Hand Rehabilitation
Current Awareness Bulletin
NOVEMBER 2015
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Examining bias and validity.

**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.

**October** (12pm)

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New Activity in Up-to-Date

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**Evaluation of the patient with hand pain**

Author: Bruce C Anderson, MD

**Literature review current through:** Sep 2015. | **This topic last updated:** Feb 07, 2014.

**INTRODUCTION** — The major nontraumatic disorders that cause hand pain will be reviewed here. Thumb and wrist pain are discussed separately.

**ANATOMY** — The bones of the hand include five metacarpals, two phalanges in the thumb, and three phalanges in each of the other fingers. The joints of each finger include the metacarpophalangeal (MP), the proximal interphalangeal (PIP), and the distal interphalangeal (DIP); the thumb has only one interphalangeal (IP) joint.

Extrinsic muscles of the hand originate in the forearm and elbow area. The flexor tendons for each digit travel in a fibro-osseous tunnel between the metacarpal and the DIP joint. The superficialis tendon attaches to the middle phalanges, and the profundus tendon attaches to the distal phalanges. The extensor tendons pass over the dorsum of the wrist in six separate compartments.

Intrinsic muscles of the hand include the thenar, hypothenar, interosseous, and lumbricals. The thenar muscles control adduction and opposition of the thumb; other thumb movements are controlled by forearm muscles. The interosseous and lumbrical muscles flex the MP joints, help extend the IP joints, and abduct and adduct the fingers.

The ulnar nerve provides the motor supply to the intrinsic hand muscles (other than the two radial lumbricals and the thenar muscles); it also provides sensation to the little finger and one-half of the ring finger. The median nerve is the motor supply to the thenar muscles and the two radial lumbricals; it is the sensory supply to the palmar aspect of the first three fingers and the radial half of the ring finger. The radial nerve is the sensory supply to the dorsum of the hand.

**Flexor tendon injury of the distal interphalangeal joint (jersey finger)**

Author: Rebecca Bassett, MD

**Literature review current through:** Sep 2015. | **This topic last updated:** Oct 02, 2015.

**INTRODUCTION** — Rupture of the flexor digitorum profundus tendon from its distal attachment is commonly known as jersey finger. This injury occurs most often in athletes involved in contact sports, such as American football or rugby [1]. The injury is often overlooked by players and trainers and misdiagnosed as a "jammed" or sprained finger, but requires more urgent management than these minor injuries.
**Trigger finger (stenosing flexor tenosynovitis)**

Authors; Philip E Blazar, MD; Rohit Aggarwal, MD, MSc


INTRODUCTION — Trigger finger (also called stenosing flexor tenosynovitis) is caused by a disparity in the size of the flexor tendons and the surrounding retinacular pulley system at the first annular (A1) pulley (figure 1) which overlies the metacarpophalangeal (MCP) joint (figure 2). The flexor tendon catches when it attempts to glide through a relatively stenotic sheath, resulting in an inability to smoothly flex or extend the finger. In severe cases, the finger may become locked in flexion requiring passive manipulation of the finger into extension. The cause of trigger finger is most frequently unclear, although patients often attribute it overuse or repetitive movements.

**de Quervain tendinopathy**

Authors; Rohit Aggarwal, MD, MSc; David Ring, MD, PhD

Literature review current through: Sep 2015. | This topic last updated: Jun 10, 2015.

INTRODUCTION — de Quervain tendinopathy affects the abductor pollicis longus and extensor pollicis brevis tendons in the first extensor compartment at the styloid process of the radius (figure 1). It is characterized by pain or tenderness at the radial side of the wrist. Although de Quervain tendinopathy is often attributed to overuse or repetitive movements of the wrist or thumb, the cause is generally unknown.

**New from Cochrane Database of Systematic Reviews**

**Rehabilitation for distal radial fractures in adults**

Helen HG Handoll¹; Joanne Elliott²

Published Online: 25 SEP 2015: ssessed as up-to-date: 12 JAN 2015

Abstract

Background: Fracture of the distal radius is a common clinical problem, particularly in older people with osteoporosis. There is considerable variation in the management, including rehabilitation, of these fractures. This is an update of a Cochrane review first published in 2002 and last updated in 2006.

Objectives: To examine the effects of rehabilitation interventions in adults with conservatively or surgically treated distal radial fractures.
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:

Specific Diagnoses

- 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 (Osteoarthritis thumb)
- Trigger finger/thumb
- Ulnar Collateral ligament Sprain- Thumb
- Wrist and Finger fractures (distal radius/scaphoid)

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Altered Neurodynamics upper limb – no new evidence this month

Complex Regional pain Syndrome

**Title:** Perfusion index is increased in acute complex regional pain syndrome type 1

**Citation:** Archives of Rheumatology, September 2015, vol./is. 30/1(40-44), 2148-5046 (02

**Author(s):** Tutoglu A., Boyaci A., Kucuk A., Sakalar A., Sert H., Yalcin S.

**Abstract:** Objectives: This study aims to investigate whether perfusion index (PI) changes in the affected extremity of complex regional pain syndrome (CRPS) patients compared to other extremities, and define the possible value of this noninvasive method in evaluating CRPS patients' peripheral perfusion. Patients and methods: Twenty-five CRPS type 1 patients (17 males, 8 females; mean age 37.9+/-.15.1 years; range 20 to 53 years) who
fulfilled the Budapest criteria and 22 age, sex and body mass index matched healthy controls from the staff of our hospital were enrolled. The patients and controls were laid in supine position with the palms facing upward. A pulse oximeter sensor was first attached to the fourth finger of the hand with CPRS, and then to the fourth finger of the unaffected hand. PI values were recorded at five minutes after the attachment of the probe. The control group underwent the same procedure for both extremities. Results: The PI values were significantly different between healthy and affected hands of the patients (p=0.007). PI values did not show a significant difference between the left and right hands of the subjects in the control group (p>0.05). Conclusion: This study suggests that peripheral PI of the extremities of early stage CRPS type 1 patients may be useful in the diagnosis process.

Title: Patients with complex regional pain syndrome overestimate applied force in observed hand actions

Citation: European Journal of Pain (United Kingdom), October 2015, vol./is. 19/9(1372-1381)

Author(s): Hotta J., Harno H., Nummenmaa L., Kalso E., Hari R., Forss N.

Abstract: Background Movement accuracy is ensured by interaction between motor, somatosensory, and visual systems. In complex regional pain syndrome (CRPS), this interaction is disturbed. To explore CRPS patients' visual perception of actions, we investigated how these patients evaluate the applied force in observed hand actions of another person. Methods Nineteen patients suffering from unilateral upper-limb CRPS and 19 healthy control subjects viewed six different videos of left- and right-hand actions. They were asked to evaluate the applied force in each hand action, as well as their subjective sensations of unpleasantness and pain during the observation. Results The patients overestimated the force applied in the videos: the ratings were two times as large as in the control subjects for actions performed with the hand corresponding to the patients' affected hand, and 1.5 times as large for actions corresponding to their healthy hand. The control subjects considered the stimuli neutral and painless, whereas the patients rated them unpleasant. Moreover, the patients felt increased pain during viewing actions performed with the hand corresponding to their affected side. The overestimation of force was related to the elicited unpleasantness and pain, but not to the patients' muscle strength. Conclusions We propose that the overestimation of force is explained both by the pain elicited by the observation and by the abnormal sensorimotor integration that is associated with perception of increased effort. This visually elicited unpleasantness and pain may promote avoidance of viewing own actions, further impairing the patients' motor performance.

De Quervain Disease - no new evidence this month
**Dupuytren's fasciectomy**

**Title:** Comparison between Collagenase Injection and Partial Fasciectomy in the Treatment of Dupuytren's Contracture.

**Citation:** Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 386-390 (October 2015)

**Author(s):** Tay, Terence Khai Wei, Tien, Huey, Lim, Elizabeth Yenn Lynn

**Abstract:** A comparative study between two treatment methods (collagenase injection and open partial fasciectomy) for Dupuytren's contracture. This study will determine differences in clinical outcome, complication rate and patient satisfaction. 37 patients with 62 metacarpophalangeal joints (MCP) and 44 proximal interphalangeal joints (PIP) treated. There were 21 MCP joints (34%) and 8 PIP joints (18%) treated with injection. The remaining 66% of MCP joints and 82% of PIP joints were treated by open partial fasciectomy. Overall, both treatment methods were successful in correcting the passive extension deficit in the MCP and PIP joints. Minor complications were reported in 45% of patients in the injection group versus 42% in the surgery group. Patient satisfaction was nearly equal for both groups. Both treatment options have proven their effectiveness in treating Dupuytren's contracture. Open surgery is able to address additional joint contracture problems commonly associated with Dupuytren's disease. Collagenase injection has the advantage of early return of hand function and avoidance of surgical complications.

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**Finger Dislocation**

**Title:** Delayed treatment of unstable proximal interphalangeal joint fracture-dislocations with a dynamic external fixator

**Citation:** Injury, October 2015, vol./is. 46/10(1938-1944), 0020-1383;1879-0267

**Author(s):** Shen X.F., Mi J.Y., Rui Y.J., Xue M.Y., Chou J., Tian J., Chim H.

**Abstract:** Background Fracture-dislocations of the proximal interphalangeal joint (PIPJ) remain a challenging problem to treat. Although there are a number of papers describing the use of dynamic external fixators and force couples for treatment of unstable PIPJ fracture-dislocations acutely, the literature is scarce on delayed treatment of PIPJ fracture-dislocations, where malunion of the articular surface may theoretically compromise postoperative range of motion (ROM) at the PIPJ. The purpose of this study was to evaluate the effectiveness of dynamic distraction external fixation (DDEF) for the delayed treatment of PIPJ fracture-dislocations at least 3 weeks after the inciting injury. Methods Ten consecutive patients were treated with delayed DDEF between 2010 and 2013. Postoperative ROM at the PIPJ was measured. Disabilities of the Arm, Shoulder and Hand (DASH) score and Michigan Hand Outcomes Questionnaire were administered to all patients postoperatively. Results Mean time from injury to surgery was 27.5 days. The mean follow-up period was 23.7 months (range 10-36). The mean active ROM at the PIPJ on final
postoperative follow-up was 83.9° (range 52-100). None of the patients experienced pin-tract infections. Mean DASH score was 3.7 + 3.4 and mean Michigan Hand Outcomes Questionnaire score was 97.3 + 3.0. All patients returned to work and resumed normal activities. Conclusions Delayed treatment of unstable PIPJ fracture-dislocations with a DDEF is effective in restoring function to the PIPJ. Nascent malunion of the PIPJ articular surface does not compromise postoperative outcomes and the joint surface undergoes remodelling over time to restore a smooth and functional articular surface.

Title: Revision proximal interphalangeal arthroplasty: An outcome analysis of 75 consecutive cases

Citation: Journal of Hand Surgery, October 2015, vol./is. 40/10(1949-1955)

Author(s): Wagner E.R., Luo T.D., Houdek M.T., Kor D.J., Moran S.L., Rizzo M.

