exposure to coal mine water in Illinois.

Title: Tarsal Tunnel Syndrome Secondary to an Unreported Ossicle of the Talus: A Case Report.
**Citation:** The Journal of foot and ankle surgery : official publication of the American College of Foot and Ankle Surgeons, Jan 2016, vol. 55, no. 1, p. 173-175 (2016 Jan-Feb)

**Author(s):** Sweed, Tamer Ahmed, Ali, Seyed Asghar, Choudhary, Surabhi

**Abstract:** Tarsal tunnel syndrome (TTS) is a compression neuropathy of the posterior tibial nerve in the tarsal tunnel. In about 80% of patients, a specific cause can be identified for TTS. We present a case of TTS secondary to an ossicle in close relation to the talus that, to our knowledge, has not previously been reported. A 26-year-old male presented with left ankle and foot pain that increased with activity and playing football. He had a tingling sensation and paresthesia in the sole and medial border of the foot along the distribution of the medial and lateral plantar nerves. Clinically, he had hard swelling at the floor of the tarsal tunnel, and Tinel's sign was positive. Computed tomography showed an accessory ossicle articulating with the posteromedial aspect of the talus, separating the flexor digitorum longus and flexor hallucis longus tendons, with tenosynovitis of the tibialis posterior, flexor digitorum longus and flexor hallucis longus tendons. Surgical release of the tarsal tunnel and excision of the ossicle were performed. Postoperatively, the patient showed dramatic improvement and had no complications or recurrence of symptoms after 8 months of follow-up. More interestingly, to the best of our knowledge, this ossicle has not been previously reported to cause TTS

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**Title:** In Brief: Kanavel's Signs and Pyogenic Flexor Tenosynovitis.

**Citation:** Clinical orthopaedics and related research, Jan 2016, vol. 474, no. 1, p. 280-284

**Author(s):** Kennedy, Colin D, Huang, Jerry I, Hanel, Douglas P

**Title:** Evaluation of Magnetic Resonance Imaging Responsiveness in Active Psoriatic Arthritis at Multiple Timepoints during the First 12 Weeks of Antitumor Necrosis Factor Therapy.

**Citation:** The Journal of rheumatology, Jan 2016, vol. 43, no. 1, p. 75-80,

**Author(s):** Feletar, Marie, Hall, Stephen, Bird, Paul

**Abstract:** To assess the responsiveness of high- and low-field extremity magnetic resonance imaging (MRI) variables at multiple timepoints in the first 12 weeks post-antitumor necrosis factor (anti-TNF) therapy initiation in patients with psoriatic arthritis (PsA) and active dactylitis. Twelve patients with active PsA and clinical evidence of dactylitis involving at least 1 digit were recruited. Patients underwent sequential high-field conventional (1.5 Tesla) and extremity low-field MRI (0.2 Tesla) of the affected hand or foot, pre- and postgadolinium at baseline (pre-TNF), 2 weeks (post-TNF), 6 weeks, and 12 weeks. A blinded observer scored all images on 2 occasions using the PsA MRI scoring system. Eleven patients completed the study, but only 6 patients completed all high-field and low-field MRI assessments. MRI scores demonstrated rapid response to TNF inhibition with score reduction in tenosynovitis, synovitis, and osteitis at 2 weeks. Intraobserver reliability was good to excellent for all variables. High-field MRI demonstrated greater sensitivity to tenosynovitis, synovitis, and osteitis and greater responsiveness to change posttreatment. Treatment responses were
maintained to 12 weeks. This study demonstrates the use of MRI in detecting early response to biologic therapy. MRI variables of tenosynovitis, synovitis, and osteitis demonstrated responsiveness posttherapy with high-field scores more responsive to change than low-field scores.

**Title:** Consensus-based identification of factors related to false-positives in ultrasound scanning of synovitis and tenosynovitis.

**Citation:** Modern rheumatology / the Japan Rheumatism Association, Jan 2016, vol. 26, no. 1, p. 9-14 (January 2016)

**Author(s):** Ikeda, Kei, Narita, Akihiro, Ogasawara, Michihiro, Ohno, Shigeru,

**Abstract:** We aimed to identify causes of false-positives in ultrasound scanning of synovial/tenosynovial/bursal inflammation and provide corresponding imaging examples. We first performed systematic literature review to identify previously reported causes of false-positives. We next determined causes of false-positives and corresponding example images for educational material through Delphi exercises and discussion by 15 experts who were an instructor and/or a lecturer in the 2013 advanced course for musculoskeletal ultrasound organized by Japan College of Rheumatology Committee for the Standardization of Musculoskeletal Ultrasonography. Systematic literature review identified 11 articles relevant to sonographic false-positives of synovial/tenosynovial inflammation. Based on these studies, 21 candidate causes of false-positives were identified in the consensus meeting. *(Abstract edited)*

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**Title:** Musculoskeletal Ultrasonography in CRPS: Assessment of Muscles Before and After Motor Function Recovery with Dry Needling as the Sole Treatment.

**Citation:** Pain physician, Jan 2016, vol. 19, no. 1, p. E163.

**Author(s):** Vas, Lakshmi Champak, Pai, Renuka, Pattnaik, Manorama

**Abstract:** Motor impairment is an important criterion in the Clinical Diagnostic Criteria (CDC) of Complex Regional Pain Syndrome type-1 (CRPS-1) as defined by International Association for Study of Pain (IASP). To describe the changes in musculoskeletal ultrasonography (MSKUSG) in CRPS-1 before and after treatment with ultrasound-guided dry needling (USGDN) in retrospective data from 44 patients. Patients irrespective of age, gender, or cause of CRPS were included in this retrospective data analysis; the Budapest criteria for the diagnosis of CRPS were stringently adhered to. The analysis was done at Ashirvad Institute for Pain Management and Research with the database of CRPS patients who were treated between December 2005 and December 2014. The CDC, range of motion at upper extremity joints, dynamometry, Disability of arm, shoulder and hand score (DASH) and ultrasonography were documented on days one, 15, and 45. MSKUSG demonstrated loss of myoarchitecture and reduced bulk. All 44 patients received USGDN as the sole intervention with medications and physiotherapy. MSKUSG at 15 and 45 days after starting USGDN showed a return of normalcy to the myoarchitecture and muscle bulk increase that coincided with the disappearance of CDC and a progressive and predictable improvement of
the DASH scores in all the 44 patients. The analysis focuses on only 2 parameters: the musculoskeletal changes of the forearm flexors and extensors on ultrasound guidance and the efficacy of the dry needling treatment. It is not a comparative study with another accepted form of treatment or intervention. (Abstract edited)


Citation: The British journal of radiology, Jan 2016, vol. 89, no. 1057, p. 20150407.

Author(s): Bazzocchi, Alberto, Pelotti, Patrizia, Serraino, Salvatore, Battaglia, Milva,

Abstract: Rotator cuff calcific tendinitis (RCCT) is a common cause of shoulder pain in adults and typically presents as activity-related shoulder pain. Between non-surgical and surgical treatment options, today a few minimal invasive techniques are available to remove the calcific deposit, and they represent a cornerstone in the management of this painful clinical condition. The aim of the work was a retrospective evaluation of double-needle ultrasound-guided percutaneous fragmentation and lavage (DNL), focused on understanding the factors which are of major importance in determining a quick and good response at 1 month. A series of 147 patients affected by RCCT and suitable for DNL were evaluated. A systematic review of anamnestic, clinical and imaging data was performed in 144 shoulders treated in a single-centre setting. Clinical reports and imaging examinations were revisited. The inclusion criteria were submission to DNL, therefore fitness for the percutaneous procedure, and following 1-month follow-up. There was no exclusion owing to risk of bias. (Abstract edited)

Title: Making a dent with corticosteroid injections for de Quervain's tenosynovitis.

Citation: BMJ case reports, Jan 2016, vol. 2016 (2016)

Author(s): Khoo, Andre, Grattan, Clive E

Title: Hand therapy versus corticosteroid injections in the treatment of de Quervain's disease: A systematic review and meta-analysis.

Citation: Journal of hand therapy : official journal of the American Society of Hand Therapists, Jan 2016, vol. 29, no. 1, p. 3-11 (2016 Jan-Mar)

Author(s): Cavaleri, Rocco, Schabrun, Siobhan M, Te, Maxine, Chipchase, Lucy S

Abstract: Systematic review with meta-analysis. Although corticosteroid injections are often cited as best practice in the treatment of de Quervain's disease, no reviews have compared their effectiveness to a multimodal definition of hand therapy. To compare the effectiveness of corticosteroid injections with that of i) hand therapy alone and ii) combined hand therapy/corticosteroid injection approaches in the treatment of de Quervain's disease. Searches of key databases were performed to identify experimental studies published between January 1950 and November 2014. Outcome measures included treatment success, pain, quality of life, and function. Both corticosteroid injections and hand therapy
improved pain and function from baseline, but between-group differences were not significant (across 6 studies). However, significantly more participants were treated successfully when combined orthosis/corticosteroid injection approaches were compared to i) orthoses (RR 0.53, 95% CI 0.35-0.80) and ii) injections alone (RR 0.76, 95% CI 0.64-0.89). Combined orthosis/corticosteroid injection approaches are more effective than either intervention alone in the treatment of de Quervain's disease. 1a.

Title: Ultrasonographic Diagnosis of Calcifying Tenosynovitis of the Finger.

Citation: Pain physician, Jan 2016, vol. 19, no. 1, p. E241.

Author(s): Hsiao, Ming-Yen, Wang, Hsin-I, Özçakar, Levent

Title: Complex Regional Pain Syndrome-Type 1 Presenting as deQuervain's Stenosing Tenosynovitis.

Citation: Pain physician, Jan 2016, vol. 19, no. 1, p. E227.

Author(s): Vas, Lakshmi, Pai, Renuka

Abstract: To report the presentation of complex regional pain syndrome-1 (CRPS-1) as deQuervain's stenosing tenosynovitis (DQST). A 24-year-old woman presented with 3-year history of clinical diagnostic criteria (CDC) of CRPS-1. Conservative and surgical treatment for this as DQST had failed to relieve her. We diagnosed the problem as CRPS-1 with CDC as inflammatory manifestations of a mechanical tendinoses of all her 5 digital tendons caused by movement of the fingers and hand tethered by agonist (flexor)/ antagonist (extensor) muscles in co-contraction. Ultrasound guided dry needling (USGDN) relaxed the muscles, replacing the abnormal agonist/antagonist co-contraction with normal agonist/antagonist coordination. Resolution of tendinoses reversed the inflammation causing the CDC. Six months later she leads normal personal and professional life, with reduction of scores of painDetect (from 21 to 5), Patient Health Questionnaire (from 13 to 4), Disability of arm, shoulder and hand from 70.8 to 25 and reversal of muscle abnormality characteristic of CRPS-1 on Musculoskeletal Ultrasonography (MSKUSG). We believe the primary pathology of CRPS-1 to be co-contraction of agonist (flexor)/antagonist(extensor) muscles of digits resulting in tendinoses akin to DQST. CDC of CRPS are actually inflammatory manifestations of tendinoses amenable to reversal by USGDN which also addresses the disability, a hallmark of CRPS.

Dupuytrens (fasciectomy)

No New Evidence
**Dislocations of Fingers (Proximal Interphalangeal Joints)**

**Title:** Simultaneous dislocation of both the proximal and distal interphalangeal joints of a little finger.

**Citation:** BMJ case reports, Jan 2016, vol. 2016 (2016)

**Author(s):** Abdelaal, Ahmed, Edwards, Tomos, Anand, Sambandam

**Abstract:** A 39-year-old man fell at work sustaining dislocation of both the proximal and distal interphalangeal joints of his left little finger. The injuries were assessed and treated with closed reduction and stabilised by buddy taping. Early active range of movement was encouraged and a referral to physiotherapy was made. At the final follow-up, 4 months after the injury, he lacked subtle end of range movement actively, but functionally he was coping well and had made a full return to work.

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**Flexor and Tendon Injuries**

**Title:** Biological Augmentation of Flexor Tendon Repair: A Challenging Cellular Landscape.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 144-149 (January 2016)

**Author(s):** Loiselle, Alayna E, Kelly, Meghan, Hammert, Warren C

**Abstract:** Advances in surgical technique and rehabilitation have transformed zone II flexor tendon injuries from an inoperable no-man’s land to a standard surgical procedure. Despite these advances, many patients develop substantial range of motion-limiting adhesions after primary flexor tendon repair. These suboptimal outcomes may benefit from biologic augmentation or intervention during the flexor tendon healing process. However, there is no consensus biological approach to promote satisfactory flexor tendon healing; we propose that insufficient understanding of the complex cellular milieu in the healing tendon has hindered the development of successful therapies. This article reviews recent advances in our understanding of the cellular components of flexor tendon healing and adhesion formation, including resident tendon cells, synovial sheath, macrophages, and bone marrow-derived cells. In addition, it examines molecular approaches that have been used in translational animal models to improve flexor tendon healing and gliding function, with a specific focus on progress made using murine models of healing. This information highlights the importance of understanding and potentially exploiting the heterogeneity of the cellular environment during flexor tendon healing, to define rational therapeutic approaches to improve healing outcomes.

