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New from Cochrane Database of Systematic Reviews

Surgery for Dupuytren's contracture of the fingers
Jeremy N Rodrigues, Giles W Becker, Cathy Ball, Weiya Zhang, Henk Giele, Jonathan Hobby, Anna L Pratt and Tim Davis
Online Publication Date: December 2015

Abstract

Background: Dupuytren's disease is a benign fibroproliferative disorder that causes the fingers to be drawn into the palm via formation of new tissue under the glabrous skin of the hand. This disorder causes functional limitations, but it can be treated through a variety of surgical techniques. As a chronic condition, it tends to recur.

Objectives: To assess the benefits and harms of different surgical procedures for treatment of Dupuytren’s contracture of the index, middle, ring and little fingers.

New Activity in Up-to-Date

Proximal phalanx fractures
Author: Rebecca Bassett, MD

Literature review current through: Dec 2015. | This topic last updated: Sep 18, 2015.

INTRODUCTION — Fractures of the proximal phalanx can be complex owing to forces exerted on the fracture fragments by a number of muscles and tendons which often result in angular or rotational deformity.

This topic review will discuss fractures of the proximal phalanx. Finger anatomy, other common finger injuries, and thumb injuries are reviewed separately.
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Current Awareness Database Articles

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

- Altered Neurodynamics upper limb
- Complex Regional Pain Syndrome (CRPS)
- De-Quervain’s tenosynovitis
- Dupuytrens (fasciectomy)
- Dislocations Fingers (Proximal Interphalangeal Joints)
- Flexor and Tendon Injuries
- Mallet Finger/Thumb Deformity
- Nerve Injuries
- Soft tissue wrist injuries
- Trapeziectomy (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

Title: Biomechanics of the Median Nerve During Stretching as Assessed by Ultrasonography.

Citation: Journal of applied biomechanics, Dec 2015, vol. 31, no. 6, p. 439-444

Author(s): Martínez-Payá, Jacinto Javier, Ríos-Díaz, José, Del Baño-Aledo, María Elena,

Abstract: The objective of this observational cross-sectional study was to investigate the normal motion of the median nerve when stretched during a neurodynamic exercise. In recent years, ultrasonography has been increasingly accepted as an imaging technique for examining peripheral nerves in vivo, offering a reliable and noninvasive method for a precise evaluation of nerve movement. Transverse motion of the median nerve in the arm during a neurodynamic test was measured. A volunteer sample of 22 healthy subjects (11 women) participated in the study. Nerve displacement and deformation were assessed by dynamic ultrasonography. Excellent interobserver agreement was obtained, with kappa coefficient of .7-.8. Ultrasonography showed no lateral motion during wrist extension in 68% of nerves, while 73% moved dorsally, with statistically significant differences between sexes (ORlat = 6.3; 95% CI = 1.4-27.7 and ORdor = 8.3; 95% CI = 1.6-44.6). The cross-sectional area was significantly greater in men (3.6 mm2). Quantitative analysis revealed no other statistically
significant differences. Our results provide evidence of substantial individual differences in median nerve transverse displacement in response to a neurodynamic exercise.

**Title:** Improving the radial nerve neurodynamic test: An observation of tension of the radial, median and ulnar nerves during upper limb positioning.

**Citation:** Manual therapy, Dec 2015, vol. 20, no. 6, p. 790-796

**Author(s):** Manvell, Joshua J, Manvell, Nicole, Snodgrass, Suzanne J, Reid, Susan A

**Abstract:** The radial nerve neurodynamic test (ULNT2b), used to implicate symptoms arising from the radial nerve, is proposed to selectively increase strain of the nerve without increasing strain of adjacent tissue, though this has not been established. This study aimed to determine the upper limb position that results in: (1) the greatest tension of the radial nerve and (2) the greatest difference in tension between the radial nerve and the other two major nerves of the upper limb: median and ulnar. Tension (N) of the radial, median and ulnar nerves was measured simultaneously using three buckle force transducers during seven upper limb positions in the axilla of ten embalmed whole body human cadavers (n = 20 limbs). Repeated measures analysis of variance (ANOVA) with Bonferroni post-hoc tests determined differences in tension between nerves and between limb positions. A Composite position consisting of ULNT2b (scapular depression, shoulder internal rotation, elbow extension, forearm pronation, wrist flexion) with the addition of shoulder abduction 40° and extension 25°, wrist ulnar deviation and thumb flexion demonstrated significantly greater tension of the radial nerve than any other tested position (mean tension 11.32N; 95% CI 10.25, 12.29, p < 0.01), including ULNT2b (2.20N; 1.84, 2.57; p < 0.01). Additionally, the Composite position demonstrated the greatest difference in tension between the radial and median (mean difference 4.88N; 95% CI 3.16, 6.61; p < 0.01) and radial and ulnar nerves (9.26N, 7.54, 10.99; p < 0.01). This position constitutes a biomechanically plausible test to detect neuropathic pain related to the radial nerve. Copyright © 2015 Elsevier Ltd. All rights reserved.