Abstract: Purpose To examine the outcomes and complications associated with revision proximal interphalangeal (PIP) joint arthroplasty. Methods An analysis of 75 consecutive revision PIP joint arthroplasties in 49 patients, performed between 1998 to 2012, was performed. The mean age at the time of surgery was 58 years. Thirty-two patients had a history of prior PIP joint trauma, and 18 patients had rheumatoid arthritis. There were 12 constrained (silicone) implants and 63 nonconstrained implants (34 pyrocarbon and 29 metal-plastic). Results Over the 14-year period, 19 (25%) fingers underwent a second revision surgery. Second revision surgeries were performed for infection, instability, flexion contracture, and heterotopic ossification. The 2-, 5-, and 10-year survival rates were 80%, 70%, and 70%, respectively, for patients requiring a second revision for PIP joint arthroplasty. Worse outcomes were seen with postoperative dislocations, pyrocarbon implants, and when bone grafting was required. Two operations were complicated by intraoperative fractures, but neither required stabilization. Sixteen patients undergoing revision surgery experienced a postoperative complication, including 2 infections, 1 postoperative fracture, 3 cases of heterotopic ossification, and 10 PIP joint dislocations. The volar approach and the use of a pyrocarbon implant was associated with increased rates of heterotopic ossification, whereas preoperative instability increased the rates of PIP joint dislocation following revision. At a mean of 5.3 years (range, 2-10 years) follow-up, 98% of patients had good pain relief but decreased PIP joint total arc of motion. Conclusions Proximal interphalangeal joint arthroplasty in the revision setting represents a challenge for surgeons. Revision arthroplasty was associated with a 70% 5-year survival but with a high incidence of complications. Instability was associated with worse outcomes. In this series, silicone and metal-polyethylene implants had lower rates of implant failure and postoperative complications than ones made from pyrocarbon. Type of study/level of evidence Prognostic III.

Title: Surgical management of intraocular lens dislocations.

Citation: Arquivos brasileiros de oftalmologia, Oct 2015, vol. 78, no. 5, p. 313-317

Author(s): Gul, Adem, Duran, Mustafa, Can, Ertugrul, Yucel, Ozlem Eski, Sullu, Yuksel

Abstract: To report and compare the surgical, visual, and anatomical outcomes following treatment of dislocated intraocular lenses (IOLs). The medical records of 28 eyes of 28
patients were evaluated. Age, gender, pre-and postoperative best-corrected visual acuity (BCVA), surgical methods, and complications were recorded. Pre-and postoperative BCVA ranged from counting fingers to 20/32 and from counting fingers to 20/25, respectively. Late-onset dislocations were the most frequently observed complication. The most frequent surgical method was IOL repositioning in 15 of 28 patients, followed by IOL exchange in 11 patients, and IOL removal in 2 patients. Only 1 patient required surgical re-intervention with IOL capture. Visual acuity improved following the use of either IOL repositioning or IOL exchange. No superiority of one method over the other was observed. In the present retrospective case series, management of dislocated IOLs with repositioning or exchange of the primary implant conferred comparable surgical and visual outcomes.

Title: Complex anterior dislocation of the metacarpophalangeal joint of the index finger: The 'reverse-Kaplan' injury.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 863-864

Author(s): Green, R N, Rushton, P R P, Cloke, D J

Flexor and Tendon Injuries

Title: Course Review: The Aberdeen Cadaveric Hand Trauma Course.

Citation: Annals of plastic surgery, Oct 2015, vol. 75, no. 4, p. 364.

Author(s): Khoo, Lee Seng

Abstract: The Aberdeen Cadaveric Hand Trauma is a 2-day highly interactive hands-on course that is structured to allow participants to learn the surgical techniques in dealing with hand trauma, with the emphasis on soft tissue injuries, including tendon repair, flap reconstruction, and bone fracture fixation. The course is in English and is held in Aberdeen, Scotland in the United Kingdom. Each day, lectures are held before practical exercises in the anatomy dissection hall. The lectures were excellent, and the main focus was on practical management of hand injuries with tips and pitfalls to avoid. Routine information that one could obtain in a standard textbook were kept to a bare minimum, and the course was interactive meaning several approaches to a problem were discussed. The presence of faculty and trainees from both plastic and orthopedic surgery allowed for cross-pollination of ideas and approaches. The quality of the fresh-frozen cadavers were remarkable and allowed for close simulation of live tissue handling. There were 2 trainees assigned to 1 cadaveric specimen with 1 instructor present at all times for teaching and supervision. This ratio of faculty to participant ratio which was 2:1 allowed for adequate hands-on experience for all participants. Unlike some courses that use plastic bones for fracture fixation, fractures were made directly on the cadaveric hand for practice. The first day covered commonly used hand/upper limb flaps, injuries to the flexor/extensor tendons, nerve injuries, and grafting and regional anesthesia for hand surgery. The second day covered all aspects of hand fractures including metacarpal, phalangeal, and dislocation fractures.
involving tendons, ligaments, and joints of the hand. Practical management of hand
infections, mangled hand, and compartment syndromes were also covered. There were no
formal assessments but the fracture fixation done by the participants were subjected to C-
arm imaging. This allowed visualization of adequacy of fracture reduction or lack thereof in
the dissection hall itself! An instructor was always present to give real-time feedback and
guidance throughout the course during flap raising, tendon repair and other exercises. All
candidates who attended the course on both days will be issued a certificate.

Title: Two-Year Outcomes After Primary Anatomic Coracoclavicular Ligament
Reconstruction.

Citation: Arthroscopy : the journal of arthroscopic & related surgery : official publication of
the Arthroscopy Association of North America and the International Arthroscopy

Author(s): Millett, Peter J, Horan, Marilee P, Warth, Ryan J

Abstract: The purpose of this study was to report the clinical and structural outcomes after
anatomic coracoclavicular ligament reconstruction (ACCR) with free tendon allografts in
patients with grade III and grade V acromioclavicular (AC) joint dislocations. Thirty-one
shoulders underwent primary ACCR with tendon allografts for Rockwood grade III and grade
V AC joint dislocations. Preoperative data included patient demographic characteristics,
injury characteristics, and surgical history, along with American Shoulder and Elbow
Surgeons (ASES) scores, Short Form 12 Physical Component Summary (SF-12 PCS) scores,
and various pain scales. Outcome measures were also collected a minimum of 2 years
postoperatively with the addition of Quick Disabilities of the Arm, Shoulder and Hand
(QuickDASH) scores; Single Assessment Numeric Evaluation (SANE) scores; and patient
satisfaction. In addition, preoperative and postoperative coracoclavicular distances were
analyzed using standard anteroposterior radiographs. ACCR was performed in 31 patients
(31 shoulders) with a mean age of 43.9 years (range, 21 to 71 years). In 7 patients (22.6%) a
complication occurred that required a subsequent surgical procedure including graft
rupture/attenuation (2), clavicle fractures (2), distal clavicle hypertrophy (2), and adhesive
capsulitis (1). Of the remaining 24 patients, 20 (83.3%) had subjective outcome data
available after a minimum 2-year follow-up period (mean, 3.5 years; range, 2.0 to 6.2 years).
The mean postoperative ASES and SF-12 PCS scores significantly improved when compared
with the preoperative baseline values (58.9 v 93.8 for ASES scores [P < .001] and 45.3 v 54.4
for SF-12 PCS scores [P = .007]). At final follow-up, the SANE and QuickDASH scores were
89.1 and 5.6, respectively, with a median patient satisfaction rating of 9 of 10. Patients who
did not require revision surgery showed excellent postoperative outcome scores: The mean
ASES score was 93.8, the mean SANE score was 89.1, and the mean QuickDASH score was
5.6, with a median patient satisfaction rating of 9 of 10. Further study regarding ACCR
techniques should focus on decreasing the risks of complications and maintaining reduction
of the AC joint. Level IV, therapeutic case series. Copyright © 2015 Arthroscopy Association
of North America. Published by Elsevier Inc. All rights reserved.
Title: Functional outcomes and complications after surgical repair of triceps tendon rupture.

Citation: European journal of orthopaedic surgery & traumatology : orthopédie traumatologie, Oct 2015, vol. 25, no. 7, p. 1131-1139, 1633-8065

Author(s): Kose, Ozkan, Kiliçaslan, Omer Faruk, Guler, Ferhat, Acar, Baver, Yuksel, Halil Yalçın

Abstract: The purpose of this study was to present the functional outcomes and complications after primary repair of triceps tendon ruptures (TTR). A retrospective review was performed on eight patients (six males, two females) who underwent transosseous suture repair for TTR. Mayo elbow score, range of motion, muscle strength and patient satisfaction were evaluated after at least 1-year follow-up. The mean age of the patients was 25.1 years (range 16-42). The mechanism of injury was a sports injury in three patients, simple fall (fall on outstretched hand) in four and motorcycle accident in one patient. Two patients had associated radial head fracture, and one had a radial head fracture and trochlear fracture, and one patient had a medial epicondyle fracture. In two patients the diagnosis was missed at the initial admission to ED (delay, 20 and 75 days). Only one patient, who was a bodybuilder, had a history of anabolic steroid use, and the rest had no underlying disease or a predisposing factor for TTR. One of the patients with radial head fracture (displaced three parts) underwent simultaneous fixation using two headless screws. Patients were followed up for a mean of 18.8 months (range 12-26). At the final follow-up, all patients were satisfied with the treatment and the Mayo elbow score was excellent in six patients and good in two patients. There was 5° extension loss in two patients. Triceps muscle strength was 5/5 in all patients. Ulnar nerve entrapment occurred in one patient, so ulnar nerve release and anterior transposition were performed 3 months after surgery. Posterior interosseous nerve palsy occurred in one patient who underwent simultaneous radial head fracture fixation, but eventually returned back to normal 3 months postoperatively. All patients returned to their previous level of activity and occupation. Transosseous suture technique is a safe and effective treatment method for acute TTR with a low rate of complications and excellent functional outcomes. Retrospective case series, Level IV.

Title: Bifid Median Nerve - A Case Report.

Citation: Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 482-483 (October 2015)

Author(s): Ibrahim, Mohamed, Hattori, Yasunori, Doi, Kazuteru, Sakamoto, Sotetsu, Madura, Tomas

Abstract: A wide variety of anatomic variations of the median nerve at wrist have been reported and the awareness of these variations are essential for the surgeon treating carpal tunnel pathologies to avoid inadvertent injury to the nerve during surgery. We report a rare case of bifid median nerve accompanied by a persistent median artery found incidentally in a patient who underwent flexor tendon reconstruction for subcutaneous tendon rupture. The current literature regarding the anomaly is reviewed and surgically relevant aspects are discussed.

Citation: Plastic and reconstructive surgery, Oct 2015, vol. 136, no. 4, p. 780-792

Author(s): Fox, Ida K, Davidge, Kristen M, Novak, Christine B, Hohen, Gwendolyn, Kanh, Lorna C, Juknis, Neringa, Ruvinskaya, Rimma, Mackinnon, Susan E

Abstract: Cervical spinal cord injury can result in profound loss of upper extremity function. Recent interest in the use of nerve transfers to restore volitional control is an exciting development in the care of these complex patients. In this article, the authors review preliminary results of nerve transfers in spinal cord injury. Review of the literature and the authors’ cases series of 13 operations in nine spinal cord injury nerve transfer recipients was performed. Representative cases were reviewed to explore critical concepts and preliminary outcomes. The nerve transfers used expendable donors (e.g., teres minor, deltoid, supinator, and brachialis) innervated above the level of the spinal cord injury to restore volitional control of missing function such as elbow extension, wrist extension, and/or hand function (posterior interosseous nerve or anterior interosseous nerve/finger flexors reinnervated). Results from the literature and the authors’ patients (after a mean postsurgical follow-up of 12 months) indicate gains in function as assessed by both manual muscle testing and patients’ self-reported outcomes measures. Nerve transfers can provide an alternative and consistent means of reestablishing volitional control of upper extremity function in people with cervical level spinal cord injury. Early outcomes provide evidence of substantial improvements in self-reported function despite relatively subtle objective gains in isolated muscle strength. Further work to investigate the optimal timing and combination of nerve transfer operations, the combination of these with traditional treatments (tendon transfer and functional electrical stimulation), and measurement of outcomes is imperative for determining the precise role of these operations. Therapeutic, IV.