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**Title:** Collateral Ligament Reconstruction of the Proximal Interphalangeal Joint.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 129-132 (January 2016)
**Author(s):** Carlo, Julian, Dell, Paul C, Matthias, Rob, Wright, Thomas W

**Abstract:** Proximal interphalangeal joint collateral ligament injuries are common; however, chronic instability of this joint is rare. In such cases, however, there is no consensus on optimal management. Various repairs and reconstructions have been devised, although the literature on outcomes remains scant. We present a method of reconstruction of the proximal interphalangeal joint collateral ligament using a distally based slip of the flexor digitorum superficialis tendon.

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**Title:** Analysis of 344 Hand Injuries in a Pediatric Population.

**Citation:** Archives of plastic surgery, Jan 2016, vol. 43, no. 1, p. 71-76, 2234-6163

**Author(s):** Jeon, Byung-Joon, Lee, Jung-Il, Roh, Si Young, Kim, Jin Soo, Lee, Dong Chul.

**Abstract:** The purpose of this study was to identify comprehensive hand injury patterns in different pediatric age groups and to assess their risk factors. This retrospective study was conducted among patients younger than 16-year-old who presented to the emergency room of a general hospital located in Gyeonggi-do, Republic of Korea, and were treated for an injury of the finger or hand from January 2010 to December 2014. The authors analyzed the medical records of 344 patients. Age was categorized according to five groups. A total of 391 injury sites of 344 patients were evaluated for this study. Overall and in each group, male patients were in the majority. With regard to dominant or non-dominant hand involvement, there were no significant differences. Door-related injuries were the most common cause in the age groups of 0 to 3, 4 to 6, and 7 to 9 years. Sport/recreational activities or physical conflict injuries were the most common cause in those aged 10 to 12 and 13 to 15. Amputation and crushing injury was the most common type in those aged 0 to 3 and 4 to 6 years. However, in those aged 10 to 12 and 13 to 15, deep laceration and closed fracture was the most common type. With increasing age, closed injuries tended to increase more sharply than open injuries, extensor tendon rupture more than flexor injuries, and the level of injury moved proximally. This study provides a comprehensive overview of the epidemiology of hand injuries in the pediatric population.

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**Title:** Hand Amputations at the Radiocarpal Level With Proximal Neuromuscular Avulsion.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 70-75

**Author(s):** Cavadas, Pedro C, Thione, Alessandro, Rubí, Carlos

**Abstract:** To report a series of 6 radiocarpal avulsion amputations in 5 patients. We replanted 6 radiocarpal amputations in 5 patients with proximal musculotendinous and nerve avulsion between 2005 and 2013 and reviewed them retrospectively. All 5 patients were men, age range from 21 to 32 years. Functional results were evaluated through total active motion (TAM) of the fingers, 2-point discrimination, monofilament test, grip strength, and Disabilities of the Arm, Shoulder, and Hand questionnaire. Follow-up was 4 to 10 years. All replanted parts survived without systemic complications. No infections or major wound complications occurred despite the preservation of presumably avascular tendons. The
functional results of the right side in patient 1 who suffered bilateral amputations, were very modest, with only 360° of TAM (about 30% of the TAM of a normal hand) and weak grip after 5 secondary surgical procedures including 2 free functional gracilis transfers. This was the only hand in which the tendons were not reinserted primarily. The other hands achieved TAM between 590 and 820°, which corresponds roughly to 50% to 70% of the normal TAM of a healthy hand, and mean of 10-kg grip force. Radiocarpal amputation with proximal musculotendinous avulsion is an infrequent pattern of injury in which replantation with tendon reinsertion can yield functional results comparable with those reported for sharp wrist-level amputations. Therapeutic IV.

Title: Application of a novel Kalman filter based block matching method to ultrasound images for hand tendon displacement estimation.

Citation: Medical physics, Jan 2016, vol. 43, no. 1, p. 148.,

Author(s): Lai, Ting-Yu, Chen, Hsiao-I, Shih, Cho-Chiang, Kuo, Li-Chieh, Hsu, Hsiu-Yun,

Abstract: Information about tendon displacement is important for allowing clinicians to not only quantify preoperative tendon injuries but also to identify any adhesive scarring between tendon and adjacent tissue. The Fisher-Tippett (FT) similarity measure has recently been shown to be more accurate than the Laplacian sum of absolute differences (SAD) and Gaussian sum of squared differences (SSD) similarity measures for tracking tendon displacement in ultrasound B-mode images. However, all of these similarity measures can easily be influenced by the quality of the ultrasound image, particularly its signal-to-noise ratio. Ultrasound images of injured hands are unfortunately often of poor quality due to the presence of adhesive scars. The present study investigated a novel Kalman-filter scheme for overcoming this problem. Three state-of-the-art tracking methods (FT, SAD, and SSD) were used to track the displacements of phantom and cadaver tendons, while FT was used to track human tendons. These three tracking methods were combined individually with the proposed Kalman-filter (K1) scheme and another Kalman-filter scheme used in a previous study to optimize the displacement trajectories of the phantom and cadaver tendons. The motion of the human extensor digitorum communis tendon was measured in the present study using the FT-K1 scheme. The experimental results indicated that SSD exhibited better accuracy in the phantom experiments, whereas FT exhibited better performance for tracking real tendon motion in the cadaver experiments. All three tracking methods were influenced by the signal-to-noise ratio of the images. (Abstract edited)

Title: A Cadaver Study of Median-to-Radial Nerve Transfer for Radial Nerve Injuries.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 20-26

Author(s): Sukegawa, Koji, Suzuki, Takane, Ogawa, Yasufumi, Kobayashi, Tomoko,

Abstract: To assess the anatomic feasibility of a median-to-radial nerve transfer in cadaver limbs and to quantify the number of axons present in the cut ends of the involved donor and recipient nerves. Ten fresh frozen cadaveric upper limbs were dissected. We investigated whether the flexor carpi radialis (FCR) branch/flexor digitorum superficialis
(FDS) branch (donor nerve) reached the posterior interosseous nerve (PIN)/extensor carpi radialis brevis (ECRB) branch (recipient nerve) without tension. We also investigated the length of the transected supinator fascia for FCR-posterior interosseous nerve transfer and the FDS-ECRB positional relationship using the epicondyle line and the midline of the forearm as axes. The findings were used for these 2 types of nerve transfer with evaluation closer to the target muscles. The distance between the point at which the FDS and ECRB branches met and the point at which the ECRB branch entered the muscle was measured. (Abstract edited)

Title: Bilateral reach-to-grasp movement asymmetries after human spinal cord injury.

Citation: Journal of neurophysiology, Jan 2016, vol. 115, no. 1, p. 157-167 (January 1, 2016)

Author(s): Calabro, Finnegan J, Perez, Monica A

Abstract: Cervical spinal cord injury (SCI) in humans typically damages both sides of the spinal cord, resulting in asymmetric functional impairments in the arms. Despite this well-accepted notion and the growing emphasis on the use of bimanual training strategies, how movement of one arm affects the motion of the contralateral arm after SCI remains unknown. Using kinematics and multichannel electromyographic (EMG) recordings we studied unilateral and bilateral reach-to-grasp movements to a small and a large cylinder in individuals with asymmetric arm impairments due to cervical SCI and age-matched control subjects. We found that the stronger arm of SCI subjects showed movement durations longer than control subjects during bilateral compared with unilateral trials. Specifically, movement duration was prolonged when opening and closing the hand when reaching for a large and a small object, respectively, accompanied by deficient activation of finger flexor and extensor muscles. In subjects with SCI interlimb coordination was reduced compared with control subjects, and individuals with lesser coordination between hands were those who showed prolonged times to open the hand. (Abstract edited)

Title: Vascularized Composite Tissue Spare Part Transfer for Central Hand Defect Reconstruction: Case Report.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 76-80 (January 2016)

Author(s): Billig, Jessica, Johnson, Shepard P, Ogawa, Takeshi, Chung, Kevin C

Abstract: Injuries to the hand with loss of joints, tendons, nerves, and soft tissue may require complex, innovative reconstructive techniques to achieve a favorable functional and aesthetic outcome. We present a case of a manual laborer who sustained a multifaceted injury from a metal press machine with loss of composite structures including the middle and ring finger metacarpophalangeal joints, flexor and extensor tendons, digital nerves, and dorsal/volar soft tissues. Reconstruction included using the spare parts technique for transferring his ring finger proximal interphalangeal joint as a pedicle to reconstitute the missing metacarpophalangeal joint of his middle finger. The soft tissue from the ring finger was rearranged to provide aesthetic coverage of the hand with like-to-like reconstruction of the glabrous and nonglabrous skin.
Title: The Reverse Cross Finger Flap.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 122-128

Author(s): Atasoy, Erdoğan

Abstract: The reverse cross finger flap is usually performed on patients with deep dorsal digital skin, nailbed, and extensor tendon injuries that cannot be repaired and grafted. These patients will require additional dorsal digital flaps from the adjacent fingers.

Mallet Finger/Thumb Deformity

Title: Assessment of malalignment at the metacarpophalangeal joint of the rheumatoid hand using three-dimensional computed tomogram.

Citation: Modern rheumatology / the Japan Rheumatism Association, Jan 2016, vol. 26, no. 1, p. 62-67

Author(s): Oh, Koei, Ishikawa, Hajime, Abe, Asami, Toyoshima, Yoichi, Inagaki, Katsunori

Abstract: For the assessment of rheumatoid hand, three-dimensional (3D) malalignment including flexed or rotational deformities and dislocation at the finger joint is one of the important findings. The objective of this study is to prove usefulness of 3D computed tomography (3DCT) for the accurate measurement of palmarulnar flexion deformity at the metacarpophalangeal (MP) joint of the rheumatoid hand. Swanson implant arthroplasty at the 2nd through the 5th MP joints was performed at 179 joints in 46 hands of 40 patients with rheumatoid arthritis. Pre- and postoperatively, evaluations included Larsen grade and ulnar flexion angle by an x-ray; and ulnar flexion angle, palmar flexion angle, and resected bone length by a 3DCT. With progression of Larsen grade and the joint dislocation, ulnar flexion angle increased. Average ulnar flexion angle was 18.7 ± 16.0° (mean ± SD) in grade III, 38.4 ± 21.2° in grade IV, and 40.1 ± 21.1° in grade V, 29.6 ± 16.0° in "subluxation," 24.8 ± 21.2° in "dislocation," and 41.1 ± 22.2° in "severe dislocation." There was no significant difference between grade of the MP joint dislocation and palmar flexion angle. With progression of the MP joint dislocation, resected bone length increased. A 3DCT gives accurate information about deformity of the rheumatoid hand. Also, an appropriate length of bone resection can be determined in the preoperative planning.

Nerve Injuries

Title: Reappraisal of Clinical Deficits Following High Median Nerve Injuries.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 13-19 (January 2016)

Author(s): Bertelli, Jayme Augusto, Soldado, Francisco, Lehn, Vera Lúcia Mendes,
Abstract: To describe clinically apparent motor and sensory deficits in a cohort of 11 patients with isolated injury of the median nerve above the elbow and compare them against similar cases reported in the literature. Eleven patients of mean age 30 years (SD ± 14 years; 6 males, 5 females) were examined a mean of 21 weeks (SD ± 16 weeks) after an isolated high median nerve injury. Pronation, wrist flexion, and finger flexion range of motion and strength (British Medical Research Council scale) were evaluated. Grasp and lateral pinch strength were assessed bilaterally using a dynamometer. Thumb opposition was evaluated using the Kapandji score. Sensory impairment was considered significant when there was no perception of a 2.0-g Semmes-Weinstein filament. Pronation was largely preserved in all patients to a mean range of motion of 52° (SD ± 13°), and pronation strength was M4 in 10 of 11 patients. Wrist flexion scored M5 in all patients. Thumb and index distal interphalangeal joint flexion were absent in all patients. In all patients, middle, ring, and little finger flexion was complete and scored M5. Thumb function scored above 5 in all patients, averaging 7.5 (SD ± 1.2) on the Kapandji scale. Grasp and pinch strength were 43% (SD ± 12%) and 36% (SD ± 11%) of the contralateral (normal) limb, respectively. Impaired sensation of a 2.0-g monofilament was found only in the palmar region over the middle and distal phalanges of the index and middle fingers and the distal phalanx of the thumb. Noteworthy discrepancies were identified between the clinical motor and sensory deficits described in the literature and those observed in our patients. In most patients with a high median nerve injury, only thumb and index flexion and palmar sensation warrant surgical reconstruction. Decreased grasp and pinch strength was a major finding that should also be addressed by surgery. Prognostic IV.