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**Complex Regional Pain Syndrome (CRPS)**

**Title:** Volar locking plate osteosynthesis for distal radial fractures.

**Citation:** Journal of orthopaedic surgery (Hong Kong), Dec 2015, vol. 23, no. 3, p. 323-326,

**Author(s):** Javed, S, Shahid, R, Thimmiah, R, El-Deen, M

**Abstract:** To review the one-year outcome after volar locking plate fixation for distal radial fractures. Records of 22 men and 40 women aged 17 to 86 (mean, 52.5) years who underwent volar locking plate fixation for distal radial fractures were reviewed. According to the Fernandez classification, the distal radial fractures were classified as type 1 (n=20), type 2 (n=24), type 3 (n=6), type 4 (n=6), or type 5 (n=6). Three types of plate were used: Stryker Variax (n=33), Synthes LCP (n=20), and Smith & Nephew Peri-Loc (n=9). Wrist function was assessed at one year using the validated patient-rated wrist evaluation (PRWE)
questionnaire. 14 (23%) of the 62 patients had 24 complications: stiffness (n=13), median nerve symptoms (n=4), malunion (n=2), implant removal for persistent pain and stiffness but no improvement shown (n=2), complex regional pain syndrome (n=2), and carpal arthritis (n=1). The complication rates for types 1, 2, 3, 4, and 5 fractures were 20%, 17%, 67%, 0%, and 33%, respectively (p=0.052). The complication rates for low-risk (types 1 and 2) and high-risk (types 3, 4, and 5) fractures were 18% and 33%, respectively (p=0.315). The complication rates for Stryker Variax, Synthes LCP, and Smith & Nephew Peri-Loc were 26%, 20%, and 14%, respectively (p=0.75). At one year, the mean PRWE score was comparable in patients with low-risk or high-risk fractures (14 vs. 19, p=0.5). 79%, 13%, and 8% of the patients recovered >50%, 20-50%, and <20% of range of movement of the contralateral side, respectively. Volar locking plate fixation followed by early rehabilitation for distal radial fractures achieved good outcome, with a low rate of implant-related complications.

Title: Inhibition of the primary sensorimotor cortex by topical anesthesia of the forearm in patients with complex regional pain syndrome.

Citation: Pain, Dec 2015, vol. 156, no. 12, p. 2556-2561

Author(s): Strauss, Sebastian, Grothe, Matthias, Usichenko, Taras, Neumann, Nicola,

Abstract: Complex regional pain syndrome (CRPS) type I is characterized by somatosensory and motor deficits, and abnormalities have been reported for primary somatosensory (S1) and motor cortex (M1) excitability. For the latter, reduced short-latency intracortical inhibition (SICI) has been demonstrated in the somatotopic representation of the affected side. Recently, an intervention of applying anesthetic cream to the forearm has been shown to modulate both somatosensory deficits (eg, spatial tactile resolution [STR]) and SICI measured in hand muscles. We examined the efficacy of this intervention in patients with CRPS I. Cutaneous anesthesia of the forearm of the affected side was used to increase SICI of hand muscles and decrease impaired STR of the affected limb. In a double-blinded placebo-controlled study, we enrolled 12 patients with unilateral CRPS I of the hand in the chronic state. Before and after intervention, we measured motor evoked potentials of the first dorsal interosseus to obtain SICI and STR of both hand sides. Patients showed decreased STR on the tip of the thumb of their affected side, which improved after anesthetic cream but not after placebo application. Hand motor function of the affected side improved after anesthetic cream but not after placebo. Pain intensity was not modulated after intervention. At both hemispheres, SICI was decreased compared with reference values but selectively increased at the intervention side only after analgesic cream and not after placebo. Temporary deafferentation of an area neighbouring the CRPS-affected region can modulate neuropathological characteristics of CRPS and might be a promising strategy for therapeutic interventions.