Title: The management of clenched fist ‘fight bite’ injuries of the hand.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 819-824

Author(s): Shewring, D J, Trickett, R W, Subramanian, K N, Hnyda, R

Abstract: We present a prospective study outlining the management of clenched fist ‘fight bite’ injuries. Over a 4-year period all patients with such injuries had surgical exploration with further débridements as necessary. For metacarpophalangeal joint injuries, a midline tendon-splitting approach was used. For proximal interphalangeal joint injuries, an approach was made between the lateral band and central slip of the extensor mechanism. A total of 147 patients with 159 joint injuries were treated, with 130 metacarpophalangeal joint and 29 proximal interphalangeal joint injuries. The joint was penetrated in 96% of joints overall. The number of débridements ranged from two to eight. Twenty patients defaulted within 1 week of surgery and were not included in the analysis of the results. All patients with metacarpophalangeal joint injury had satisfactory or good outcomes. A total of 42% of patients with proximal interphalangeal joint injuries had poor results, four requiring amputation and one a fusion. The tendon-splitting approach to the metacarpophalangeal joint allows excellent access and avoids damage to the sagittal bands and consequent instability of the extensor mechanism. © The Author(s) 2015.
**Title:** Combined tendon avulsion and fracture in a mallet finger injury in a juvenile.

**Citation:** The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 870.

**Author(s):** Bellity, J P A, Tonkin, M A

**Source:** Medline

**Title:** Delayed rupture of all finger flexor tendons (excluding thumb) following nonoperative treatment of Colles' fracture: A case report and literature review

**Citation:** Journal of Orthopaedics, October 2015, vol./is. 12/(S65-S68)

**Author(s):** Proubasta I.R., Lamas C.G., Natera L., Arriaga N.

**Language:** English

**Abstract:** Aims: We report a case of delayed all digital flexor tendon ruptures after nonoperative management of distal radius fracture. Methods: An 84-year-old woman, noted loss of flexion of your fingers. She had a history of Colles' fracture 40 years before, which had been left untreated. Darrach procedure were carried and a tendon transfers for the flexor tendon ruptures. Results: Despite attempts of early active mobilisation, a poor operative outcome was observed. Conclusion: Tendon rupture can occur several months or years after the injury, and prompt recognition and treatment can minimize disability.

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**Nerve Injuries**

**Title:** Functional outcomes and complications after surgical repair of triceps tendon rupture.

**Citation:** European journal of orthopaedic surgery & traumatology : orthopédie traumatologie, Oct 2015, vol. 25, no. 7, p. 1131-1139, 1633-8065 (October 2015)

**Author(s):** Kose, Ozkan, Kilicaslan, Omer Faruk, Guler, Ferhat, Acar, Baver, Yuksel, Halil Yalçin

**Abstract:** The purpose of this study was to present the functional outcomes and complications after primary repair of triceps tendon ruptures (TTR). A retrospective review was performed on eight patients (six males, two females) who underwent transosseous suture repair for TTR. Mayo elbow score, range of motion, muscle strength and patient satisfaction were evaluated after at least 1-year follow-up. The mean age of the patients was 25.1 years (range 16-42). The mechanism of injury was a sports injury in three patients, simple fall (fall on outstretched hand) in four and motorcycle accident in one patient. Two patients had associated radial head fracture, and one had a radial head fracture and trochlear fracture, and one patient had a medial epicondyle fracture. In two patients the diagnosis was missed at the initial admission to ED (delay, 20 and 75 days). Only one patient, who was a bodybuilder, had a history of anabolic steroid use, and the rest had no underlying disease or a predisposing factor for TTR. One of the patients with radial head fracture
(displaced three parts) underwent simultaneous fixation using two headless screws. Patients were followed up for a mean of 18.8 months (range 12-26). At the final follow-up, all patients were satisfied with the treatment and the Mayo elbow score was excellent in six patients and good in two patients. There was 5° extension loss in two patients. Triceps muscle strength was 5/5 in all patients. Ulnar nerve entrapment occurred in one patient, so ulnar nerve release and anterior transposition were performed 3 months after surgery. Posterior interosseous nerve palsy occurred in one patient who underwent simultaneous radial head fracture fixation, but eventually returned back to normal 3 months postoperatively. All patients returned to their previous level of activity and occupation. Transosseous suture technique is a safe and effective treatment method for acute TTR with a low rate of complications and excellent functional outcomes. Retrospective case series, Level IV.

Title: Prevalence of peripheral nervous system complications after major heart surgery.

Citation: Neurological Sciences, Oct 2015, (Oct 6, 2015), 1590-1874 (Oct 6, 2015)

Author(s): Gavazzi, Armando, Rino, Francesca, Boveri, Maria Claudia, Picozzi, Anna, Franceschi, Massimo

Abstract: We evaluated 374 consecutive patients from May 2013 to April 2014 who underwent major cardiac surgery. Each patient had an interview and a neurological clinical examination during the rehabilitation period. Patients with possible peripheral nervous system (PNS) complications underwent further electrodiagnostic tests. Among 374 patients undergoing major heart surgery (coronary artery bypass grafting, valvular heart surgery, ascending aortic aneurysm repair) 23 (6.1 %) developed 34 new PNS complications. We found four brachial plexopathies; four carpal tunnel syndromes; five critical illness neuropathies; three worsening of pre-existing neuropathies; two involvement of X, one of IX and one of XII cranial nerves; three peroneal (at knee), one saphenous, two median (at Struthers ligament), six ulnar (at elbow) mononeuropathies; two meralgia parestheticas. Diabetes is a strong risk factor for PNS complications (p = 0.002); we could not find any other relationship of PNS complications with clinical conditions, demographic data (gender, age) or type of surgical intervention. The mononeuropathies of right arms can be related to ipsilateral vein cannulation; position of body and stretching from chest wall retraction may be the cause of mononeuropathies of left arms (more frequent); the use of saphenous vein and position of the limbs may be the cause of mononeuropathies of the legs; surgical and anesthetical procedures can injure cranial nerves; respiratory failure and infection during the first days after surgery can cause critical illness neuropathies. Careful preoperative assessment and intraoperative management may reduce the risk of long-term PNS complications after cardiac surgery. (PsycINFO Database Record (c) 2015 APA, all rights reserved)(journal abstract)

Title: The Effects of Generally Administered Anti-Nerve Growth Factor Receptor (p75NTR) Antibody on Pain-Related Behavior, Dorsal Root Ganglia, and Spinal Glia Activation in a Rat Model of Brachial Plexus Avulsion.
**Citation:** The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2017-2025

**Author(s):** Kobayashi, Tomoko, Yamauchi, Kazuyo, Matsuura, Yusuke, Kuniyoshi, Kazuki, Takahashi, Kazuhisa, Ohtori, Seiji

**Abstract:** To investigate the effect of intraperitoneal administration of an anti-p75 neurotrophin receptor (p75NTR) antibody on reducing neuropathic pain in a rat model of brachial plexus avulsion (BPA). We randomly assigned 40 male Wistar rats to 4 groups. In the BPA group, the C8-T1 roots were avulsed from the spinal cord at the lower trunk level, and saline was administered intraperitoneally. In the anti-p75NTR groups, 1 μL or 50 μL anti-p75NTR antibody was administered intraperitoneally after avulsion. In the sham-operated group, the lower trunk level was exposed, and saline was administered intraperitoneally. Mechanical hyperalgesia and pain-induced walking patterns were measured using von Frey filaments and CatWalk gait analysis at various time points until 15 days after administration. At 3 and 15 days after administration, sensory neurons involved in pain perception and satellite glial cells in the ipsilateral C7 dorsal root ganglia were immunolabeled with antibodies against calcitonin gene-related peptide and glial fibrillary acidic protein (GFAP), respectively. At both time points, microglial and astrocyte activation, indicative of spinal pain transmission, were immunohistochemically examined in the ipsilateral dorsal horn of the spinal cord (C7) using anti-ionized calcium-binding adaptor molecule 1 and anti-GFAP antibodies, respectively. The gait pattern was significantly improved in both anti-p75NTR groups compared with the BPA group. There were significantly fewer calcitonin gene-related peptide-immunoreactive (IR) neurons, neurons encircled by GFAP-IR satellite glial cells, and GFAP-IR astrocytes in both anti-p75NTR groups compared with the BPA group at both time points. Fewer ionized calcium-binding adaptor molecule 1-IR microglia were quantified in both anti-p75NTR groups compared with the BPA group, but this was only significant at 15 days after administration. Systemic application of the p75NTR inhibitory antibody suppressed neuropathic pain after BPA. p75NTR may be a potential therapeutic target for the clinical treatment of neuropathic pain in BPA injury. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

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**Title:** Afferent Innervation, Muscle Spindles, and Contractures Following Neonatal Brachial Plexus Injury in a Mouse Model.

**Citation:** The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2007-2016

**Author(s):** Nikolaou, Sia, Hu, Liangjun, Cornwall, Roger

**Abstract:** We used an established mouse model of elbow flexion contracture after neonatal brachial plexus injury (NBPI) to test the hypothesis that preservation of afferent innervation protects against contractures and is associated with preservation of muscle spindles and ErbB signaling. A model of preganglionic C5 through C7 NBPI was first tested in mice with fluorescent axons using confocal imaging to confirm preserved afferent innervation of spindles despite motor end plate denervation. Preganglionic and postganglionic injuries were then created in wild-type mice. Four weeks later, we assessed total and afferent denervation of the elbow flexors by musculocutaneous nerve immunohistochemistry. Biceps muscle volume and cross-sectional area were measured by micro computed tomography. An observer who was blinded to the study protocol measured elbow flexion contractures. Biceps spindle and muscle fiber morphology and ErbB signaling pathway...
activity were assessed histologically and immunohistochemically. Preganglionic and postganglionic injuries caused similar total denervation and biceps muscle atrophy. However, after preganglionic injuries, afferent innervation was partially preserved and elbow flexion contractures were significantly less severe. Spindles degenerated after postganglionic injury but were preserved after preganglionic injury. ErbB signaling was inactivated in denervated spindles after postganglionic injury but ErbB signaling activity was preserved in spindles after preganglionic injury with retained afferent innervation.

Preganglionic and postganglionic injuries were associated with upregulation of ErbB signaling in extrafusal muscle fibers. Contractures after NBPI are associated with muscle spindle degeneration and loss of spindle ErbB signaling activity. Preservation of afferent innervation maintained spindle development and ErbB signaling activity, and protected against contractures. Pharmacologic modulation of ErbB signaling, which is being investigated as a therapy for congestive heart failure, may be able to recapitulate the protective effects of afferent innervation in spindle development and contracture prevention. Muscle spindle preservation may also have implications in proprioception and motor learning, both of which are impaired in NBPI. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.