Title: Magnetoencephalographic study of hand and foot sensorimotor organization in 325 consecutive patients evaluated for tumor or epilepsy surgery.


Author(s): Willemse, Ronald B, Hillebrand, Arjan, Ronner, Hanneke E, Peter Vandertop, W
underlying pathology), and had a higher occurrence in the foot than in the hand (motor_foot 44.8% versus motor_hand 29.6%, p = 0.031). Ipsilateral motor responses tended to be more frequent in patients with a history of stroke, traumatic brain injury (TBI) or developmental brain lesions (p = 0.063). MEG localization of sensorimotor cortex activation was more successful for the hand compared to the foot. In patients with neural lesions, there were signs of brain reorganization as measured by more frequent ipsilateral motor cortical activation of the foot in addition to the traditional sensory and motor activation patterns in the contralateral hemisphere. The presence of ipsilateral neural reorganization, especially around the foot motor area, suggests that careful mapping of the hand and foot in both contralateral and ipsilateral hemispheres prior to surgery might minimize postoperative deficits.

**Title:** Thermal injury of the recurrent laryngeal nerve by THUNDERBEAT during thyroid surgery: findings from continuous intraoperative neuromonitoring in a porcine model.

**Citation:** The Journal of surgical research, Jan 2016, vol. 200, no. 1, p. 177-182

**Author(s):** Kwak, Hee Yong, Dionigi, Gianlorenzo, Kim, Dasom, Lee, Hye Yoon, Son, Gil Soo, Lee, Jae Bok, Bae, Jeoung Won, Kim, Hoon Yub

**Abstract:** Recurrent laryngeal nerve (RLN) palsy is the most common and serious complication of thyroid surgery. The use of energy-based devices (EBDs) has replaced hand-tying methods in many institutions. However, EBD use proximal to the RLN presents risks related to lateral thermal spread and associated nerve damage. THUNDERBEAT (TB) is one of the most widely used EBDs. This study aimed to test the safety of TB during thyroidectomy. Four piglets weighing 30-40 kg experienced thyroidectomy while continuous electrophysiologic monitoring (continuous intraoperative neuromonitoring) occurred, using an electromyography endotracheal tube and NIM 3.0 response system. TB was applied at various distances from the RLN, and we assessed the safety of the protocols. Adverse electromyography events did not occur at distances >3 mm from the RLN. Amplitude decreased at 2 mm from the RLN after 8 s. However, immediate loss of signal occurred at 1 mm from the RLN, likely due to immediate shrinkage of surrounding tissue after TB application. TB can be used safely at 3 mm from the RLN but must be used for <8 s at more proximal locations. This is the first report assessing the safety of TB, and findings indicate that TB should be used at least 1 mm from the RLN to avoid injury. Copyright © 2016 Elsevier Inc. All rights reserved.

**Title:** Chitosan nerve tube for primary repair of traumatic sensory nerve lesions of the hand without a gap: study protocol for a randomized controlled trial.

**Citation:** Trials, Jan 2016, vol. 17, no. 1, p. 48.

**Author(s):** Neubrech, Florian, Heider, Sina, Harhaus, Leila, Bickert, Berthold, Kneser, Ulrich, Kremer, Thomas

**Abstract:** Complex peripheral nerve injuries of the hand include at least 300,000 cases per year in Europe. The standard treatment involves a microsurgical end-to-end suture of
traumatic sensory nerve lesions of the hand without a gap. The objective of this study protocol is to evaluate whether the additional use of a chitosan nerve tube in primary repair of traumatic sensory nerve lesions of the hand without a gap has an effect on the recovery of sensitivity. We planned a randomized double-blind controlled multicenter trial with a parallel group design in order to show superiority for the additional use of a chitosan nerve tube. This study will enroll 100 participants with traumatic sensory nerve lesions of the hand without a gap from three Trauma Care Centers. Participants will be randomized in a 1:1 ratio to primary microsurgical repair of the injured nerve with the additional use of a chitosan nerve tube or direct tension free microsurgical repair of the injured nerve alone. The static two-point discrimination of the injured finger after 6 months will be the primary outcome parameter. In the proposed study, the additional use of a chitosan nerve tube for a primary microsurgical repair of traumatic sensory nerve lesions of the hand without a gap will be evaluated in a prospective randomized double-blind controlled multicenter trial for the first time to create the highest possible evidence for the procedure. ClinicalTrials.gov Identifier: NCT02372669. Protocol Registration Receipt on 27 February 2015.

Title: Efficacy of QuadroPulse rTMS for improving motor function after spinal cord injury: Three case studies.

Citation: The journal of spinal cord medicine, Jan 2016, vol. 39, no. 1, p. 50-57

Author(s): Alexeeva, Natalia, Calancie, Blair

Abstract: Context/objective To examine the effects of repetitive QuadroPulse transcranial magnetic stimulation (rTMSQP) on hand/leg function after spinal cord injury (SCI). Design Interventional proof-of-concept study. Setting University laboratory. Participants Three adult subjects with cervical SCI. Interventions Repeated trains of magnetic stimuli were applied to the motor cortical hand/leg area. Several exploratory single-day rTMSQP protocols were examined. Ultimately we settled on a protocol using three 5-day trials of (1) rTMSQP only; (2) exercise only (targeting hand or leg function); and (3) rTMSQP combined with exercise. Outcome measures Hand motor function was assessed by Purdue Pegboard and Complete Minnesota Dexterity tests. Walking function was based on treadmill walking and the Timed Up and Go test. Electromyographic recordings were used for neuropsychological testing of cortical (by single- and double-pulse TMS) and spinal (via tendon taps and electrical nerve stimulation) excitability. Results Single-day rTMSQP application had no clear effect in the 2 subjects whose hand function was targeted, but improved walking speed in the person targeted for walking, accompanied by increased cortical excitability and reduced spinal excitability. All 3 subjects showed functional improvement following the 5-day rTMSQP intervention, an effect being even more pronounced after the five-day combined rTMSQP + exercise sessions. There were no rTMSQP-associated adverse effects. Conclusion Our findings suggest a functional benefit of motor cortical rTMSQP after SCI. The effect of rTMSQP appears to be augmented when stimulation is accompanied by targeted exercises, warranting expansion of this pilot study to a larger subject population.

Title: Electrically driven intracellular and extracellular nanomanipulators evoke neurogenic/cardiomyogenic differentiation in human mesenchymal stem cells.
Citation: Biomaterials, Jan 2016, vol. 77, p. 26-43 (January 2016)

Author(s): Thrivikraman, Greeshma, Madras, Giridhar, Basu, Bikramjit

Abstract: Nanomechanical intervention through electroactuation is an effective strategy to guide stem cell differentiation for tissue engineering and regenerative medicine. In the present study, we elucidate that physical forces exerted by electroactuated gold nanoparticles (GNPs) have a strong influence in regulating the lineage commitment of human mesenchymal stem cells (hMSCs). A novel platform that combines intracellular and extracellular GNPs as nano-manipulators was designed to trigger neurogenic/cardiomyogenic differentiation in hMSCs, in electric field stimulated culture condition. In order to mimic the native microenvironment of nerve and cardiac tissues, hMSCs were treated with physiologically relevant direct current electric field (DC EF) or pulsed electric field (PEF) stimuli, respectively. When exposed to regular intermittent cycles of DC EF stimuli, majority of the GNP actuated hMSCs acquired longer filopodial extensions with multiple branch-points possessing neural-like architecture. Such morphological changes were consistent with higher mRNA expression level for neural-specific markers. On the other hand, PEF elicited cardiomyogenic differentiation, which is commensurate with the tube-like morphological alterations along with the upregulation of cardiac specific markers. The observed effect was significantly promoted even by intracellular actuation and was found to be substrate independent. Further, we have substantiated the participation of oxidative signaling, G0/G1 cell cycle arrest and intracellular calcium [Ca(2+)]i elevation as the key upstream regulators dictating GNP assisted hMSC differentiation. Thus, by adopting dual stimulation protocols, we could successfully divert the DC EF exposed cells to differentiate predominantly into neural-like cells and PEF treated cells into cardiomyogenic-like cells, via nanoactuation of GNPs. Such a novel multifaceted approach can be exploited to combat tissue loss following brain injury or heart failure.

Title: Active skin perfusion and thermoregulatory response in the hand following nerve injury and repair in human upper extremities.

Citation: Brain Research, Jan 2016, vol. 1630, p. 38-49, 0006-8993 (Jan 1, 2016)

Author(s): Deng, Aidong, Liu, Dan, Gu, Chen, Gu, Xiaosong, Gu, Jianhui, Hu, Wen

Abstract: Cutaneous vasoconstriction/vasodilatation occurs in response to whole body and local cooling/heating, and the vasomotor activities play a pivotal role in thermal control of the human body. The mechanisms underlying regulation of skin blood flow involve both neurogenic and humeral/local chemical influence, contributing to the initial response to thermal stimuli and the prolonged phase of response, respectively. Previous studies have suggested the impairment of cutaneous thermal regulation after nerve injury. However, the evidence regarding how the skin perfusion and thermoregulatory response evolve after nerve injury and repair remains limited. Here we observed, by utilizing laser-Doppler perfusion imaging, baseline skin perfusion and perfusion change in response to thermal stimuli after median and ulnar nerve injury, and the results showed that baseline perfusion in autonomous skin area profoundly decreased and active rewarming after clod stress...
dramatically diminished before sensory recovery of the skin became detectable. In addition, baseline cutaneous perfusion was recovered as the skin regained touch sensation, and exhibited positive correlation to touch sensibility of the skin. These data indicate that both active perfusion and thermoregulatory response of the skin are markedly compromised during skin denervation and can be recovered by re-innervation. This suggests the importance of timely repair of injured nerve, especially in the practice of replantation.

Title: Expressions of miR-132, miR-134, and miR-485 in rat primary motor cortex during transhemispheric functional reorganization after contralateral seventh cervical spinal nerve root transfer following brachial plexus avulsion injuries.

Citation: Neuroreport, Jan 2016, vol. 27, no. 1, p. 12-17 (January 6, 2016)

Author(s): Wang, Xin-Hong, Li, Li-Jun, Sun, Gui-Xin, Wu, Zuo-Pei, Li, Ji-Feng, Gu, Yu-Dong

Abstract: The transfer of a contralateral healthy seventh cervical spinal nerve root (cC7) to the recipient nerve in the injured side is considered a promising procedure for restoration of the physiological functions of an injured hand after brachial plexus root avulsion injury (BPAI). Growing evidence shows that transhemispheric cortical reorganization plays an important role in the functional recovery of the injured arm after cC7 nerve transfer surgery. However, the molecular mechanism underlying the transhemispheric cortical reorganization after cC7 transfer remains elusive. In the present study, we investigated the expression of miR-132, miR-134, and miR-485 in the rat primary motor cortex after cC7 transfer following BPAI by quantitative PCR. The results demonstrated the dynamic alteration in the expression of miR-132, miR-134, and miR-485 in the primary motor cortex of rats after cC7 transfer following BPAI. It indicates that microRNAs are involved in the dynamic transhemispheric functional reorganization after cC7 root transfer following BPAI. Together, this study is the first to provide evidence for the involvement of microRNAs during transhemispheric functional reorganization after cC7 transfer following BPAI. The results are useful for understanding the mechanism underlying transhemispheric functional reorganization after contralateral seventh cervical spinal nerve root transfer following BPAI.

Title: Astrocytes and microglia-mediated immune response in maladaptive plasticity is differently modulated by NGF in the ventral horn of the spinal cord following peripheral nerve injury.