Citation: Plastic and reconstructive surgery, Oct 2015, vol. 136, no. 4, p. 480e

Author(s): Yang, Guang, Chang, Kate W-C, Chung, Kevin C

Abstract: Although contralateral C7 (CC7) transfer has been widely used for treating traumatic brachial plexus injury, the safety of the procedure is questionable. The authors performed a systematic review to investigate the donor-site morbidity, including sensory abnormality and motor deficit, to guide clinical decision-making. A systematic review on (CC7) transfer for traumatic brachial plexus injury was performed for original articles in the PubMed and Embase databases. Patient demographic data and donor-site morbidity of (CC7) transfer, including incidence, recovery rate, and recovery time were extracted. The sensory abnormality areas and muscles involved in motor weakness were also summarized. A total of 904 patients from 27 studies were reviewed. Overall, 74 percent of patients (668 of 897) experienced sensory abnormalities, and 98 percent (618 of 633) recovered to normal; the mean recovery time was 3 months. For motor function, 20 percent (118 of 592) had motor deficit after (CC7) transfer and 91 percent (107 of 117) regained normal motor function; the mean recovery time was 6 months. Sensory abnormality mainly occurred in the area of the hand innervated by the median nerve, whereas motor deficit most often involved muscles innervated by the radial nerve. There were 19 patients with long-term morbidity of the donor site in the studies. The incidence of donor-site morbidity after (CC7) transfer was relatively high, and severe and long-term defects occurred occasionally. (CC7) transfer should be indicated only when other donor nerves are not available, and with a comprehensive knowledge of the potential risks.
Title: Bifid Median Nerve - A Case Report.

Citation: Hand surgery: an international journal devoted to hand and upper limb surgery and related research: journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 482-483 (October 2015)

Author(s): Ibrahim, Mohamed, Hattori, Yasunori, Doi, Kazuteru, Sakamoto, Sotetsu, Madura, Tomas

Abstract: A wide variety of anatomic variations of the median nerve at wrist have been reported and the awareness of these variations are essential for the surgeon treating carpal tunnel pathologies to avoid inadvertent injury to the nerve during surgery. We report a rare case of bifid median nerve accompanied by a persistent median artery found incidentally in a patient who underwent flexor tendon reconstruction for subcutaneous tendon rupture. The current literature regarding the anomaly is reviewed and surgically relevant aspects are discussed.


Citation: Plastic and reconstructive surgery, Oct 2015, vol. 136, no. 4, p. 780-792

Author(s): Fox, Ida K, Davidge, Kristen M, Novak, Christine B, Hoben, Gwendolyn, Kahn, Lorna C, Juknis, Neringa, Ruvinyskaya, Rimma, Mackinnon, Susan E

Abstract: Cervical spinal cord injury can result in profound loss of upper extremity function. Recent interest in the use of nerve transfers to restore volitional control is an exciting development in the care of these complex patients. In this article, the authors review preliminary results of nerve transfers in spinal cord injury. Review of the literature and the authors' cases series of 13 operations in nine spinal cord injury nerve transfer recipients was performed. Representative cases were reviewed to explore critical concepts and preliminary outcomes. The nerve transfers used expendable donors (e.g., teres minor, deltoid, supinators, and brachialis) innervated above the level of the spinal cord injury to restore volitional control of missing function such as elbow extension, wrist extension, and/or hand function (posterior interosseous nerve or anterior interosseous nerve/finger flexors reinnervated). Results from the literature and the authors' patients (after a mean postsurgical follow-up of 12 months) indicate gains in function as assessed by both manual muscle testing and patients' self-reported outcomes measures. Nerve transfers can provide an alternative and consistent means of reestablishing volitional control of upper extremity function in people with cervical level spinal cord injury. Early outcomes provide evidence of substantial improvements in self-reported function despite relatively subtle objective gains in isolated muscle strength. Further work to investigate the optimal timing and combination of nerve transfer operations, the combination of these with traditional treatments (tendon transfer and functional electrical stimulation), and measurement of outcomes is imperative for determining the precise role of these operations. Therapeutic, IV.
Title: Course Review: The Aberdeen Cadaveric Hand Trauma Course.

Citation: Annals of plastic surgery, Oct 2015, vol. 75, no. 4, p. 364. (October 2015)

Author(s): Khoo, Lee Seng

Abstract: The Aberdeen Cadaveric Hand Trauma is a 2-day highly interactive hands-on course that is structured to allow participants to learn the surgical techniques in dealing with hand trauma, with the emphasis on soft tissue injuries, including tendon repair, flap reconstruction, and bone fracture fixation. The course is in English and is held in Aberdeen, Scotland in the United Kingdom. Each day, lectures are held before practical exercises in the anatomy dissection hall. The lectures were excellent, and the main focus was on practical management of hand injuries with tips and pitfalls to avoid. Routine information that one could obtain in a standard textbook were kept to a bare minimum, and the course was interactive meaning several approaches to a problem were discussed. The presence of faculty and trainees from both plastic and orthopedic surgery allowed for cross-pollination of ideas and approaches. The quality of the fresh-frozen cadavers were remarkable and allowed for close simulation of live tissue handling. There were 2 trainees assigned to 1 cadaveric specimen with 1 instructor present at all times for teaching and supervision. This ratio of faculty to participant ratio which was 2:1 allowed for adequate hands-on experience for all participants. Unlike some courses that use plastic bones for fracture fixation, fractures were made directly on the cadaveric hand for practice. The first day covered commonly used hand/upper limb flaps, injuries to the flexor/extensor tendons, nerve injuries, and grafting and regional anesthesia for hand surgery. The second day covered all aspects of hand fractures including metacarpal, phalangeal, and dislocation fractures involving tendons, ligaments, and joints of the hand. Practical management of hand infections, mangled hand, and compartment syndromes were also covered. There were no formal assessments but the fracture fixation done by the participants were subjected to C-arm imaging. This allowed visualization of adequacy of fracture reduction or lack thereof in the dissection hall itself! An instructor was always present to give real-time feedback and guidance throughout the course during flap raising, tendon repair and other exercises. All candidates who attended the course on both days will be issued a certificate.


Citation: Plastic and reconstructive surgery, Oct 2015, vol. 136, no. 4, p. 794-809

Author(s): Yang, Guang, Chang, Kate W-C, Chung, Kevin C

Abstract: Contralateral C7 (CC7) transfer has been used for treating traumatic brachial plexus injury. However, the effectiveness of the procedure remains a subject of debate. The authors performed a systematic review to study the overall outcomes of CC7 transfer to different recipient nerves in traumatic brachial plexus injuries. A literature search was conducted using PubMed and EMBASE databases to identify original articles related to CC7 transfer for traumatic brachial plexus injury. The data extracted were study/patient characteristics, and objective outcomes of CC7 transfer to the recipient nerves. The authors normalized outcome measures into a Medical Research Council-based (MRC) outcome scale.
Thirty-nine studies were identified. The outcomes were categorized based on the major recipient nerves: median, musculocutaneous, and radial/triceps. Regarding overall functional recovery, 11 percent of patients achieved MRC grade M4 wrist flexion and 38 percent achieved MRC grade M3. Grade M4 finger flexion was achieved by 7 percent of patients, whereas 36 percent achieved M3. Finally, 56 percent achieved greater than or equal to S3 sensory recovery in the median nerve territories. In the musculocutaneous nerve group, 38 percent regained to M4 and 37 percent regained to M3. In the radial/triceps nerve group, 25 percent regained elbow or wrist extension strength to a MRC grade M4 and to M3, respectively. Outcome measures in the included studies were not consistently reported to uncover true patient-related benefits from the CC7 transfer. Reliable and validated outcome instruments should be applied to critically evaluate patients undergoing CC7 transfer.

**Title:** Management of Isolated Musculocutaneous Injury: Comparing Double Fascicular Nerve Transfer With Conventional Nerve Grafting.

**Citation:** The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2003-2006

**Author(s):** Bhandari, Prem Singh, Deb, Prabal

**Abstract:** To compare the functional outcomes of nerve grafts and nerve transfers in the management of isolated musculocutaneous nerve (MCN) injuries. We performed a retrospective case-control study of isolated MCN injury managed at a tertiary care center. The study group was composed of 12 patients managed with double nerve transfer whereas the 8 patients in the grafted group constituted the control group. In the study group, stab and missile injuries constituted most cases with a denervation period ranging between 3 and 9 months. Eleven patients in this group experienced a full range of active elbow flexion whereas one had antigravity flexion of 120°. Electromyography revealed the first sign of reinnervation of biceps at 10 ± 2 weeks, compared with 20 ± 2 weeks in the grafted group. The overall trend was for patients in the study group to have earlier return of active elbow flexion and better restoration of elbow flexion strength and range of (presumably active) elbow motion than those treated with grafting, although none of these measures reached statistical significance. We found that distal nerve transfer was a superior method of managing isolated MCN injury compared with conventional nerve grafting. Therapeutic III.

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**Mallet Finger and Thumb Deformity**

**Title:** Custom-Made Finger Orthoses Have Fewer Skin Complications Than Prefabricated Finger Orthoses in the Management of Mallet Injury: A Systematic Review and Meta-Analysis.

**Citation:** Archives of physical medicine and rehabilitation, Oct 2015, vol. 96, no. 10, p. 1913

**Author(s):** Witherow, Elizabeth J, Peiris, Casey L
Abstract: To investigate which orthosis results in (1) fewer complications; (2) the least extensor lag; and (3) the highest rates of treatment success according to the Abouna and Brown criteria for soft tissue mallet injury in adults. Electronic databases AMED, CINAHL, Embase, MEDLINE, PubMed, OTseeker, and PEDro were searched from the earliest available date until September 16, 2014. Controlled trials evaluating orthosis type in the conservative management of mallet injury were included. Database searching yielded 1024 potential studies, of which 7 met inclusion criteria with a total of 491 participants. Data were extracted using an author-designed extraction form by one reviewer, and accuracy was assessed by a second reviewer. The PEDro scale was used to assess methodological quality. Results were pooled using a random-effects model with inverse variance methods. Dichotomous outcomes are expressed as risk ratios (RRs) and 95% confidence intervals (CIs) and continuous outcomes as standardized mean differences and 95% CIs. There is moderate quality evidence that prefabricated orthoses had 3 times the risk of developing skin complications as compared with all other orthoses (RR, 3.17; 95% CI, 1.19-8.43; I(2)=47%) and nearly 7 times the risk of developing skin complications as compared with custom-made thermoplastic orthoses (RR, 6.72; 95% CI, 1.59-28.46; I(2)=0%). Treatment outcomes were found to be similar for treatment success when prefabricated orthoses were compared with custom-made orthoses (RR, .99; 95% CI, 0.80-1.22; I(2)=39%; very low quality evidence), as well as for extensor lag when custom-made thermoplastic orthoses were compared with other orthoses (standardized mean difference, .03; 95% CI, -.29 to .36; I(2)=0%; moderate quality evidence). Prefabricated orthoses were found to increase the risk of developing skin complications as compared with custom-made orthoses, but there were no differences in treatment success, failure, or extensor lag. Copyright © 2015 American Congress of Rehabilitation Medicine. Published by Elsevier Inc. All rights reserved.