Citation: Cellular and Molecular Neurobiology, Jan 2016, vol. 36, no. 1, p. 37-46

Author(s): De Luca, Ciro, Savarese, Leonilde, Colangelo, Anna Maria, Bianco, Maria Rosaria

Abstract: Reactive astrocytes and activated microglia are the key players in several pathophysiologic modifications of the central nervous system. We used the spared nerve injury (SNI) of the sciatic nerve to induce glial maladaptive response in the ventral horn of lumbar spinal cord and examine its role in the remodeling of the tripartite synapse plasticity. Imaging the ventral horn revealed that SNI was associated with both an early microglial and astrocytic activation, assessed, respectively, by analysis of Iba1 and GFAP expression. Microglia, in particular, localized peculiarly surrounding the motor neurons somata.
Perineuronal astrocytes, which play a key role in maintaining the homeostasis of neuronal circuitry, underwent a substantial phenotypic change following peripheral axotomy, producing reactive gliosis. The gliosis was associated with the reduction of glial aminoacid transporters (GLT1 and GlyT1) and increase of neuronal glutamate transporter EAAC1. Although the expression of GABAergic neuronal marker GAD65/67 showed no change, glutamate increase, as demonstrated by HPLC analysis, shifted the excitatory/inhibitory balance as showed by the net increase of the glutamate/GABA ratio. Moreover, endogenous NGF levels were altered in SNI animals and not restored by the intrathecal NGF administration. This treatment reverted phenotypic changes associated with reactive astrocytosis, but failed to modify microglia activation. These findings on one hand confirm the correlation between gliopathy and maladaptive plasticity of the spinal synaptic circuitry, on the other hand add new data concerning the complex peculiar behavior of different glial cells in neuronal degenerative processes, defining a special role of microglia in sustaining the inflammatory response.

Title: Results of nerve grafting in radial nerve injuries occurring proximal to the humerus, including those within the posterior cord.

Citation: Journal of neurosurgery, Jan 2016, vol. 124, no. 1, p. 179-185

Author(s): Bertelli, Jayme Augusto, Ghizoni, Marcos Flávio

Abstract: OBJECT Results of radial nerve grafting are largely unknown for lesions of the radial nerve that occur proximal to the humerus, including those within the posterior cord. METHODS The authors describe 13 patients with proximal radial nerve injuries who were surgically treated and then followed for at least 24 months. The patients' average age was 26 years and the average time between accident and surgery was 6 months. Sural nerve graft length averaged 12 cm. Recovery was scored according to the British Medical Research Council (BMRC) scale, which ranges from M0 to M5 (normal muscle strength). RESULTS After grafting, all 7 patients with an elbow extension palsy recovered elbow extension, scoring M4. Six of the 13 recovered M4 wrist extension, 6 had M3, and 1 had M2. Thumb and finger extension was scored M4 in 3 patients, M3 in 2, M2 in 2, and M0 in 6. CONCLUSIONS The authors consider levels of strength of M4 for elbow and wrist extension and M3 for thumb and finger extension to be good results. Based on these criteria, overall good results were obtained in only 5 of the 13 patients. In proximal radial nerve lesions, the authors now advocate combining nerve grafts with nerve or tendon transfers to reconstruct wrist, thumb, and finger extension.

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Soft tissue wrist injuries

Title: Management of lunotriquetral instability: a review of the literature.

Citation: The Journal of hand surgery, European volume, Jan 2016, vol. 41, no. 1, p. 72-85

Author(s): van de Grift, T C, Ritt, M J P F
Abstract: Lunotriquetral ligament injury is a relatively common cause of ulnar-sided wrist pain. Injury ranges from partial stable ligament tears to extensive perilunate instability. Clinical decision-making largely depends on the chronicity, instability and cause of the ligament injury. Conservative treatment is generally regarded as first choice of treatment of mild lunotriquetral instability; however, outcome studies on conservative treatment are lacking. Temporary arthroscopic pinning and/or debridement are minimally invasive procedures of preference. In the case of more dissociative injury, surgical interventions may be performed. The literature suggests that soft tissue reconstruction is an effective procedure in this group. Arthrodesis of the lunotriquetral joint is associated with high rates of non-union (up to 57%) and the indications for surgery should therefore be very clear. Methodological issues make it hard to draw firm conclusions from the data. Studies on the effectiveness of conservative management and prospective comparative studies will further improve clinical decision-making in lunotriquetral instability. N/A.

Trapeziectomy (Osteoarththritis thumb)

Title: Trapeziectomy Arthroplasty With Suture Suspension: Short- to Medium-Term Outcomes From a Single-Surgeon Experience.

Citation: The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 34 (January 2016)

Author(s): Roman, Pat B, Linnell, Joshua D, Moore, John B

Abstract: To describe the technique and a single-surgeon experience with a suture suspension and first dorsal compartment release treatment for thumb trapeziometacarpal (TMC) osteoarthritis. We performed 19 procedures on 18 patients using this technique and compared results with preoperative assessment. At an average of 20 months (range, 8-45 months) after surgery, standard measures after TMC joint arthroplasty were performed. All patients had advanced Eaton stage III or IV osteoarthritis. Grip strength, key pinch, and thumb abduction showed statistically significant increases of 7 kg, 0.7 kg, and 4°, respectively. Seventeen of 18 patients no longer had reports of TMC joint pain on follow-up. There was one reoperation for pain because of osteophytes at the ulnar surface of the thumb metacarpal base, which resolved with proximal metacarpal excision. One case of index metacarpal fracture was treated with an orthosis. This surgical technique for the treatment of thumb TMC joint arthritis achieved pain relief and recreated support of the base of the metacarpal to resist proximal migration or radial deviation. This technique also provided an increase in grip strength and key pinch with return of range of motion early in the postoperative period. Therapeutic IV.

Trigger finger/thumb

Title: Trigger finger in adults
Wrist and Finger fractures (distal radius/scaphoid)

Title: Scaphoid non-union in osteogenesis imperfecta.

Citation: BMJ case reports, Jan 2016, vol. 2016 (2016)

Author(s): Pinder, Elizabeth, Fok, Jonathan, Crossman, Paul

Abstract: We report a case of scaphoid non-union in a child with osteogenesis imperfecta (OI) presenting 7 months after a fall. Following diagnosis, conservative treatment was initiated, but despite 4 months in a plaster cast, the fracture had failed to unite. Open reduction and internal fixation was performed (Acutrak screw) with bone graft harvested from the distal radius. Postoperative immobilisation continued for 10 weeks, and at 4 months the child was pain free and had resumed normal activities. The fracture had fully united radiologically at 9 months. Non-union is reported to occur in 23% of paediatric scaphoid fractures when treatment is delayed, and conservative and surgical treatment have both been described. Since OI increases the risk of non-union in long bone fractures, the scaphoid may also be at risk. We recommend a high level of suspicion for non-union in this patient group and a low threshold for consideration of surgical treatment.

Title: Internal plate fixation versus plaster in displaced complete articular distal radius fractures, a randomised controlled trial.

Citation: BMC musculoskeletal disorders, Jan 2016, vol. 17, no. 1, p. 68. (2016)

Author(s): Mulders, Marjolein A M, Walenkamp, Monique M J, Goslings, J Carel, Schep,

Abstract: Of all distal radius fractures, 25 % are complete articular fractures (AO/OTA type C fractures). Two thirds of those fractures are displaced and require reduction. According to several International Guidelines, adequately reduced intra-articular distal radius fractures are best treated non-operatively with plaster immobilisation, while surgical fixation is suggested only when the articular step exceeds 2 mm after reduction. However, these recommendations are based on studies that did not differentiate between intra- and extra-articular distal radius fractures. Thus, no clear consensus about the best treatment for patients with displaced intra-articular distal radius fractures can be reached. Despite the lack of evidence, an increase in internal fixation of intra-articular distal radius fractures has been observed over the last decade. The aim of this study is to determine the difference in functional outcome following open reduction and plate fixation compared with non-
operative treatment with closed reduction and plaster immobilisation in patients with a displaced intra-articular distal radius fracture. This multicentre randomised controlled trial will randomise between open reduction and internal plate fixation (intervention group) and closed reduction and plaster immobilisation (control group). All consecutive adult patients from 18 to 65 years with a displaced intra-articular distal radius fracture (AO/OTA type C), which has been adequately reduced at the Emergency Department according to the Dutch National Guidelines, are eligible for inclusion in this study. The primary outcome is function and pain of the wrist assessed with the Patient-Rated Wrist Evaluation score (PRWE).

Secondary outcomes are the Disability of the Arm, Shoulder and Hand score (DASH), pain, quality of life (SF-36), range of motion, grip strength, radiological parameters, complications, crossovers and cost-effectiveness of both treatments. A total of 90 patients will be included in this study. Although displaced intra-articular distal radius fractures are common, there is still no evidence on the optimal treatment for these fractures in patients aged 18 to 65 years. Therefore we aim to determine the difference in functional outcome between open reduction and plate fixation and closed reduction and plaster immobilisation. This study is registered at ClinicalTrials.gov (NCT02651779) on January 4(th) 2016.

Title: Is Arthroscopic Bone Graft and Fixation for Scaphoid Nonunions Effective?

Citation: Clinical orthopaedics and related research, Jan 2016, vol. 474, no. 1, p. 204-212

Author(s): Kang, Ho Jung, Chun, Yong-Min, Koh, Il Hyun, Park, Jae Han, Choi, Yun Rak

Abstract: Arthroscopic management of scaphoid nonunions has been advanced as a less invasive technique that allows evaluation of associated intrinsic and extrinsic ligamentous injuries; however, few studies have documented the effectiveness of arthroscopic treatment of scaphoid nonunions and which intra-articular pathologies coexist with scaphoid nonunions. (1) What are the outcomes of arthroscopic management of scaphoid nonunions as assessed by the proportion of patients achieving osseous union, visual analog scale (VAS) pain score, grip strength, range of motion, Mayo Wrist Score (MWS), and Disabilities of the Arm, Shoulder and Hand (DASH) score? (2) What complications are associated with arthroscopic scaphoid nonunion management? (3) What forms of intra-articular pathology are associated with scaphoid nonunions? Between 2008 and 2012, we treated 80 patients surgically for scaphoid nonunions. Of those, 45 (56%) had arthroscopic management. During that time, our general indications for using an arthroscopic approach over an open approach were symptomatic scaphoid nonunions without necrosis of the proximal fragment, severe deformities, or arthritis. Of the patients treated arthroscopically, 33 (73%) were available for followup at least 2 years later. There were five distal third, 19 middle third, and nine proximal third fractures. The mean followup was 33 months (range, 24-60 months). Union was determined by CT taken at 8 to 10 weeks after operation with bridging trabecula at nonunion site. VAS pain scores, grip strength, active flexion-extension angle, MWS, and DASH scores were obtained preoperatively and at each followup visit. The coexisting intra-articular pathologies and complications were also recorded. Thirty-two (97%) scaphoid nonunions healed successfully. At the last followup, the mean VAS pain score decreased (preoperative: mean 4.5 [SD 1.8], postoperative: mean 0.6 [SD 0.8], mean difference: 3.9 [95% confidence interval (CI), 3.2-4.6], p < 0.001) and the mean active flexion-extension angle increased (preoperative: mean 100° [SD 26], postoperative: mean 109° [SD 16], mean
difference: 9° [95% CI, 2-16], p = 0.017). The mean grip strength increased (preoperative: mean 35 kg of force [SD 8], postoperative: mean 50 kg of force [SD 10], mean difference: 15 kg of force [95% CI, 11-19], p < 0.001). The mean MWS increased (preoperative: mean 56 [SD 23], postoperative: mean 89 [SD 8], mean difference: 33 [95% CI, 26-41], p < 0.001) and the mean DASH score decreased (preoperative: mean 25 [SD 18], postoperative: mean 4 [SD 3], mean difference: 21 [95% CI, 15-28], p < 0.001). There were no operation-related complications and no progression of arthritis at the last followup. Seventeen patients had coexisting intraarticular pathology, including nine triangular fibrocartilage complex tears (seven traumatic and two degenerative), 17 intrinsic ligament tears (nine scapholunate interosseous ligament tears and eight lunotriquetral interosseous ligament tears), and five mild radioscaphoid degenerative changes. Arthroscopic management of scaphoid nonunions without severe deformities or arthritis was effective in this small series. Although intraarticular pathologies such as triangular fibrocartilage complex tears and intrinsic ligament injuries commonly coexisted with scaphoid nonunions, patients generally achieved good results. Level IV, therapeutic study.