Title: Clinical comparison of hook plate fixation versus extension block pinning for bony mallet finger: a retrospective comparison study.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 832-839

Author(s): Acar, M A, Güzel, Y, Güleç, A, Uzer, G, Elmadağ, M

Abstract: The aim of this retrospective study was to determine whether traumatic mallet fractures had better outcomes when treated by hook plate fixation (13 patients) or extension block pinning (19 patients). We assessed outcomes using Crawford’s criteria; distal interphalangeal joint range of motion; the DASH score; and a visual analogue scale score for pain. We measured radiological parameters. No significant differences were observed in functional and clinical outcomes and in complications. Whereas the operative time was longer in the hook plate group, intraoperative fluoroscopy use, time to bone union and time to return to work were greater in the extension block group. Although the hook plate method is more technically demanding, it provides good stable reduction, earlier mobilization and an earlier return to work. The extension block pinning technique is easier and as effective but it requires greater peri-operative fluoroscopy. Level III. © The Author(s) 2015.
Soft tissue wrist injuries

**Title:** The effect of marker placement around the elbow on calculated elbow extension during bowling in cricket.

**Citation:** Journal of Sports Sciences, Oct 2015, vol. 33, no. 16, p. 1658-1666,

**Author(s):** Yeadon, Maurice R., King, Mark A.

**Abstract:** The elbow extension angle during bowling in cricket may be calculated from the positions of markers attached around the shoulder, elbow and wrist using an automated laboratory-based motion analysis system. The effects of two elbow-marker sets were compared. In the first, a pair of markers was placed medially and laterally close to the condyles while in the second a triad of markers was placed on the back of the upper arm close to the elbow. The root mean square (RMS) difference in elbow extension angle between the two methods at four key instants was 8° for 12 fast bowlers and 4° for 12 spin bowlers. When evaluated against video estimates of the elbow extension angle for the fast bowlers, the elbow extension angle calculated using the pair method had an RMS error of 2° while the triad method had an RMS error of 8°. The corresponding errors for the spin bowlers were 3° and 5°, respectively. It is thought that the greater errors associated with the triad is a consequence of soft tissue movement in this dynamic activity. This is consistent with the finding of greater error for the fast bowlers compared with the spin bowlers. (PsycINFO Database Record (c) 2015 APA, all rights reserved)(journal abstract)

Trapeziectomy

**Title:** Simple Trapeziectomy for Arthrosis of the Basal Joint of the Thumb: 49 Thumbs Reviewed After Two Years.

**Citation:** Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 435-439

**Author(s):** Elvebakk, Kristine, Johnsen, Ingrid Elisabeth, Wold, Cecilie Bendiksen, Finsen, Thomas, Russwurm, Harald, Finsen, Vilhjalmur

**Abstract:** Many different surgical strategies for arthrosis of the carpometacarpal joint of the thumb are described in the literature. In 2010 we changed our routine procedure from an interposition arthroplasty using the abductor pollicis longus (APL) tendon to simple trapeziectomy without suspension or interposition. The purpose of this study was to review the clinical outcome after trapeziectomy and to compare it to those we had achieved with the APL procedure. We examined 49 hands operated with simple trapeziectomy during 2011-2012. Time between operation and review was 26 (15-26) months. Subjective estimation of pain before and after surgery and satisfaction with the general results were
evaluated with visual analogue scales. The ability to participate in various activities of daily living before and after the operation were noted and patients completed the Quick-DASH and the PRWHE questionnaires. The mobility of the thumb and wrist were recorded and grip and key pinch strength were measured. The distance between the base of the first metacarpal and the scaphoid was noted on radiographs. There were no significant differences between the present results and those we had achieved with the APL procedure regarding subjective estimation of pain and satisfaction, activities of daily living, mobility, strength and radiographic carpometacarpal distance. For many outcome parameters there was a non-significant trend for better results among the trapeziectomy patients, but increased clumsiness was reported by 20 of them. We conclude that our results with simple trapeziectomy are at least as good as with the APL procedure. However, the considerable number of patients complaining of clumsiness is worrying.

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**Trigger finger/thumb**

**Title:** Triggering of the Digits After Carpal Tunnel Surgery.

**Citation:** Annals of plastic surgery, Oct 2015, vol. 75, no. 4, p. 393-397 (October 2015)

**Author(s):** Acar, Mehmet Ali, Kütahya, Harun, Güleç, Ali, Elmadağ, Mehmet, Karalezli, Nazm, Ogun, Tunc Cevat

**Abstract:** Carpal tunnel syndrome (CTS) and trigger finger may be seen simultaneously in the same hand. The development of trigger finger in patients undergoing CTS surgery is not rare, but the relationship between these conditions has not been fully established. The aims of this prospective randomized study were to investigate the incidence of trigger finger in patient groups undergoing transverse carpal ligament releasing (TCL) or TCL together with distal forearm fascia releasing and to identify other factors that may have an effect of these conditions. This prospective randomized study evaluated 159 hands of 113 patients for whom CTS surgery was planned. The patients were separated into 2 groups: group 1 (79 hands of 57 patients) undergoing TCL releasing only and group 2 (80 hands of 56 patients) undergoing TCL and distal forearm fascia releasing together. The age and gender of the patients, dominant hand, physical examination findings, visual analogue scale (VAS), and electromyography (EMG) results were recorded. Follow-up examinations were made at 1, 3, 6, 12, and 24 months for all patients. We noted development of trigger finger in the surgical groups, and its location and response to treatment. The incidence of trigger finger development was statistically significantly different between group 1 and group 2 (13.9% and 31.3%, respectively). The logistic regression analysis of factors affecting the development of trigger finger posttreatment found that the surgical method and severity of EMG were significant, whereas the effects of the other factors studied were not found to have any statistical significance. There was an increased risk of postoperative trigger finger development in patients undergoing TCL and distal forearm fascia releasing surgery for CTS compared to those undergoing CTL only. There is a need for further studies to support this result and further explain the etiology.
Title: Trigger Finger: Adult and Pediatric Treatment Strategies

Citation: Orthopedic Clinics of North America, October 2015, vol./is. 46/4(561-569)

Author(s): Giugale J.M., Fowler J.R.

Abstract: Trigger fingers are common tendinopathies representing a stenosing flexor tenosynovitis of the fingers. Adult trigger finger can be treated nonsurgically using activity modification, splinting, and/or corticosteroid injections. Surgical treatment options include percutaneous A1 pulley release and open A1 pulley release. Excision of a slip of the flexor digitorum superficialis is reserved for patients with persistent triggering despite A1 release or patients with persistent flexion contracture. Pediatric trigger thumb is treated with open A1 pulley release. Pediatric trigger finger is treated with release of the A1 pulley with excision of a slip or all of the flexor digitorum superficialis if triggering persists.

Title: Frequency versus time lost measures of absenteeism: Is the voluntariness distinction an urban legend?

Citation: Journal of Organizational Behavior, Oct 2015, (Oct 7, 2015), 0894-3796

Author(s): Johns, Gary, Al Hajj, Raghid

Abstract: Summary We investigate a long-standing methodological rule of thumb, the idea that the frequency of absenteeism from work approximates an expression of voluntary behavior while total time lost better reflects involuntary behavior and ill health. Conducting original meta-analyses and using results from existing meta-analyses, we determine that time lost and frequency are equally reliable, that the relationship between them approximates unity when corrections for measurement artifacts are applied, and that there is very little evidence for differential criterion-related validity predicated on the voluntariness distinction. We supply new meta-analytic estimates of the reliability of absenteeism adjusted for aggregation period and determine that most extant meta-analyses of the correlates of absenteeism have markedly under-corrected for unreliability. Our results question the basic construct validity of the time lost–frequency distinction, and they contradict the practice of using “trigger points” that factor absence frequency into attendance monitoring and associated discipline systems so as to discourage short-term absenteeism, assumed to be volitional. We conclude that the idea that time lost and frequency reflect different degrees of voluntariness is an unsupported urban research legend. Copyright © 2015 John Wiley & Sons, Ltd. (PsycINFO Database Record (c) 2015 APA, all rights reserved)(journal abstract)
or patients with persistent flexion contracture. Pediatric trigger thumb is treated with open
A1 pulley release. Pediatric trigger finger is treated with release of the A1 pulley with
excision of a slip or all of the flexor digitorum superficialis if triggering persists. Copyright ©
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Title: The Current Means for Detection of Migraine Headache Trigger Sites.
Citation: Plastic and reconstructive surgery, Oct 2015, vol. 136, no. 4, p. 860-867
Author(s): Guyuron, Bahman, Nahabet, Edward, Khansa, Ibrahim, Reed, Deborah, Janis,
Jeffrey E
Abstract: The authors' 15-year experience with migraine surgery has led them to believe
that the most common reasons for incomplete response are failure to detect all of the
trigger sites or, on rare occasions, inadequate surgery on the trigger sites. Thus, accurate
identification of trigger sites is essential. The purpose of this article is to share the authors'
current stepwise algorithm for accurately detecting the migraine trigger sites, which has
evolved through surgery on nearly 1000 patients. To begin, a thorough history is taken. Each
patient's constellation of symptoms can point toward one or multiple trigger points. The
patient is asked to point to the most frequent site from which migraine headaches originate
with one fingertip, and then the site is explored with a Doppler. If an arterial Doppler signal
is identified at the site, it is considered an active arterial trigger site. Response to a nerve
block with a local anesthetic in a patient with an active migraine headache confirms the
presence of a trigger site. If the patient does not have pain at the time of the office visit, an
injection of botulinum toxin A at the suspected trigger site may be considered. Although
positive responses to botulinum toxin A and nerve block are very helpful and reliable in
confirming the trigger sites, negative responses must be interpreted with extreme
caution. In patients with a migraine headache starting from the retrobulbar site, a computed
tomography scan of the paranasal sinuses is obtained to look for contact points and other
pathology that would confirm rhinogenic trigger sites.

Wrist and Finger Fracture

Title: Isolated Avulsion of Extensor Carpi Radialis Longus and Brachioradialis Origins: A Case
Report and Surgical Repair Technique. Citation: American journal of orthopedics (Belle
Author(s): Salazar, Dane, Hazel, Antony, Marra, Guido
Abstract: The mobile wad of the elbow provides a tremendous mechanical advantage with
respect to elbow flexion and wrist extension. Injury to these structures causes significant
upper extremity dysfunction. In this article, we report the case of a 31-year-old right hand-
dominant man who sustained an isolated avulsion of the extensor carpi radialis longus and
brachioradialis origins from the lateral epicondyle and lateral supracondylar ridge. We
describe our diagnostic workup and present our surgical repair technique. The literature
includes only 2 case reports of bony avulsion fracture of the origin of the brachioradialis
and, up until now, no case reports of isolated avulsion of the extensor carpi radialis longus and brachioradialis origins. Given the biomechanics and anatomy of the dorsal mobile wad, we posit that our patient’s injury occurred secondary to an overwhelming eccentric muscle contracture. The rarity of this injury led to a substantial delay in diagnosis. Because of the potential morbidity, surgical intervention is recommended.

Title: Clinical Faceoff: Controversies in the Management of Distal Radius Fractures.

Citation: Clinical orthopaedics and related research, Oct 2015, vol. 473, no. 10, p. 3098-3104

Author(s): Kakar, Sanjeev

Title: The Minimum Clinically Important Difference of the Patient-rated Wrist Evaluation Score for Patients With Distal Radius Fractures.

Citation: Clinical orthopaedics and related research, Oct 2015, vol. 473, no. 10, p. 3235-3241

Author(s): Walenkamp, Monique M J, Vos, Lara M, de Muinck Keizer, Robert-Jan, Rosenwasser, Melvin P, Goslings, J Carel, Schep, Niels W L

Abstract: The Patient-rated Wrist Evaluation (PRWE) is a commonly used instrument in upper extremity surgery and in research. However, to recognize a treatment effect expressed as a change in PRWE, it is important to be aware of the minimum clinically important difference (MCID) and the minimum detectable change (MDC). The MCID of an outcome tool like the PRWE is defined as the smallest change in a score that is likely to be appreciated by a patient as an important change, while the MDC is defined as the smallest amount of change that can be detected by an outcome measure. A numerical change in score that is less than the MCID, even when statistically significant, does not represent a true clinically relevant change. To our knowledge, the MCID and MDC of the PRWE have not been determined in patients with distal radius fractures. We asked: (1) What is the MCID of the PRWE score for patients with distal radius fractures? (2) What is the MDC of the PRWE? Our prospective cohort study included 102 patients with a distal radius fracture and a median age of 59 years (interquartile range [IQR], 48-66 years). All patients completed the PRWE questionnaire during each of two separate visits. At the second visit, patients were asked to indicate the degree of clinical change they appreciated since the previous visit. Accordingly, patients were categorized in two groups: (1) minimally improved or (2) no change. The groups were used to anchor the changes observed in the PRWE score to patients’ perspectives of what was clinically important. We determined the MCID using an anchor-based receiver operator characteristic method. In this context, the change in the PRWE score was considered a diagnostic test, and the anchor (minimally improved or no change as noted by the patients from visit to visit) was the gold standard. The optimal receiver operator characteristic cutoff point calculated with the Youden index reflected the value of the MCID. In our study, the MCID of the PRWE was 11.5 points. The area under the curve was 0.54 (95% CI, 0.37-0.70) for the pain subscale and 0.71 (95% CI, 0.57-0.85) for the function subscale. We determined the MDC to be 11.0 points. We determined the MCID of the PRWE score for patients with distal radius fractures using the anchor-based approach and verified that the MDC of the PRWE was sufficiently small to detect our MCID. We recommend using an improvement on the PRWE of more than 11.5 points as the smallest
clinically relevant difference when evaluating the effects of treatments and when performing sample-size calculations on studies of distal radius fractures.

Title: CORR Insights®: The Minimum Clinically Important Difference of the Patient-rated Wrist Evaluation Score for Patients With Distal Radius Fractures.

Citation: Clinical orthopaedics and related research, Oct 2015, vol. 473, no. 10, p. 3242-3244

Author(s): Schiffer, Gereon

Title: Proposed Guidelines for Treatment of Concomitant Distal Radius and Distal Ulna Fractures.

Citation: Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 396-401 (October 2015)

Author(s): Liang, Benjamin, Lai, Jen Ming, Murugan, Arul, Chee, Kin Ghee, Sechachalam, Sreedharan, Foo, Tun-Lin

Abstract: Concomitant distal radius and distal ulna metaphysis or head fractures (DRUF) are uncommon and acceptable results have been reported from cast immobilisation and internal fixation. We reviewed the charts of 1094 patients treated for distal radius fracture at our institution in a two year period from 2009 to 2010. 24 patients with concomitant DRUF with was treated by cast immobilisation (group 1, n = 11), internal fixation of both bones (group 2, n = 7), internal fixation of radius alone (group 3, n = 2), and internal fixation of radius with distal ulna resection (group 4, n = 4). Patients treated by surgery underwent intraoperative assessment of distal ulna stability to determine the indication for ulna fixation. Post surgical range of motion, clinical parameters, and functional outcome scores (Gartland-Werley and modified Mayo) were measured. Wrist motion was comparable in each group. Radiographic parameters were better in surgical groups. 23 of 24 patients achieved excellent/good outcomes based on Gartland-Werley scores, while 12 of 24 achieved good modified Mayo wrist score. There was a case of distal ulna non-union in group 1, and another case of delayed distal radius union in group 2. By evaluating patients' functional requirement, and dynamic fluoroscopy examination, satisfactory outcomes can be achieved for various presentations of DRUF.

Title: Supination and Pronation Strength Deficits Persist at 2-4 Years after Treatment of Distal Radius Fractures.


Author(s): Ploegmakers, Joris, The, Bertram, Wang, Allan, Brutty, Mike, Ackland, Tim

Abstract: Forearm rotation is a key function in the upper extremity. Following distal radius fracture, residual disability may occur in tasks requiring forearm rotation. The objectives of this study are to define pronation and supination strength profiles tested through the range
of forearm rotation in normal individuals, and to evaluate the rotational strength profiles and rotational strength deficits across the testing range in a cohort of patients treated for distal radius fracture associated with an ulnar styloid base fracture. In a normative cohort of 29 subjects the supination strength profile showed an increasing linear relationship from supination to pronation. Twelve subjects were evaluated 2-4 years after anatomical open reduction and volar plate fixation of a distal radius fracture. The injured wrist was consistently weaker (corrected for hand dominance) in both supination and pronation strength in all testing positions, with the greatest loss in 60 degrees supination. Mean supination strength loss across all testing positions was significantly correlated with worse PRWE scores, highlighting the importance of supination in wrist function.

**Title:** Frequency of Scapholunate Ligament Injuries Associated with Distal Radius Shearing Fracture: Correlation of Fracture Patterns and Ligament Tear.

**Citation:** Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 440-446 (October 2015)

**Author(s):** Yoshida, Shiro, Yoshida, Kenji, Sakai, Kensuke, Nakama, Kenjiro, Shiba, Naoto

**Abstract:** This retrospective study assessed the prevalence and outcome of intercarpal ligament injuries in non-osteoporotic patients with AO/ASIF classification type B distal radius shearing fractures treated with or without scapholunate temporary fixation. Fifteen patients (mean age, 33 years) were analyzed according to their scapholunate ligament status at the time of injury and graded with a modified Geissler classification system. Each patient’s postoperative pain and occupational status were assessed in the context of the Modified Mayo wrist score. Second-look arthroscopy was performed for all cases. Scapholunate ligament injuries were present in 14 of 15 type B fractures. Surgical outcomes yielded an improvement in the Mayo wrist score with pinning in cases involving grade 3 or 4 scapholunate injuries. Two cases without pinning had a worse score, as well as a persistent scapholunate tear that was not healed at second-look arthroscopy after eight postoperative months. However, in grade 1 or 2 scapholunate injuries, the Mayo wrist score did not differ between those treated with and without pinning. Scapholunate ligament injury is an important risk factor associated with high-energy distal radius shearing fractures. To prevent these problems, temporary scapholunate joint fixation is a recommended treatment for grade 3 or 4 scapholunate injuries.

**Title:** Surgical Repair with External Fixation of Epiphyseal Fractures of the Proximal Phalanges of Three Fingers: A Case Report.

**Citation:** Hand surgery : an international journal devoted to hand and upper limb surgery and related research : journal of the Asia-Pacific Federation of Societies for Surgery of the Hand, Oct 2015, vol. 20, no. 3, p. 471-473 (October 2015)

**Author(s):** Morisawa, Yasushi, Takayama, Shinichiro, Sato, Kazuki

**Abstract:** A 13-year-old girl sustained epiphyseal fractures of the proximal phalanges of the left index, middle, and ring fingers. Though manual reduction of the 3 fingers was possible, it was difficult to maintain the reduction due to severe instability of the middle and ring
fingers, and closed reduction with external fixation was performed. At 4 years post-injury, the patient had no impairment of daily activities. The use of external fixation (1) causes no injury to the epiphyseal cartilage, (2) enables accurate reduction and maintenance of reduction, (3) is technically easier than pinning, (4) enables earlier range of motion (ROM) exercises of the proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints of the externally fixated and other fingers, and (5) allows repeated fine adjustments after reduction. External fixation is an option for the treatment of children with highly unstable epiphyseal fractures of the proximal phalanges.

**Title:** Enhanced expression of Wnt9a in the flexor tenosynovium in idiopathic carpal tunnel syndrome.

**Citation:** Journal of orthopaedic research : official publication of the Orthopaedic Research Society, Oct 2015, vol. 33, no. 10, p. 1531-1536 (October 2015)

**Author(s):** Yamanaka, Yoshiaki, Menuki, Kunitaka, Zenke, Yukichi, Hirasawa, Hideyuki, Sakai, Akinori

**Abstract:** This study aimed to clarify the association between abnormal Wnt signaling and the cause of idiopathic carpal tunnel syndrome (ICTS) and whether an association exists between Wnt signaling and cell proliferation in the flexor tenosynovium. The subjects included nine patients with ICTS; the controls were nine patients with distal radius fractures without any symptoms of carpal tunnel syndrome. We extracted mRNA from the flexor tenosynovium and compared the expression levels of genes encoding 17 types of Wnt in both subjects and controls via quantitative real-time polymerase chain reaction (PCR). Expression levels of factors involved in cell proliferation, such as estrogen-responsive finger protein, epidermal growth factor receptor, heparin binding-epidermal growth factor-like growth factor, insulin-like growth factor-1, and vascular endothelial growth factor (VEGF) were also measured using quantitative real-time PCR. In addition, we compared the Wnt and MIB-1 protein expression levels to clarify the effect of Wnt on cell proliferation. Quantitative real-time PCR revealed significantly greater expression of the gene encoding Wnt9a in subjects with ICTS than in controls and also revealed a positive correlation between the expression of genes encoding Wnt9a and VEGF in subjects with ICTS. Quantitative evaluation using immunohistochemical staining also indicated more marked Wnt9a expression in subjects than in controls. However, there was no relationship between the expression of Wnt9a and the cell proliferation index MIB-1. These results indicate that Wnt9a expression is enhanced in ICTS and that Wnt9a may be involved in VEGF expression in ICTS. © 2015 Orthopaedic Research Society. Published by Wiley Periodicals, Inc. J Orthop Res 33:1531-1536, 2015. © 2015 Orthopaedic Research Society. Published by Wiley Periodicals, Inc.

**Title:** Dorsal Screw Penetration With the Use of Volar Plating of Distal Radius Fractures: How Can You Best Detect?

**Citation:** Journal of orthopaedic trauma, Oct 2015, vol. 29, no. 10, p. e408. (October 2015)

**Author(s):** Hill, Brian W, Shakir, Irshad, Cannada, Lisa K
**Abstract:** To evaluate the most vulnerable position at which volar plate screws may penetrate the dorsal cortex of the radius and to determine which specific intraoperative fluoroscopic images (lateral, 45 degrees supination, 45 degrees pronation, and dorsal tangential) are most useful to detect dorsal cortex penetration. Four 2.5-mm locking screws were inserted distally using 18-, 20-, or 22-mm screws in 7 cadaveric specimens apiece. The specimens were then evaluated to count the number of screws breaching the dorsal cortex and the amount of penetration. Lateral, 45 degrees supination, 45 degrees pronation, and dorsal tangential fluoroscopic views were taken of each wrist. Sixty-three orthopaedic surgeons of varying experience were then asked to evaluate whether the screws penetrated the dorsal cortex after viewing each image. Dorsal cortex screw penetration of at least 1 screw occurred in 3.6% of specimens with 18-mm screws, 25% of specimens with 20-mm screws, and 57% specimens with 22-mm screws. Radial-sided screws more commonly breached the dorsal cortex. The sensitivity was 58% on the lateral view, 88% on the 45 degrees supination view, 53% on the 45 degrees pronation view, and 67% on the dorsal tangential view. Additionally, surgeons with more experience were less accurate in detecting prominent screws. Clinicians should consider use of these views to evaluate dorsal screw penetration after volar plating but may opt to subtract a few millimeters from their measured screw lengths to avoid over penetration past the dorsal cortex.