**Title:** Bone graft substitutes and bone morphogenetic proteins for osteoporotic fractures: what is the evidence?

**Citation:** Injury, Jan 2016, vol. 47 Suppl 1, p. S43. (January 2016)

**Author(s):** Van Lieshout, Esther M M, Alt, Volker

**Abstract:** Despite improvements in implants and surgical techniques, osteoporotic fractures remain challenging to treat. Among other major risk factors, decreased expression of morphogenetic proteins has been identified for impaired fracture healing in osteoporosis. Bone grafts or bone graft substitutes are often used for stabilizing the implant and for providing a scaffold for ingrowth of new bone. Both synthetic and naturally occurring biomaterials are available. Products generally contain hydroxyapatite, tricalcium phosphate, dicalcium phosphate, calcium phosphate cement, calcium sulfate (plaster of Paris), or combinations of the above. Products have been used for the treatment of osteoporotic fractures of the proximal humerus, distal radius, vertebra, hip, and tibia plateau. Although there is generally consensus that screw augmentation increased the biomechanical properties and implant stability, the results of using these products for void filling are not unequivocal. In osteoporotic patients, Bone Morphogenetic Proteins (BMPs) have the potential impact to improve fracture healing by augmenting the impaired molecular and cellular mechanisms. However, the clinical evidence on the use of BMPs in patients with osteoporotic fractures is poor as there are no published clinical trials, case series or case studies. Even pre-clinical literature on in vitro and in vivo data is weak as most articles focus on the beneficial role for BMPs for restoration of the underlying pathophysiological factors of osteoporosis but do not look at the specific effects on osteoporotic fracture healing. Limited data on animal experiments suggest stimulation of fracture healing in ovariectomized rats by the use of BMPs. In conclusion, there is only limited data on the clinical relevance and optimal indications for the use of bone graft substitute materials and BMPs on the treatment of osteoporotic fractures despite the clinical benefits of these materials in other clinical indications. Given the general compromised outcome in osteoporotic fractures and limited alternatives for enhancement of fracture healing,
clinicians and researchers should focus on this important topic and provide more data in this field in order to enable a sound clinical use of these materials in osteoporotic fractures.

Title: Definitive Fixation of Hand and Wrist Fractures in the Emergency Department.


Author(s): Kusnezov, Nicholas, Dunn, John C

Title: Concomitant Ulnar Styloid Fracture and Distal Radius Fracture Portend Poorer Outcome.

Citation: American journal of orthopedics (Belle Mead, N.J.), Jan 2016, vol. 45, no. 1, p. 34-37

Author(s): Ayalon, Omri, Marcano, Alejandro, Paksima, Nader, Egol, Kenneth

Abstract: The literature on the effect of ulnar styloid fractures (USFs) on concomitant distal radius fractures (DRFs) is mixed. We conducted a study to determine if associated ipsilateral USFs affect outcomes of DRFs. We retrospectively evaluated 315 DRFs treated (184 operatively, 131 nonoperatively) over a 7-year period. Concomitant USFs were identified. Mean follow-up was 12 months. Disabilities of the Arm, Shoulder, and Hand (DASH) and 36-Item Short Form Health Survey (SF-36) outcome scores, and grip strength and wrist range of motion data, were collected. Statistical analysis was performed with Student t test and analysis of variance. Incidence of concomitant USF and DRF was higher (P < .0002) in the operative group (64.6%) than in the nonoperative group (39.1%). Patients with USFs had worse mean (SD) pain score, 1.80 (2.43) versus 0.80 (1.55) (P = .0001), DASH score, 17.03 (18.94) versus 9.21 (14.06) (P = .001), and SF-36 score, 77.16 (17.69) versus 82.68 (16.10) (P = .022). In the operative group, patients with USFs had more pain and poorer DASH Functional scores than patients without USFs. Results were similar in the nonoperative group. There was no difference in healing time between intra-articular and extra-articular fractures or between presence and absence of USFs. Concomitant occurrence of USFs and DRFs—which is associated with worse pain scores and lower functioning compared with USFs without DRFs—should prompt clinicians to counsel patients about delayed recovery.

Title: Incidence and prevalence of total joint replacements due to osteoarthritis in the elderly: risk factors and factors associated with late life prevalence in the AGES-Reykjavik Study.


Author(s): Jonsson, Helgi, Olafsdottir, Sigurbjorg, Sigurdardottrir, Solveig, Aspelund, Thor

Abstract: Total joint replacements (TJR) should be considered as one of few definite endpoints in osteoarthritis research. We analyzed factors associated with late-life prevalence and risk factors for incidence of TJRs due to osteoarthritis in a population based cohort. After exclusion of inflammatory arthritis and fractures as causes of TJR, 5170
participants in the AGES-Reykjavik Study (mean age (SD) 76.4(6), 58 % females) were included for osteoarthritis studies. Three thousand one hundred thirty-three of them had a follow-up visit 5 years later. The prevalence of having at least one joint replacement operation due to OA was 13.6 % and the yearly incidence was 1.4 %/year during the five-year follow-up. Factors positively associated with late life prevalence of TJR included BMI, hand OA severity, female gender, finger length ratio and spine BMD. Risk factors for TJRs in the incidence group were symptoms at initial visit, prior TJR in the contralateral joint and BMI. Much stronger associations were seen for TKR than for THR with discriminatory analysis showing an AUC 0.71 for late life prevalence and 0.84 for the incidence. This study illustrates the importance of the different information expressed by late life prevalence vs. incidence on the factors associated with severe osteoarthritis of the knee and hip. The observation that prior TJR is a risk factor for subsequent TJR in the contralateral joint has not been described previously. The high power predictions for TKR suggest that a predictive model may be feasible, particularly if it can be extended by the addition of further predictive variables, perhaps through genetic

Title: Wrist fractures and their impact in daily living functionality on elderly people: a prospective cohort study.

Citation: BMC geriatrics, Jan 2016, vol. 16, no. 1, p. 11.

Author(s): Vergara, Itziar, Vrotsou, Kalliopi, Orive, Miren, Garcia-Gutierrez, Susana,

Abstract: Wrist fractures are the most common arm fractures in older adults. The impact of wrist fractures on daily functionality has been less studied than that of other types and so, less is known about the complexity of factors related to the functional impact of these fractures. This study is aimed to assess the role of individual and health care factors and its association with daily living functional changes after a wrist fracture. A prospective cohort of patients aged 65 or more, affected by a fracture due to a fall, was conducted. These patients were identified at the emergency rooms of the six participating hospitals. As independent factors, the following were studied: socio-demographic data, characteristics of the fracture, health-related quality of life, wrist function and provided treatment. The main outcome was functional status measured by the Barthel Index for daily living basic activities and the Lawton Instrumental Activities of Daily Living (IADL) Scale for daily living instrumental activities. Data were collected at baseline just after the fall and after six months of follow-up. Patients were considered to have deteriorated if their functional status as measured by Barthel Index or Lawton IADL scores decreased in a significant way during the six months of follow up. Barthel Index and/or Lawton IADL scores fell at six months after the fracture in 33 % of participants. This functional decline was more frequent in patients with comorbidity (p < 0.0001), polypharmacy (p < 0.0001), low health-related quality of life prior to the fall (p < 0.0001) and lower educational level (p = 0.009). The derived multivariate models show that patients that become dependent six months after the fall, have advanced age, severe chronic diseases, low functional performance prior to the fracture, and repeated episodes of accidental falls. This profile is consistent with a frailty phenotype. Wrist fractures are associated to the occurrence of dependence, especially in frail patients. These patients could benefit from being identified at the time the fracture is treated, in order to tackle
their complex needs and so, prevent some of the burden of dependence generated by these fractures.

Title: Impact of Different Screw Designs on Durability of Fracture Fixation: In Vitro Study with Cyclic Loading of Scaphoid Bones.

Citation: PloS one, Jan 2016, vol. 11, no. 1, p. e0145949.

Author(s): Gruszka, Dominik, Herr, Robert, Hely, Hans, Hofmann, Peer, Klitscher, Daniela,

Abstract: The use of new headless compression screws (HCSs) for scaphoid fixation is growing, but the nonunion rate has remained constant. The aim of this study was to compare the stability of fixation resulting from four modern HCSs using a simulated fracture model to determine the optimal screw design(s). We tested 40 fresh-frozen cadaver scaphoids treated with the Acumed Acutrak 2 mini (AA), the KLS Martin HBS2 midi (MH), the Stryker TwinFix (ST) and the Synthes HCS 3.0 with a long thread (SH). The bones with simulated fractures and implanted screws were loaded uniaxially into flexion for 2000 cycles with a constant bending moment of 800 Nmm. The angulation of the fracture fragments was measured continuously. Data were assessed statistically using the univariate ANOVA test and linear regression analysis, and the significance level was set at p < 0.05. The median angulation of bone fragments φ allowed by each screw was 0.89° for AA, 1.12° for ST, 1.44° for SH and 2.36° for MH. With regards to linear regression, the most reliable curve was achieved by MH, with a coefficient of determination of R2 = 0.827. This was followed by AA (R2 = 0.354), SH (R2 = 0.247) and ST (R2 = 0.019). Data assessed using an adapted ANOVA model showed no statistically significant difference (p = 0.291) between the screws. The continuous development of HCSs has resulted in very comparable implants, and thus, at this time, other factors, such as surgeons' experience, ease of handling and price, should be taken into consideration.

Title: Regional Versus General Anesthesia and the Incidence of Unplanned Health Care Resource Utilization for Postoperative Pain After Wrist Fracture Surgery: Results From a Retrospective Quality Improvement Project.

Citation: Regional anesthesia and pain medicine, Jan 2016, vol. 41, no. 1, p. 22-27

Author(s): Sunderland, Sarah, Yarnold, Cynthia H, Head, Stephen J, Osborn, Jill A,

Abstract: The establishment at our center of a dedicated regional anesthesia service in 2008-2009 has resulted in a marked increase in single-shot brachial plexus blocks (sBPBs) for ambulatory wrist fracture surgery. Despite the documented benefits of regional over general anesthesia (GA), there has been a perceived increase among sBPB patients in postoperative return rates for pain at our institution. We conducted a retrospective quality improvement project to examine this. After exemption from human ethics board review, we sought to identify and contact all wrist fracture surgery patients treated at our center between 2003 and 2012. Our primary outcome was the incidence of unplanned physician visits (office/clinic or emergency department) for pain in the first 48 hours after surgery. Other main outcomes included the incidence of seeking any form of medical attention for pain and self-reporting of severe pain in the first 48 hours. Of 1008 identified patients, 419
could be contacted; 195 qualified for analysis. The incidence of unplanned physician visits in the first 48 hours was 12% (13 of 118) among sBPB patients versus 4% (3 of 77) in GA patients (odds ratio [OR], 3.1; 95% confidence interval [95% CI], 0.8-11.1; P = 0.11). More sBPB versus GA patients sought any form of medical attention for pain (20% vs 5%; OR, 4.7; 95% CI, 1.4-10.9; P = 0.003). Similarly, more sBPB patients reported severe postoperative pain (41% vs 10%; OR, 5.9; 95% CI, 2.6-13.4; P < 0.0001). Patients who received sBPBs for ambulatory wrist fracture surgery had a higher rate of unplanned health care resource utilization caused by pain after hospital discharge than those undergoing GA. These findings warrant confirmation in a prospective trial and emphasize the need for a defined postdischarge analgesic pathway as well as the potential merits of perineural home catheters.

Title: Epidemiology of musculoskeletal pain in a pediatric emergency department.

Citation: Rheumatology international, Jan 2016, vol. 36, no. 1, p. 83-89

Author(s): de Inocencio, Jaime, Carro, Miguel Ángel, Flores, Marta, Carpio, Carmen,

Abstract: The objectives of this study were (1) to determine the percentage of emergency department (ED) visits due to musculoskeletal pain (MSP) by children 3-14 years of age during a period of 1 year; (2) to determine the most frequent presenting complaints; and (3) to characterize their etiology. A cross-sectional study was performed on children aged 3-14(11/12) years attended at the ED of a tertiary hospital due to MSP. The demographic and clinical characteristics of the patients were reviewed 5 days each month for 12 consecutive months. Study days were selected by computer-generated simple random sampling. Out of 4,531 visits to the ED, 826 were due to MSP (18.2 %; 95 % CI 17.1-19.4 %). When compared with children with no skeletal complaints, children with MSP had a similar sex distribution but were older (mean ± SD 7 ± 3.5 years vs 9.9 ± 3.1 years; p < 0.0001). The most common complaints were pain at the wrist (19 %), ankle (19 %) and finger (15 %). The most common etiology was trauma (88.4 %), including contusions (38 %), fractures (21 %) and sprains (18 %). Children with hip (6.7 ± 3 years; p < 0.0001) and elbow (7.8 ± 3.5 years; p < 0.0001) complaints were younger than children with pain in other locations, whereas children with wrist pain (10.5 ± 2.6 years; p < 0.002) and joint sprains (10.7 ± 2.7 years; p < 0.0001) were older. Fractures were more frequent in boys (64 vs 36 %, p = 0.008; OR 1.6; CI 1.1-2.2). Visits to the ED due to MSP increased with age. Pain at three locations represented 50 % of the presenting complaints. Trauma was the principal etiology, but fractures only represented one-fifth of the total.

Title: Primary Care Physician Follow-up of Distal Radius Buckle Fractures.

Citation: Pediatrics, Jan 2016, vol. 137, no. 1, p. 1-9

Author(s): Koelink, Eric, Schuh, Suzanne, Howard, Andrew, Stimec, Jennifer, Barra, Lorena,

Abstract: Our main objective was to determine the proportion of children referred to a primary care provider (PCP) for follow-up of a distal radius buckle fracture who subsequently did not deviate from this reassessment strategy. This prospective cohort study was conducted at a tertiary care pediatric emergency department (ED). Eligible children
were aged 2 to 17 years with a distal radius buckle fracture treated with a removable splint and referred to the PCP for reassessment. We telephoned families 28 days after their ED visit. The primary outcome was the proportion who received PCP follow-up exclusively. We also measured the proportion who received PCP anticipatory guidance and those children who reported returning to usual activities "always" by 4 weeks. We enrolled 200 children, and 180 (90.0%) received telephone follow-up. Of these, 157 (87.2% [95% confidence interval: 82.3 to 92.1]) received PCP follow-up exclusively. Specifically, 11 (6.1%) families opted out of physician follow-up, 5 (2.8%) self-referred to an ED, and the PCP requested specialty consultation in 7 (3.9%) cases. Of the 164 with a PCP visit, 77 (47.0%) parents received anticipatory guidance on return to activities for their child, and 162 (98.8%) reported return to usual activities within 4 weeks. The vast majority of children with distal radius buckle fractures presented to the PCP for follow-up and did not receive additional orthopedic surgeon or ED consultations. Despite a suboptimal rate of PCP advice on return to activities, almost all parents reported full return to usual activities within 4 weeks.

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Title: Hip fractures, preceding distal radius fractures and screening for osteoporosis: should we be screening earlier? A minimum 10-year retrospective cohort study at a single centre.

Citation: Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA, Jan 2016, vol. 27, no. 1, p. 361-366 (January 2016)

Author(s): Daruwalla, Z J, Huq, S S, Wong, K L, Nee, P Y, Leong, K M, Pillay, K R, Murphy, D P

Abstract: Both men and women who sustain a fracture of the distal forearm run an increased risk of sustaining a subsequent hip fracture. Our study implies that these patients may not necessarily constitute a group in which osteoporosis screening is warranted. People who sustain a distal radius fracture run an increased risk of sustaining a subsequent hip fracture. However, many institutions only screen for osteoporosis at the time of a hip fracture. We aimed to determine the true incidence of preceding distal radius fractures in an Asian population of patients with a hip fracture aged 60 years or older and whether screening for osteoporosis earlier would be beneficial. We reviewed 22 parameters of 572 patients aged 60 years or older admitted after sustaining a hip fracture over a 3-year period. This included the occurrence or absence of a distal radius fracture in the 10 years preceding their hip fracture. Twenty-nine patients (5 %) had a fracture of the distal radius in the preceding decade. Univariate analyses suggested that hip fracture patients who had preceding distal radius fractures were older, female, have lower mean haemoglobin levels, and right-sided hip fractures. Of these factors, only age was found to have significant predictive value in a multivariate analysis. A number of institutions have started to screen for osteoporosis when a patient presents with a fracture of the distal radius because these patients may have an increased risk of a subsequent hip fracture. Our study implies that this may not be warranted. Implementing such a screening service from both cost and resource utilization point of view must be studied prospectively and in greater detail considering earlier screening may only be beneficial to a very small percentage of patients.
Title: Balloon-guided inflation osteoplasty in the treatment of Hill-Sachs lesions of the humeral head: case report of a new technique.

Citation: Patient safety in surgery, Jan 2016, vol. 10, p. 4. (2016)

Author(s): Sandmann, Gunther H, Siebenlist, Sebastian, Imhoff, Florian B, Ahrens, Philipp, Neumaier, Markus, Freude, Thomas, Biberthaler, Peter

Abstract: The use of the extra-vertebral balloon osteoplasty is increasing and in the meanwhile it has become a safe surgical technique in the treatment of tibial head, distal radius and calcaneus fractures. In addition, we already could show in a biomechanical setup that the balloon osteoplasty might be a safe tool for reduction in the treatment of Hill-Sachs lesions, but clinical application has not been performed so far. We report the case of a 53 year-old male patient who was referred to our Trauma department (level I trauma center) after the first manifestation of a posterior shoulder dislocation due to an epileptic seizure, originated in a - up to this date unknown -glioblastoma. After closed reduction of the dislocated shoulder the X-ray showed a subcapital fracture of the proximal humerus with a large reversed Hill-Sachs lesion. We performed an open surgery via a deltoideopectoral approach and balloon osteoplasty was used to reduce the impression fracture (Hill-Sachs lesion) before fixing the fracture with a locking plate. In the post-operative CT scan we could show an anatomical reduction of the Hill-Sachs lesion. At the follow-up examination one year after surgery the patient reached full range of motion and stated no re-dislocation of the shoulder nor instability or pain. The reduction of an impressed humeral head fracture by use of balloon osteoplasty is a safe technique. This technique could be a new option in the treatment of Hill-Sachs lesions and might be an alternative to well known standard procedures like the remplissage or tendon transfers without affecting rotation.

Title: A clinical decision rule for the use of plain radiography in children after acute wrist injury: development and external validation of the Amsterdam Pediatric Wrist Rules.

Citation: Pediatric radiology, Jan 2016, vol. 46, no. 1, p. 50-60 (January 2016)

Author(s): Slaar, Annelie, Walenkamp, Monique M J, Bentohami, Abdelali, Maas, Mario

Abstract: In most hospitals, children with acute wrist trauma are routinely referred for radiography. To develop and validate a clinical decision rule to decide whether radiography in children with wrist trauma is required. We prospectively developed and validated a clinical decision rule in two study populations. All children who presented in the emergency department of four hospitals with pain following wrist trauma were included and evaluated for 18 clinical variables. The outcome was a wrist fracture diagnosed by plain radiography. Included in the study were 787 children. The prediction model consisted of six variables: age, swelling of the distal radius, visible deformation, distal radius tender to palpation, anatomical snuffbox tender to palpation, and painful or abnormal supination. The model showed an area under the receiver operator characteristics curve of 0.79 (95% CI: 0.76-0.83). The sensitivity and specificity were 95.9% and 37.3%, respectively. The use of this model would have resulted in a 22% absolute reduction of radiographic examinations. In a validation study, 7/170 fractures (4.1%, 95% CI: 1.7-8.3%) would have been missed using the
decision model. The decision model may be a valuable tool to decide whether radiography in children after wrist trauma is required.

**Title:** Multiple Concomitant Injuries in One Upper Extremity: A Case Report.

**Citation:** The American journal of case reports, Jan 2016, vol. 17, p. 6-11 (2016)

**Author(s):** Abutalib, Raid A, Khoshhal, Khalid I

**Abstract:** BACKGROUND This report is about unusual multiple upper extremity concomitant injuries in an adult after a fall from a height. To the best of our knowledge this is the first reported case of concomitant ipsilateral occurrence of multiple common injuries, uncommonly occurring together in a single traumatic episode. CASE REPORT A 36-year-old right-handed man fell through a skylight to the floor about 4 meters below. He presented with multiple concomitant injuries in his right upper extremity: elbow dislocation with radial head fracture associated with distal radius, ulnar styloid, and scaphoid fractures. CONCLUSIONS The probable mechanism of injury along with the surgical treatment of these previously undescribed injuries is discussed to emphasize the need to clinically examine the whole upper extremity in severe injuries. The awareness of such an association for early recognition is paramount for excellent clinical results.

**Title:** Optimal Positioning for Volar Plate Fixation of a Distal Radius Fracture: Determining the Distal Dorsal Cortical Distance.

**Citation:** The Orthopedic clinics of North America, Jan 2016, vol. 47, no. 1, p. 235-244 (January 2016)

**Author(s):** Vosbikian, Michael M, Ketonis, Constantinos, Huang, Ronald, Ilyas, Asif M

**Abstract:** Distal radius fractures are currently among the most common fractures of the musculoskeletal system. With a population that is living longer, being more active, and the increasing incidence of osteoporosis, these injuries will continue to become increasingly prevalent. When operative fixation is indicated, the volar locking plate has recently become the treatment of choice. However, despite its success, suboptimal position of the volar locking plate can still result in radiographic loss of reduction. The distal dorsal cortical distance is being introduced as an intraoperative radiographic tool to help optimize plate position and minimize late loss of fracture reduction. Copyright © 2016 Elsevier Inc. All rights reserved.

**Title:** A Rare Case of a Vertical Oblique Scaphoid Fracture Nonunion.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 155. (January 2016)

**Author(s):** Ten Berg, Paul W L, Strackee, Simon D
**Title:** Manipulation and reduction of paediatric fractures of the distal radius and forearm using intranasal diamorphine and 50% oxygen and nitrous oxide in the emergency department: a 2.5-year study.

**Citation:** The bone & joint journal, Jan 2016, vol. 98-B, no. 1, p. 131-136

**Author(s):** Kurien, T, Price, K R, Pearson, R G, Dieppe, C, Hunter, J B

**Abstract:** A retrospective study was performed in 100 children aged between two and 16 years, with a dorsally angulated stable fracture of the distal radius or forearm, who were treated with manipulation in the emergency department (ED) using intranasal diamorphine and 50% oxygen and nitrous oxide. Pre- and post-manipulation radiographs, the final radiographs and the clinical notes were reviewed. A successful reduction was achieved in 90 fractures (90%) and only three children (3%) required remanipulation and Kirschner wire fixation or internal fixation. The use of Entonox and intranasal diamorphine is safe and effective for the closed reduction of a stable paediatric fracture of the distal radius and forearm in the ED. By facilitating discharge on the same day, there is a substantial cost benefit to families and the NHS and we recommend this method. Simple easily reducible fractures of the distal radius and forearm in children can be successfully and safely treated in the ED using this approach, thus avoiding theatre admission and costly hospital stay. Cite this article: Bone Joint J 2016;97-B:131-6.

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**Title:** Proximal Pole Scaphoid Fractures: A Computed Tomographic Assessment of Outcomes.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 54-58

**Author(s):** Grewal, Ruby, Lutz, Kristina, MacDermid, Joy C, Suh, Nina

**Abstract:** To report on union rates and times for a cohort of acute nondisplaced or minimally displaced proximal pole fractures evaluated with serial computed tomography (CT) scans. All patients with isolated acute proximal pole scaphoid fractures (< 6 weeks from injury) who presented at our institution between 2006 and 2013 were identified. Each subject’s health record, CT scans (performed at initial assessment and serially to document healing), and x-rays were retrospectively reviewed to determine details of injury, treatment course, and treatment outcome. Union incidence and time to union were determined based on CT scan results. The effect that each predictor variable had on union, nonunion, and delayed union was assessed. This cohort consisted of 53 patients with proximal pole scaphoid fractures (47 males and 6 females; mean age, 30 ± 17 years). The overall union incidence with cast treatment was 90% (47 of 52). The study was underpowered to detect any factors that were predictive of developing a nonunion with cast treatment with the exception of a slight delay to seeking treatment. Average time to union was 14 ± 8 weeks for cases treated with surgical fixation (n = 4; cases that failed casting and were subsequently treated surgically) and 14 ± 12 weeks for cases treated with casting alone. Factors found to be correlated to longer union times included fracture translation (r = 0.30) and the presence of cysts or comminution. The reported union incidence and union times in this study compared favorably with the literature. Risk factors that were associated with a significantly
greater time to union included fracture comminution, the presence of cysts, and fracture translation. Our sample size was relatively small, and other limitations inherent in the retrospective design must be considered. Prognostic IV.

**Title:** Computer-Assisted 3-Dimensional Reconstructions of Scaphoid Fractures and Nonunions With and Without the Use of Patient-Specific Guides: Early Clinical Outcomes and Postoperative Assessments of Reconstruction Accuracy.