**Title:** Catastrophic Thinking Is Associated With Finger Stiffness After Distal Radius Fracture Surgery.

**Citation:** Journal of orthopaedic trauma, Oct 2015, vol. 29, no. 10, p. e414. (October 2015)

**Author(s):** Teunis, Teun, Bot, Arjan G J, Thornton, Emily R, Ring, David

**Abstract:** To identify demographic, injury-related, or psychologic factors associated with finger stiffness at suture removal and 6 weeks after distal radius fracture surgery. We hypothesize that there are no factors associated with distance to palmar crease at suture removal. Prospective cohort study. Level I Academic Urban Trauma Center. One hundred sixteen adult patients underwent open reduction and internal fixation of their distal radius fractures; 96 of whom were also available 6 weeks after surgery. None. At suture removal, we recorded patients' demographics, AO fracture type, carpal tunnel release at the time of surgery, pain catastrophizing scale, Whiteley Index, Patient Health Questionnaire-9, and disabilities of the arm, shoulder, and hand questionnaire, 11-point ordinal measure of pain intensity, distance to palmar crease, and active flexion of the thumb through the small finger. At 6 weeks after surgery, we measured motion, disabilities of the arm, shoulder, and hand, and pain intensity. Prereduction and postsurgery radiographic fracture characteristics were assessed. Female sex, being married, specific surgeons, carpal tunnel release, AO type C fractures, and greater catastrophic thinking were associated with increased distance to palmar crease at suture removal. At 6 weeks after surgery, the only factor associated with increased distance to palmar crease was catastrophic thinking. Catastrophic thinking was a consistent and major determinant of finger stiffness at suture removal and 6 weeks after injury. Future research should assess if treatments that ameliorate catastrophic thinking can facilitate recovery of finger motion after operative treatment of a distal radius fracture. Prognostic Level I. See Instructions for Authors for a complete description of levels of evidence.
Title: Functional Loss With Displacement of Medial Epicondyle Humerus Fractures: A Computer Simulation Study.


Author(s): Edmonds, Eric W, Santiago, Anthony C, Saul, Katherine R

Abstract: Assessment and management of the medial humeral epicondyle fracture remains controversial, with conflicting reports of displacement direction and consequent functional deficits unclear. The purpose of this study was to define biomechanically likely directions of medial epicondyle fracture displacement and to determine possible changes in muscle function related to that displacement. A 3-dimensional computer model of the upper extremity was used to simulate the consequences of medial epicondyle fracture displacements from 1 to 20 mm in the anterior, medial, and inferior directions relative to the humerus with the elbow at 90-degree flexion and neutral forearm rotation (a replication of accepted positions for clinical strength testing). Muscle length and force were calculated following displacement. Maximum isometric wrist flexion moments were calculated over the full range of wrist motion based on known force-generating properties of the muscles. Anterior displacement resulted in shortened muscles and reduced wrist flexion moment, with a decrease in strength averaging 2% for every 1 mm of anterior fragment displacement at neutral wrist position (maximum decrease of 39% with 20 mm displacement). In contrast, displacement in the medial and inferior directions resulted in stretched muscles and increased wrist flexion moments and therefore are not biomechanically likely. Computer simulation of a medial epicondyle fracture suggests that anterior displacement could result in a dramatic loss of initial muscle strength and function. Medial displacement is unlikely to occur in vivo due to consequential muscle lengthening, suggesting that alternatives to the historical use of AP radiographs to assess displacement of this fracture are needed. Our work provides a biomechanical explanation for anterior displacement of medial epicondyle fractures observed radiographically and motivates alternative methods of fracture assessment. A functional basis for determining acceptable displacement of medial epicondyle fractures is suggested; however, all individual clinical factors should be considered.

Title: Bone strength and muscle properties in postmenopausal women with and without a recent distal radius fracture.

Citation: Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA, Oct 2015, vol. 26, no. 10, p. 2461-2469 (October 2015)

Author(s): Crockett, K, Arnold, C M, Farthing, J P, Chilibeck, P D, Johnston, J D, Bath, B, Baxter-Jones, A D G, Kontulainen, S A

Abstract: Distal radius (wrist) fracture (DRF) in women over age 50 years is an early sign of bone fragility. Women with a recent DRF compared to women without DRF demonstrated lower bone strength, muscle density, and strength, but no difference in dual-energy x-ray absorptiometry (DXA) measures, suggesting DXA alone may not be a sufficient predictor for DRF risk. The objective of this study was to investigate differences in bone and muscle properties between women with and without a recent DRF. One hundred sixty-six
postmenopausal women (50-78 years) were recruited. Participants were excluded if they had taken bone-altering medications in the past 6 months or had medical conditions that severely affected daily living or the upper extremity. Seventy-seven age-matched women with a fracture in the past 6-24 months (Fx, n = 32) and without fracture (NFx, n = 45) were measured for bone and muscle properties using the nondominant (NFx) or non-fractured limb (Fx). Peripheral quantitative computed tomography (pQCT) was used to estimate bone strength in compression (BSIc) at the distal radius and tibia, bone strength in torsion (SSIp) at the shaft sites, muscle density, and area at the forearm and lower leg. Areal bone mineral density at the ultradistal forearm, spine, and femoral neck was measured by DXA. Grip strength and the 30-s chair stand test were used as estimates of upper and lower extremity muscle strength. Limb-specific between-group differences were compared using multivariate analysis of variance (MANOVA). There was a significant group difference (p < 0.05) for the forearm and lower leg, with the Fx group demonstrating 16 and 19 % lower BSIc, 3 and 6 % lower muscle density, and 20 and 21 % lower muscle strength at the upper and lower extremities, respectively. There were no differences between groups for DXA measures. Women with recent DRF had lower pQCT-derived estimated bone strength at the distal radius and tibia and lower muscle density and strength at both extremities.

Title: An intraosseous epidermal cyst developing in a metacarpal bone after K-wire fixation: a case report. Citation: Skeletal radiology, Oct 2015, vol. 44, no. 10, p. 1523-1527

Author(s): Park, Il-Jung, Kim, Hyoung-Min, Lee, Jae-Young, Park, Hyun-Woo, Kang, Soo-Hwan

Abstract: Intraosseous epidermal cysts (IECs) are rare benign lesions caused by the proliferation of epidermal cells within the bone. The pathogenesis of IEC remains unclear; however, trauma-triggered infiltration of the bone by epidermal elements has been suggested. Here, we present a case of an IEC in the metacarpal bone of the little finger associated with K-wire fixation for treatment of a fifth metacarpal fracture.

Title: Defining the role of intramedullary nailing for fractures of the distal radius: a systematic review.

Citation: The bone & joint journal, Oct 2015, vol. 97-B, no. 10, p. 1370-1376 (October 2015)

Author(s): Jordan, R W, Saithna, A

Abstract: This article is a systematic review of the published literature about the biomechanics, functional outcome and complications of intramedullary nailing of fractures of the distal radius. We searched the Medline and EMBASE databases and included all studies which reported the outcome of intramedullary (IM) nailing of fractures of the distal radius. Data about functional outcome, range of movement (ROM), strength and complications, were extracted. The studies included were appraised independently by both authors using a validated quality assessment scale for non-controlled studies and the CONSORT statement for randomised controlled trials (RCTs). The search strategy revealed 785 studies, of which 16 were included for full paper review. These included three biomechanical studies, eight case series and five randomised controlled trials (RCTs). The biomechanical studies concluded that IM nails were at least as strong as locking plates. The
clinical studies reported that IM nailing gave a comparable ROM, functional outcome and grip strength to other fixation techniques. However, the mean complication rate of intramedullary nailing was 17.6% (0% to 50%). This is higher than the rates reported in contemporary studies for volar plating. It raises concerns about the role of intramedullary nailing, particularly when comparative studies have failed to show that it has any major advantage over other techniques. Further adequately powered RCTs comparing the technique to both volar plating and percutaneous wire fixation are needed. Cite this article: Bone Joint J 2015;97-B:1370-6. ©2015 The British Editorial Society of Bone & Joint Surgery.

Title: Effect of volar angulation of extra-articular distal radius fractures on distal radioulnar joint stability: a biomechanical study.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 775-782

Author(s): Bessho, Y, Nakamura, T, Nagura, T, Nishiwaki, M, Sato, K, Toyama, Y

Abstract: The relationship between increased volar tilt of the distal radius and distal radioulnar joint stability was examined. Distal radioulnar joint stiffness was recorded at 10° intervals from 10° dorsal angulation to 20° of volar angulation from the anatomical position of the radius. Tests were performed with the intact radioulnar ligament and repeated after partial and then complete sectioning of the radioulnar ligament at the ulnar fovea. With the intact radioulnar ligament, distal radioulnar joint stiffness increased significantly at 10° and 20° of volar angulation. Partial sectioning of the radioulnar ligament resulted in an approximate 10% decrease of distal radioulnar joint stiffness compared with the intact state, but distal radioulnar joint stiffness still increased significantly with greater volar tilt. Complete sectioning of the radioulnar ligament significantly decreased distal radioulnar joint stiffness, and increasing the volar tilt did not result in increased distal radioulnar joint stiffness. These results suggest that volar angulation deformities of the distal radius should be corrected to 10° of volar tilt when the triangular fibrocartilage complex is intact. N/A. © The Author(s) 2015.

Title: Surgical treatment of acute distal radioulnar joint instability associated with distal radius fractures.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 783-789

Author(s): Gong, H S, Cho, H E, Kim, J, Kim, M B, Lee, Y H, Baek, G H

Abstract: This study investigates the question of whether open repair of acute distal radioulnar joint instability at the time of volar plating of distal radius fractures would enable early mobilization of the wrist without the risk of distal radioulnar joint instability. We evaluated 29 patients of mean age 53 years with a distal radius fracture and acute distal radioulnar joint instability who underwent volar plating of the radius combined with surgical repair of the triangular fibrocartilage complex or an ulnar styloid base fracture, followed by active motion exercise of the wrist at 1 week after surgery. At 1 year after treatment, all patients had a stable distal radioulnar joint and grip strength averaged 90% of the normal side. This study demonstrates that surgical repair of the triangular fibrocartilage complex or ulnar styloid fracture followed by early mobilization did not result in distal radioulnar joint instability, and suggests that the surgical treatment of distal radioulnar joint instability may
permit early mobilization of the wrist in patients who are considered suitable for rapid rehabilitation after surgery. Therapeutic Level IV. © The Author(s) 2015.
Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 805-811

Author(s): Shauver, M J, Zhong, L, Chung, K C

Abstract: The occurrence of a low energy fracture of the distal radius increases the risk for another, more serious fracture, such as a proximal femoral fracture. Early mortality after a proximal femoral fracture has been widely studied, but the association between a distal radial fracture and mortality is unknown. The date of death for all Medicare beneficiaries who sustained an isolated distal radial fracture in 2007 was determined using Medicare Vital Statistics files. The adjusted mortality rate for each age-sex group was calculated and compared with published US mortality tables. Distal radial fractures were not associated with an increased mortality rate. In fact, beneficiaries had a significantly lower mortality rate after distal radial fractures than the general population. This may be related to the injured beneficiaries' involvement in the healthcare system. Mortality rate did not vary significantly based on time from injury. Our results indicate that any mortality is unlikely to be attributable to the distal radial fracture or its treatment. III. © The Author(s) 2015.