**Citation:** The Journal of hand surgery, Jan 2016, vol. 41, no. 1, p. 59-69 (January 2016)

**Author(s):** Schweizer, Andreas, Mauler, Flavien, Vlachopoulos, Lazaros, Nagy, Ladislav, Fürnstahl, Philipp

**Abstract:** To present results regarding the accuracy of the reduction of surgically reconstructed scaphoid nonunions or fractures using 3-dimensional computer-based planning with and without patient-specific guides. Computer-based surgical planning was performed with computed tomography (CT) data on 22 patients comparing models of the pathological and the opposite uninjured scaphoid in 3 dimensions. For group 1 (9 patients), patient-specific guides were designed and manufactured using additive manufacturing technology. During surgery, the guides were used to define the orientation of the reduced fragments. The scaphoids in group 2 (13 patients) were reduced with the conventional freehand technique. All scaphoids in both groups were fixed with a headless compression screw or K-wires, and all bone defects (except one) were filled with autologous bone grafts or vascularized grafts. Postoperative CT scans were acquired 2 or more months after the operations to monitor consolidation and compare the final result with the preoperative plan. The clinical results and accuracy of the reconstructions were compared. In group 1, 8 of 9 scaphoids healed after 2 to 6 months, and partial nonunion after 9 months was observed in one patient. In group 2, 11 of 13 scaphoids healed between 2 and 34 months whereas 2 scaphoids did not consolidate. Comparison of the preoperative and postoperative 3-dimensional data revealed an average residual displacement of 7° (4° in flexion-extension, 4° in ulnar-radial deviation, and 3° in pronation-supination) in group 1. In group 2, residual displacement after surgery was 26° (22° in flexion-extension, 12° in ulnar-radial deviation, and 7° in pronation-supination). The difference in the accuracy of reconstruction was significant. Although the scaphoid is small, patient-specific guides can be used to perform scaphoid reconstructions. When the guides were used, the reconstructions were significantly more anatomic compared with those resulting from the freehand technique. Therapeutic III. Copyright

**Title:** Specificity of the minimal clinically important difference of the quick Disabilities of the Arm Shoulder and Hand (QDASH) for distal upper extremity conditions.

**Citation:** Journal of hand therapy : official journal of the American Society of Hand Therapists, Jan 2016, vol. 29, no. 1, p. 81-88 (2016 Jan-Mar)

**Author(s):** Smith-Forbes, Enrique V, Howell, Dana M, Willoughby, Jason, Pitts, Donald G, Uhl, Tim L
Abstract: Retrospective cohort design. The minimal clinically important difference (MCID) for the quick Disabilities of the Arm, Shoulder and Hand (QDASH) has been established using a pool of multiple conditions, and only exclusively for the shoulder. Understanding diagnoses-specific threshold change values can enhance the clinical decision-making process. Before and after QDASH scores for 406 participants with conditions of surgical distal radius fracture, non-surgical lateral epicondylitis, and surgical carpal tunnel release were obtained. The external anchor administered at each fourth visit was a 15-point global rating of change scale. The test-retest reliability of the QDASH was moderate for all diagnoses: intraclass correlation coefficient model 2, 1, for surgical distal radius = 0.71; non-surgical lateral epicondylitis = 0.69; and surgical carpal tunnel = 0.69. The minimum detectable change at the 90% confidence level was 25.28; 22.49; and 27.63 points respectively; and the MCID values were 25.8; 15.8 and 18.7, respectively. For these three distal upper extremity conditions, a QDASH MCID of 16-26 points could represent the estimate of change in score that is important to the patient and guide clinicians through the decision-making process.

Title: Continuous and long-term treatment is more important than dosage for the protective effect of thiazide use on bone metabolism and fracture risk.

Citation: Journal of internal medicine, Jan 2016, vol. 279, no. 1, p. 110-122

Author(s): Kruse, C, Eiken, P, Vestergaard, P

Abstract: Data from observational studies have suggested that thiazide diuretics protect against fractures. Few studies have investigated time frames from initiation of treatment to fracture occurrence. To evaluate the time to spinal, hip, femur, wrist and upper extremity fracture occurrence before and after thiazide exposure. A matched retrospective cohort study of patient information from national Danish patient databases was conducted. Patients with reimbursed prescriptions for noncompounded thiazide diuretics with potassium supplementation (Anatomical Therapeutic Chemical classification system code C03AB) between 1996 and 2011 were matched with nonexposed control subjects by date of birth and gender. Weekly odds ratios (ORs) of fracture occurrence and total incidence rates (IRs) and incidence rate ratios (IRRs) of fracture risk were calculated for the periods before treatment initiation, weeks 1-42 and weeks 43-780. A total of 1 602 141 'thiazide exposure periods' (46 8271 individuals) and 1 530 233 'nonexposure periods' (655 399 individuals) were included in the analysis. Thiazide use was associated with factors of increased de novo fracture risk. Weekly adjusted fracture risk between exposure and nonexposure was increased prior to commencing thiazide therapy, further increasing from weeks 1-42 and then decreasing gradually from weeks 43-780. There was a decreasing trend in total age-adjusted risk during these periods: IRR [95% confidence interval 1.44 [1.42; 1.47], 1.27 [1.24; 1.29] and 1.14 [1.11; 1.18], respectively. Prescription patterns showed several treatment breaks amongst thiazide users. It appears that thiazides reduce the background risk of fracture that is increased prior to commencing therapy. Long duration and continuity of thiazide exposure seems to be important to obtain this protective effect on fracture risk, but we have found in this study that this approach is not always used in clinical practice.
**Title:** Stress fracture of the scaphoid in an elite junior tennis player: a case report and review of the literature.

**Citation:** Journal of medical case reports, Jan 2016, vol. 10, no. 1, p. 8. (2016)

**Author(s):** Kohyama, Sho, Kanamori, Akihiro, Tanaka, Toshikazu, Hara, Yuki, Yamazaki, Masashi

**Abstract:** The carpal scaphoid is the most commonly fractured carpal bone in young adults after a fall on an outstretched arm that results in acute dorsal flexion of the wrist. However, stress fractures of the scaphoid are relatively rare. To the best of our knowledge, we describe the first case in the literature of carpal scaphoid stress fracture in a tennis player. An 18-year-old Japanese man who was an elite junior tennis player was referred to our hospital after radiography and computed tomography revealed a carpal scaphoid fracture. The patient presented with pain in the wrist joint and tenderness over the anatomical snuff-box with diffuse swelling and reduced active dorsal flexion and flexion of the right wrist. The patient was treated conservatively and resumed participation in competitive events 5 months after his initial presentation. In this case, the scaphoid stress fracture had resulted from repetitive practicing of the attacking backhand high volley, which involved excessive dorsal flexion of the wrist. Although rare, scaphoid stress fractures must be considered in tennis players with chronic wrist pain.

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**Title:** A comparison of electronic and manual dynamometry and goniometry in patients with fracture of the distal radius and healthy participants.

**Citation:** Journal of hand therapy : official journal of the American Society of Hand Therapists, Jan 2016, vol. 29, no. 1, p. 73-80

**Author(s):** Plant, Caroline E, Parsons, Nicholas R, Edwards, Alison T, Rice, Hayley,

**Abstract:** The purpose of this study was to assess the intra-rater and inter-rater reliability of electronic and manual dynamometry and goniometry in healthy volunteers, and the inter-instrument reliability in the assessment of healthy volunteers and patients recovering after a fracture of the distal radius. Grip strength, grip fatigue, pinch strength and range of motion were assessed in all participants with both the manual and electronic instruments by two physiotherapists and orthopaedic specialist trainee. The measures of dynamometry demonstrated excellent reliability (intra-class correlation coefficient >0.90), with the instruments found to be interchangeable with the exception of the grip fatigue. Variable intra-rater and inter-rater reliability was demonstrated with all planes of movement for the goniometry measures regardless of the instrument used. The results of this study support the continued use of dynamometry in the clinical setting, but raise questions regarding the use of goniometry measurements. Diagnostic level III

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**Title:** Medical management of osteoporosis and the surgeons' role.

**Citation:** Injury, Jan 2016, vol. 47 Suppl 1, p. S62.

**Author(s):** Rosenwasser, Melvin Paul, Cuellar, Derly

**Abstract:** Osteoporosis is a worldwide public health issue and with the aging population the resultant increase in fragility fractures has generated a significant socioeconomic impact. Robust scientific research has increased our knowledge of the endocrine mechanisms and pathophysiology of osteoporosis. This information has led to Level 1 randomized clinical
trials which demonstrate the beneficial effects of appropriate regimens in reducing the fracture risk and the coincident mortality. Despite these contributions the public health problem remains and has stubbornly failed many public awareness campaigns by governmental and private professional organizations. Effectiveness in delivering the message is greatly enhanced following the sentinel fragility fracture whether it be distal radius, hip, or spine. The treating orthopedic surgeon has the full attention of the injured patient who can be steered into osteoporosis screening programs and ultimately treatment. Studies in Canada have shown that if the surgeon initiates the process by so much as ordering the bone densitometry exam the patient is more likely to get treatment for their underlying disease than if it is just suggested that the patient see their medical doctor at some future date. The patient takes the cue from the surgeon. Patient compliance goes up and the treatment is instituted. We as surgeons must be part of the solution. This has been emphasized in the worldwide efforts in orthopedic surgery such as the "Bone and Joint Decade" and "Own the Bone" programs. This commitment to bone health and restoration is important. Our patients deserve no less.

Title: Reference values for digital X-ray radiogrammetry parameters in children and adolescents in comparison to estimates in patients with distal radius fractures.

Citation: Journal of bone and mineral metabolism, Jan 2016, vol. 34, no. 1, p. 55-64

Author(s): Renz, Diane M, Malich, Ansgar, Ulrich, Andreas, Pfeil, Alexander, Mentzel,

Abstract: The first objective of this study was to determine normative digital X-ray radiogrammetry (DXR) values, based on original digital images, in a pediatric population (aged 6-18 years). The second aim was to compare these reference data with patients suffering from distal radius fractures, whereas both cohorts originated from the same geographical region and were evaluated using the same technical parameters as well as inclusion and exclusion criteria. DXR-BMD and DXR-MCI of the metacarpal bones II-IV were assessed on standardized digital hand radiographs, without printing or scanning procedures. DXR parameters were estimated separately by gender and among six age groups; values in the fracture group were compared to age- and gender-matched normative data using Student’s t tests and Z scores. In the reference cohort (150 boys, 138 girls), gender differences were found in bone mineral density (DXR-BMD), with higher values for girls from 11 to 14 years and for boys from 15 to 18 years (p < 0.05). Girls had higher normative metacarpal index (DXR-MCI) values than boys, with significant differences at 11-14 years (p < 0.05). In the case-control investigation, the fracture group (95 boys, 69 girls) presented lower DXR-BMD at 15-18 years in boys and 13-16 years in girls vs. the reference cohort (p < 0.05); DXR-MCI was lower at 11-18 years in boys and 11-16 years in girls (p < 0.05). Mean Z scores in the fracture group for DXR-BMD were -0.42 (boys) and -0.46 (girls), and for DXR-MCI were -0.51 (boys) and -0.53 (girls). These findings indicate that the fully digital DXR technique can be accurately applied in pediatric populations ≥ 6 years of age. The lower DXR-BMD and DXR-MCI values in the fracture group suggest promising early identification of individuals with increased fracture risk, without the need for additional radiation exposure, enabling the initiation of prevention strategies to possibly reduce the incidence of osteoporosis later in life.

Title: Degree of Trauma Differs for Major Osteoporotic Fracture Events in Older Men Versus Older Women.
**Citation:** Journal of bone and mineral research : the official journal of the American Society for Bone and Mineral Research, Jan 2016, vol. 31, no. 1, p. 204-207 (January 2016)


**Abstract:** To examine the degree of trauma in major osteoporotic fractures (MOF) in men versus women, we used data from 15,698 adults aged ≥65 years enrolled in the Osteoporotic Fractures in Men (MrOS) study (5994 men) and the Study of Osteoporotic Fractures (SOF) (9704 women). Participants were contacted tri-annually to ascertain incident fractures, which were confirmed by radiographic reports and coded according to degree of self-reported trauma. Trauma was classified as low (fall from ≤ standing height; fall on stairs, steps, or curb; minimal trauma other than fall [coughing, turning over]); moderate (collisions with objects during normal activity without associated fall); or high (fall from > standing height; severe trauma [motor vehicle accident, assault]). MOF included hip, clinical vertebral, wrist, and humerus fractures. Mean fracture follow-up was 9.1 years in SOF and 8.7 years in MrOS. A total of 14.6% of the MOF in men versus 6.3% of the MOF in women were classified as high trauma (p < 0.001); men versus women more often experienced fractures resulting from severe trauma as well as from fall > standing height. High-trauma fractures were more significantly common in men versus women at the hip (p = 0.002) and wrist (p < 0.001) but not at the spine or humerus. Among participants with MOF, the odds ratio of a fracture related to high-trauma fracture among men versus women was 3.12 (95% confidence interval [CI] 1.70-5.71) after adjustment for traditional risk factors. Findings were similar in analyses limited to participants with hip fractures (odds ratio [OR] = 3.34, 95% CI 1.04-10.67) and those with wrist fracture (OR = 5.68, 95% CI 2.03-15.85). Among community-dwelling older adults, MOF are more likely to be related to high trauma in men than in women. These findings are not explained by sex differences in conventional risk factors and may reflect a greater propensity among men to engage in risky behavior.