Title: A less invasive distal osteotomy of the radius for malunited dorsally displaced extra-articular fractures.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 812-818

Author(s): Fok, M W M, Fernandez, D L, Rivera, Y L Hernandez

Abstract: A less invasive corrective osteotomy for symptomatic post-traumatic deformity of the distal radius was done in 12 patients. They were followed up for an average of 3.7 years. The indications for correction were based on the patients' level of activities, pain, functional limitations, loss of grip strength or deformity occurring with an extra-articular rotational malunion of the distal end of the radius. The procedure included a dorsal open wedge osteotomy through a dorsal incision in which the fulcrum of rotation, or hinge, was located at the palmar cortex, and stabilized with an extra- and intramedullary fixed angle device. The bone defect was replaced with autologous morsellized iliac bone graft. The final outcome was graded as very good in eight patients, good in two and fair in two. IV. © The Author(s) 2014.

Title: Modified dorsal percutaneous screw fixation through a transtrapezial approach for scaphoid fractures.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 868-869

Author(s): Kurahashi, T, Shinohara, T, Hirata, H

Title: Combined tendon avulsion and fracture in a mallet finger injury in a juvenile.

Citation: The Journal of hand surgery, European volume, Oct 2015, vol. 40, no. 8, p. 870.

Author(s): Bellity, J P A, Tonkin, M A
Title: The Extended Flexor Carpi Radialis Approach for Concurrent Carpal Tunnel Release and Volar Plate Osteosynthesis for Distal Radius Fracture.

Citation: The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2026 (October 2015)

Author(s): Tannan, Shruti C, Pappou, Ioannis P, Gwathmey, Frank W, Freilich, Aaron M, Chhabra, Abhinav Bobby

Abstract: To determine the relative benefits of an extended flexor carpi radialis (FCR) (eFCR) approach with prophylactic carpal tunnel release at the time of volar plate osteosynthesis for distal radius fracture via a single incision into the traditional volar Henry (VH) approach. This was a prospective cohort comparison of preoperative and postoperative median nerve function of 27 patients (15 eFCR and 12 VH) with unilateral, isolated distal radius fractures requiring open reduction internal fixation without preoperative acute carpal tunnel syndrome. Patients were operated on via either the eFCR or VH approach. The validated Levine-Katz Carpal Tunnel Questionnaire (symptom and functional severity scores) was administered and Semmes-Weinstein monofilament and 2-point discrimination testing were conducted preoperatively and at 6 weeks and 3 months postoperatively. Grip and pinch strength were measured at 6 weeks and 3 months. The groups were comparable in terms of age, sex, and fracture type and displacement. Comparing across groups, there were no statistically significant differences in any outcome measured preoperatively or postoperatively. The eFCR and VH groups demonstrated significant improvement in functional severity scores, symptom severity, and grip strength. The symptom severity score improved to statistical significance at 6 weeks in the eFCR group and at 3 months in the VH group. In this small comparative study, the eFCR approach was found to be safe and efficacious. There was no increased surgical morbidity, which suggests that this technique can be used safely for all patients undergoing volar plating and not just in cases of concurrent carpal tunnel syndrome. It allows easier retraction of carpal tunnel contents; therefore, it is our preferred approach. Therapeutic III. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Biomechanical Comparison of Volar Fixed-Angle Locking Plates for AO C3 Distal Radius Fractures: Titanium Versus Stainless Steel With Compression.

Citation: The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2032-2038

Author(s): Marshall, Tyler, Momaya, Amit, Eberhardt, Alan, Chaudhari, Nilesh, Hunt,

Abstract: To determine biomechanical differences between a fixed-angle locking volar titanium plate (VariAx; Stryker, Kalamazoo, MI) and a fixed-angle compression locking volar stainless steel plate (CoverLoc Volar Plate; Tornier, Amsterdam, Netherlands) in the fixation of simulated AO C3 distal radius fractures. Eighteen cadaveric upper extremities (9 matched pairs) with an average age of 54 years were tested. A 4-part AO C3 fracture pattern was created in each specimen. The fractures were reduced under direct vision and fixed with either the fixed-angle locking volar titanium plate or the fixed-angle compression locking volar stainless steel plate. Motion tracking analysis was then performed while the specimens underwent cyclic loading. Changes in displacement, rotation, load to failure, and mode of failure were recorded. The fragments, when secured with the fixed-angle compression locking stainless steel construct, demonstrated less displacement and rotation than the fragments secured with the fixed-angle locking titanium plate under physiological loading.
conditions. In the fixed-angle compression locking stainless steel group, aggregate displacement and rotation of fracture fragments were 5 mm and 3° less, respectively, than those for the fixed-angle locking titanium group. The differences between axial loads at mechanical failure and stiffness were not statistically significant. The compression locking stainless steel group showed no trend in mode of failure, and the locking titanium plate group failed most often by articular fixation failure (5 of 9 specimens). The fixed-angle compression locking stainless steel volar plate may result in less displacement and rotation of fracture fragments in the fixation of AO C3 distal radius fractures than fixation by the fixed-angle locking volar titanium plate. However, there were no differences between the plates in mechanical load to failure and stiffness. Fixation of distal radius AO C3 fracture patterns with the fixed-angle compression locking stainless steel plate may provide improved stability of fracture fragments. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: The Palpable Scaphoid Surface Area in Various Wrist Positions.

Citation: The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2039-2044

Author(s): Giugale, Juan M, Leigey, Daniel, Berkow, Kyle, Bear, David M, Baratz, Mark E

Abstract: To determine the theoretical amount of surface area available for palpation of the scaphoid in various wrist positions and to provide a guide depicting which wrist position will expose proximal pole, waist, and distal pole fractures. Using 3 fresh-frozen male cadaver wrists, we digitized palpable surface areas (dorsal, volar, and snuffbox) of the scaphoid in several wrist positions. The entire scaphoid was then excised and a digitized 3-dimensional reconstruction of the entire scaphoid was obtained. The 2 images were superimposed and the surface area was calculated. The maximum palpable area of the scaphoid was achieved with the wrist in neutral extension and maximum ulnar deviation and the wrist in maximum flexion and neutral deviation. Neutral wrist extension and ulnar deviation exposed all but the most proximal portion of the proximal pole and the distal pole, which made this the ideal position to detect tenderness from a scaphoid waist fracture and larger proximal pole fractures. Maximum wrist flexion with neutral wrist deviation exposed the entire proximal pole, which made this the ideal position to detect tenderness from a proximal pole scaphoid fracture. Wrist position influences the amount of scaphoid surface area available for palpation and should be considered when examining a patient with a suspected scaphoid fracture. The scaphoid should be palpated in 3 anatomic regions with the wrist placed in different positions to maximally expose the anatomical region being palpated. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Distal Radius Joint Surface Reconstruction Using a Pedicle Pisiform Osteochondral Transfer.

Citation: The Journal of hand surgery, Oct 2015, vol. 40, no. 10, p. 2075-2080

Author(s): Ishii, Hisao, Tatebe, Masahiro, Hirata, Hitoshi

Abstract: Treatment of a large articular cartilage defect in the distal radius poses a significant challenge to hand surgeons. To reduce the development of secondary degenerative arthritis, restoration of the articular surface is preferable. Pedicle pisiform
transfer has been reported as a useful treatment option for Kienböck's disease. We describe a surgical technique involving vascularized pisiform transfer for large cartilage defects after intra-articular distal radius fractures and highlight the vascular supply of the pisiform. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: The Effect of Osteoporosis on Healing of Distal Radius Fragility Fractures.

Citation: The Orthopedic clinics of North America, Oct 2015, vol. 46, no. 4, p. 541-549

Author(s): Tulipan, Jacob, Jones, Christopher M, Ilyas, Asif M

Abstract: Although the decision for operative versus nonoperative treatment of distal radius fractures remains subjective and is performed on a case-by-case basis, evaluation and treatment of patients with concomitant osteoporosis requires understanding of the behavior of this injury as a distinct subset of distal radius fractures. Age, infirmity, and osteoporosis affect every aspect of the fracture. Understanding what makes these fractures unique assists surgeons in more effective and efficient treatment. The authors present the current understanding of osteoporotic fragility fractures of the distal radius, focusing on epidemiology, biomechanics of bone healing, and its implication on strategies for management. Copyright © 2015 Elsevier Inc. All rights reserved.

Title: Use of High-Speed X ray and Video to Analyze Distal Radius Fracture Pathomechanics.

Citation: The Orthopedic clinics of North America, Oct 2015, vol. 46, no. 4, p. 571-576

Author(s): Gutowski, Christina, Darvish, Kurosh, Liss, Frederic E, Ilyas, Asif M, Jones, Christopher M

Abstract: The purpose of this study is to investigate the failure sequence of the distal radius during a simulated fall onto an outstretched hand using cadaver forearms and high-speed X ray and video systems. This apparatus records the beginning and propagation of bony failure, ultimately resulting in distal radius or forearm fracture. The effects of 3 different wrist guard designs are investigated using this system. Serving as a proof-of-concept analysis, this study supports this imaging technique to be used in larger studies of orthopedic trauma and protective devices and specifically for distal radius fractures. Copyright © 2015 Elsevier Inc. All rights reserved.

Title: Carpal and scaphoid fracture incidence in south-eastern Australia: an epidemiologic study

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Abstract: UNLABELLED: Carpal fractures were identified by the Geelong Osteoporosis Study Fracture Grid for 2006-2007. Incidence rates were higher in males than females. Males had a lower median age of fracture than females. Females had more fractures on the left side than males. Most fractures were the result of a fall.PURPOSE: In this study, we report the...
incidence of carpal bone fractures (scaphoid and non-scaphoid) amongst residents from the Barwon Statistical Division over 2 years. METHODS: X-ray reports from imaging centres in the region were used to identify incident fractures during 2006 and 2007. Data were collected as part of the Geelong Osteoporosis Study Fracture Grid. RESULTS: During 2006 and 2007, there were 171 and 41 carpal fractures in males and females, respectively. Of these, 131 males and 29 females had fractured the scaphoid bone. Females had a higher proportion of left-sided fractures (>70 %) than males (~40 %). Most fractures were the result of an accidental fall (>87 %). Patterns of incidence for males showed one major peak around 20-29 years. For females, peaks occurred around age 10-19 years and 70-79 years. Incidence rates for males (per 100,000 persons per year) were 54.6 (95 % confidence interval (CI) 53.6, 55.7) and 15.9 (95 % CI 15.4, 16.5) for scaphoid and non-scaphoid fractures, respectively. In females, the corresponding rates were 10.6 (95 % CI 10.2, 11.1) and 4.5 (95 % CI 4.2, 4.8). CONCLUSION: Almost all fractures were the result of a fall. In males, carpal fractures were sustained mainly during early adulthood and in females during adolescence and after menopause. Incidence rates for males were higher than those in females for both scaphoid and non-scaphoid fractures.
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