**Title:** Transverse ultrasound assessment of the flexor pollicis longus tendon movement on the distal radius during wrist and finger motion in distal radius fracture with volar plating.

**Citation:** Journal of medical ultrasonics (2001), Jan 2016, vol. 43, no. 1, p. 29-36

**Author(s):** Nanno, Mitsuhiko, Kodera, Norie, Tomori, Yuji, Takai, Shinro

**Abstract:** We investigated the movement of the flexor pollicis longus (FPL) tendon on the distal radius during wrist and finger motions using transverse ultrasound in patients with distal radius fractures who underwent volar locking plating. Both wrists of 39 distal radius fracture patients with volar locking plate fixation were evaluated by transverse ultrasound to examine the location of the FPL tendon on the distal radius at varied wrist positions in full finger extension and flexion. At all wrist positions during finger motion, the FPL tendon shifted significantly more dorsally on the affected side than on the unaffected side.
Additionally, at the wrist dorsal flexion position with finger flexion, the FPL tendon moved significantly the most dorsally, and the distance between the FPL tendon and the plate or the radius was the smallest among all wrist positions during finger motion. This study showed that the wrist dorsal flexion position with finger flexion could be the appropriate position to examine FPL tendon irritation after plating. Moreover, it would be effective for preventing FPL rupture to cover the FPL transverse gliding area approximately 10 mm radial to the vertex of the palmar bony prominence of the distal radius with the pronator quadratus and the intermediate fibrous zone.

Title: Distal Radius Fracture Fixation With the Specialized Threaded Pin Device.

Citation: Orthopedics, Jan 2016, vol. 39, no. 1, p. e98. (January 1, 2016)

Author(s): Taras, John S, Saillant, Jason C, Goljan, Peter, McCabe, Lucy A

Abstract: This study investigated the outcomes of extra-articular distal radius fractures and simple intra-articular radial styloid fractures stabilized with a novel threaded cannulated device. This was a retrospective study of 24 distal radius fractures treated with the T-Pin device (Union Surgical LLC, Philadelphia, Pennsylvania), with a minimum of 1 year of postoperative follow-up. Outcome data included wrist range of motion, grip strength, and pinch strength. Radiographs were analyzed to determine volar tilt and radial height. At final follow-up, patients completed the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire. At an average of 2 years after surgery (range, 1-4 years), flexion was 89%, extension was 96%, supination was 99%, and pronation was 100% of contralateral wrist motion. Grip strength was 93% (range, 40%-137%) and lateral pinch strength was 99% (range, 48%-130%) of the contralateral upper extremity. The average final DASH score was 4.4 (range, 0-35). One patient lost 6 mm of radial height from the initial postoperative radiograph to the final follow-up radiograph. One patient elected to have the quiescent threaded pins removed, and 1 patient had tenderness with wrist range of motion that resolved after pin removal. After hardware removal, neither patient had further symptoms. No postoperative soft tissue complications occurred, and this was an expected benefit of the minimally invasive approach and intramedullary placement of the device. The stability of fixation allows patients to begin active range of motion early in the postoperative course. The threaded pin offers reliable fracture fixation for the treatment of extra-articular and simple articular distal radius fractures. [Orthopedics. 2016; 39(1):e98-e103.]. Copyright 2016, SLACK Incorporated.

Title: Patients do not have a consistent understanding of high risk for future fracture: a qualitative study of patients from a post-fracture secondary prevention program.

Citation: Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA, Jan 2016, vol. 27, no. 1, p. 65-73

Author(s): Sale, J E M, Gignac, M A, Hawker, G, Beaton, D, Frankel, L, Bogoch, E,
Abstract: We examined fracture patients' understanding of "high" fracture risk after they were screened through a post-fracture secondary prevention program and educated about their risk verbally, numerically, and graphically. Our findings suggest that messages about fracture risk are confusing to patients and need to be modified to better suit patients' needs. The aim of this study was to examine fracture patients' understanding of high risk for future fracture. We conducted an in-depth qualitative study in patients who were high risk for future fracture. Patients were screened through the Osteoporosis Exemplary Care Program where they were educated about fracture risk: verbally told they were "high risk" for future fracture, given a numerical prompt that they had a >20% chance of future fracture over the next 10 years, and given a visual graph highlighting the "high risk" segment. This information about fracture risk was also relayed to patients' primary care physicians (PCPs) and specialists. Participants were interviewed at baseline (within six months of fracture) and follow-up (after visit with a PCP and/or specialist) and asked to recall their understanding of risk and whether it applied to them. We recruited 27 patients (20 females, 7 males) aged 51-87 years old. Fractures were sustained at the wrist (n = 7), hip (n = 7), vertebrae (n = 2), and multiple or other locations (n = 11). While most participants recalled they had been labeled as "high risk" (verbal cue), most were unable to correctly recall the other elements of risk (numerical, graphical). Further, approximately half of the patients who recalled they were high risk did not believe that high risk applied, or had meaning, to them. Participants also had difficulty explaining what they were at risk for. Our results suggest that health care providers' messages about fracture risk are confusing to patients and that these messages need to be modified to better suit patients' needs.

Title: Strontium ranelate as an adjuvant for fracture healing: clinical, radiological, and ultrasound findings in a randomized controlled study on wrist fractures.

Citation: Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA, Jan 2016, vol. 27, no. 1, p. 211-218

Author(s): Scaglione, M, Fabbri, L, Casella, F, Guido, G

Abstract: This randomized and controlled study evaluated the effect of therapy with strontium ranelate on callus formation in wrist fractures and its incidence in wrist recovery. Radiographic healing, progression of clinical recovery, and callus quality with ultrasound were evaluated. No statistically significant benefit of therapy was found. Fracture prevention is the main goal of any therapy for osteoporosis. Various drugs used in osteoporosis treatment have the theoretical premises to promote fracture healing and osseointegration. In this study, the effect of strontium ranelate on callus formation in wrist fractures was evaluated and whether it could lead to clinically relevant modification of wrist recovery; having strontium ranelate osteoinductive properties, it could be used, if effective, as an adjunct in fracture healing for a faster and functionally better recovery and, at the same time, in starting proper therapy in osteoporotic patients with fragility fractures. We considered only patients older than 60 years who had suffered wrist fracture and received nonoperative treatment with manual reduction of the fracture and cast for 35 days. Forty patients were included and randomly assigned to one of two groups: group A [patients treated with calcium (1200 mg/day) and vitamin D (800 IU/day)] and group B [patients
treated with calcium (1200 mg/day) and vitamin D (800 IU/day) associated with strontium ranelate 2 g daily. Radiographic healing was evaluated through the bone callus formation, cortical continuity, and density of the callus. A clinical evaluation using Castaing’s criteria was carried out 2 and 3 months following the fracture together with an ultrasound study of callus density and vessels. A parametric analysis of the X-ray data, clinical evaluation, and ultrasonography results showed that there were no statistically significant differences in the two groups (p > 0.05 for all data). In analyzing the data obtained, we concluded that strontium ranelate administered in acute phase did not improve nor accelerate wrist fracture healing in our population.

Title: No difference between two types of exercise after proximal phalangeal fracture fixation: a randomised trial.

Citation: Journal of physiotherapy, Jan 2016, vol. 62, no. 1, p. 12-19

Author(s): Miller, Lauren, Crosbie, Jack, Wajon, Anne, Ada, Louise

Abstract: Are 6 weeks of synergistic wrist and finger exercises with the metacarpophalangeal joint constrained in an orthosis (constrained exercises) more effective than traditional finger exercises with the metacarpophalangeal joint unconstrained (unconstrained exercises) after open reduction and internal fixation of a proximal phalangeal fracture in terms of impairment, activity limitation and participation restriction at 6 and 12 weeks? Randomised, parallel-group trial with concealed allocation, intention-to-treat analysis and blinded outcome assessors. Sixty-six participants within 1 week of open reduction and internal fixation of proximal phalangeal fractures. The experimental group carried out 6 weeks of synergistic wrist and finger exercises with the metacarpophalangeal joint constrained, whilst the control group carried out finger exercises with the metacarpophalangeal joint unconstrained, as part of a comprehensive rehabilitation program. The primary outcomes were: active proximal interphalangeal joint extension of the injured finger, total active range of motion, and strength. Secondary outcomes were: pain, difficulty with specific hand activity and difficulty with usual hand activity. A blinded assessor measured outcomes at Weeks 1, 6 and 12. By Week 6, there were no significant between-group differences in improvement for: active proximal interphalangeal joint extension (MD 2 deg, 95% CI -3 to 7); total active finger range of motion (MD 0 deg, 95% CI -21 to 22); strength (MD -2kg, 95% CI -8 to 4); pain (MD 1/50, 95% CI -3 to 5); difficulty with specific hand activity (MD 2/60, 95% CI -3 to 8); or difficulty with usual hand activity (MD 0/40, 95% CI -4 to 3). By Week 12, there were also no significant between-group differences in any outcome. Constrained and unconstrained exercises has similar effects after open reduction and internal fixation of proximal phalangeal fracture. Australian New Zealand Clinical Trials Registry (ACTRN12610000294055). [Miller L, Crosbie J, Wajon A, Ada L (2016) No difference between two types of exercise after proximal phalangeal fracture fixation: a randomised trial.Journal of Physiotherapy62: 12-19].

Title: Bridging external fixation versus non-bridging external fixation for unstable distal radius fractures: A systematic review and meta-analysis.
Citation: Journal of orthopaedic science : official journal of the Japanese Orthopaedic Association, Jan 2016, vol. 21, no. 1, p. 24-31

Author(s): Gu, Wan-Li, Wang, Jun, Li, Dong-Qing, Gong, Ming-Zhi, Chen, Peng, Li, Zhong-Yi, Qing, Gong, Ming-Zhi, Chen, Peng, Li, Zhong-Yi

Abstract: A systematic review and meta-analysis was conducted to compare the relative effectiveness of bridging external fixation and non-bridging external fixation for distal radius fractures treatment. Relevant literature were comprehensively searched using the PubMed, Springer Link, Karger Medical and Scientific Publishers, Chinese Biomedical Database (CBM) and Chinese National Knowledge Infrastructure (CNKI) databases without any language restrictions. STATA Version 12.0 software and Comprehensive Meta-analysis 2.0 were applied. A total of 905 patients with distal radius fracture from six eligible cohort studies were selected for statistical analysis. Our meta-analysis results indicate that the non-bridging cases had a higher risk of pin track infection, rupture of the extensor pollicis longus and nerve injury than the bridging cases. Subgroup analysis stratified by country indicated non-bridging patients showed evidence of an increased risk of pin track infection and higher risk of rupture of the extensor pollicis longus compared with the patients treated with bridging external fixation in the UK population. The follow-up results showed flexion degree of patients treated with non-bridging external fixation was slightly better than that of patients treated with bridging external fixation (P < 0.05). There is evidence in our systematic review and meta-analysis to support that bridging external fixation can reduce the incidence of pin tract infections and nerve injury compared to non-bridging external fixation, but have no significant difference in other complications and the recovery of wrist joint function. Bridging external fixation could therefore be a better choice in patients with distal radius fractures.

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.

Title: French Osteotomy for Cubitus Varus in Children: A Long-term Study Over 27 Years.

Citation: Journal of pediatric orthopedics, Jan 2016, vol. 36, no. 1, p. 19-24

Author(s): North, David, Held, Michael, Dix-Peek, Stewart, Hoffman, E B

Abstract: Cubitus varus is a cosmetically unacceptable complication of supracondylar fractures of the elbow in children. We have performed the lateral closing wedge (French) osteotomy to correct the varus for 27 years. More complex osteotomies have been described to correct the associated hyperextension and internal rotation deformities and to prevent a prominent lateral condyle. We retrospectively reviewed 90 consecutive patients (1986 to 2012). The mean age of the patients at surgery was 8.2 years (3 to 14 y). The varus angle (mean, 21.4 degrees; range, 8 to 40 degrees) was assessed preoperatively with the humero-elbow-wrist angle. The postoperative carrying angle (mean, 10.4 degrees) and the preoperative and postoperative range of movement were assessed clinically. The lateral condylar prominence index (LCPI) was retrospectively measured at union. Eighty-four (93.3%) of the patients had a good or excellent result. Six (6.7%) had a poor result (residual varus, loss of >20 degrees of preoperative range of flexion or extension or a complication necessitating resurgery). There were no neurovascular complications. The mean LCPI was +0.14. The results of the French osteotomy are comparable with the more technically demanding dome, step-cut translation, and multiplanar osteotomies, with a lower complication rate. The literature reports adequate remodeling of the hyperextension deformity (≤10 y) and the LCPI (≤12 y), and that the internal rotation deformity is well tolerated by the patient. Level IV-case series.
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