De-Quervain's tenosynovitis

Title: Tuberculous flexor tenosynovitis of the hand

Citation: International Journal of Mycobacteriology, December 2015, vol./is. 4/4(347-349),
Author(s): Sbai M.A., Benzarti S., Boussen M., Maalla R.

Abstract: Tuberculosis is a major public health problem in developing countries. Flexor tenosynovitis of the fingers constitutes an exceptional tuberculosis localization (Gabl et al., 1997; Senda et al., 2011) [1,2]. Unusual presentations, such as tuberculous tenosynovitis, often go undetected and are associated with a diagnostic and therapeutic delay, especially when bacteriological research proves to be negative. Here, we report a case of tuberculous flexor tenosynovitis of the hand.

Title: The OMERACT MRI in arthritis working group - Update on status and future research priorities

Citation: Journal of Rheumatology, December 2015, vol./is. 42/12(2470-2472)

Author(s): Ostergaard M., Bird P., Gandjbakhch F., Eshed I., Haugen I.K., Haavardsholm E.A.,

Abstract: Objective. To provide an update on the status and future research priorities of the Outcome Measures in Rheumatology (OMERACT) magnetic resonance imaging (MRI) in arthritis working group. Methods. A summary is provided of the activities of the group within rheumatoid arthritis (RA), psoriatic arthritis (PsA), and osteoarthritis (OA), and its research priorities. Results. The OMERACT RA MRI score (RAMRIS) evaluating bone erosion, bone edema (osteitis), and synovitis is now the standard method of quantifying articular pathology in RA trials. Cartilage loss is another important part of joint damage, and at the OMERACT 12 conference, we provided longitudinal data demonstrating reliability and sensitivity to change of the RAMRIS JSN component score, supporting its use in future clinical trials. The MRI group has previously developed a PsA MRI score (PsAMRIS). At OMERACT 12, PsAMRIS was evaluated in a randomized placebo-controlled trial of patients with PsA, demonstrating the responsiveness and discriminatory ability of applying the PsAMRIS to hands and feet. A hand OA MRI score (HOAMRIS) was introduced at OMERACT 11, and has subsequently been further validated. At OMERACT 12, good cross-sectional interreader reliability, but variable reliability of change scores, were reported. Potential future research areas were identified at the MRI session at OMERACT 12 including assessment of tenosynovitis in RA and enthesitis in PsA and focusing on alternative MRI techniques. Conclusion. MRI has been further developed and validated as an outcome measure in RA, PsA, and OA. The group will continue its efforts to optimize the value of MRI as a robust biomarker in rheumatology clinical trials.

Title: Yeni tanili romatoid artrit hastalarinda kas Iskelet ultrasonunun tanisal degeri

Citation: Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi, December 2015, vol./is. 61/4(326-332)

Author(s): Harman H., Tekeoglu I., Sag M.S., Harman S.

Abstract: Objective: This study aimed to assess the efficacy of musculoskeletal ultrasound (US) in the detection of inflammatory and destructive changes in finger and wrist joints and
tendons in patients with rheumatoid arthritis (RA) and compared US with contrast-enhanced magnetic resonance imaging (MRI). Material and Methods: We included a cohort of patients with newly diagnosed RA. The wrist and finger joints of the same hand; 2., 3., 4. metacarpophalangeal (MCP); and 2., 3., 4. proximal interphalangeal (PIP) joints were evaluated using both US and MRI. US evaluated active synovitis, the power Doppler (PD) signal, bone erosion, and tenosynovitis in joints. Clinical examination and the erythrocyte sedimentation rate and C-reactive protein level were simultaneously evaluated. Results: We enrolled 31 patients with newly diagnosed RA and included 279 joints in the study. Radiocarpal synovitis was detected more frequently than midcarpal and ulnocarpal joint synovitis in the wrist joints. The sensitivity, specificity, and accuracy of US in detecting PD synovitis in wrist joints were 0.73, 0.76, and 0.74, respectively, compared with MRI. Both PDUS and gray-scale US had lower sensitivity, specificity, and accuracy in detecting synovitis and erosions in finger joints compared with MRI. PD synovitis total scores were highly correlated with disease duration, morning stiffness, and hand grip strength (r=0.448, p=0.032; r=0.500, p<0.001; r=0.843, p<0.001). Conclusion: We demonstrated that the efficacy of US is comparable with that of contrast-enhanced MRI in detecting arthritis. However, clinicians must be careful so as to not obtain misleading information regarding MCP and PIP joints using US in patients with synovitis and erosions.

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**Title:** Twenty-eight cases of Mycobacterium marinum infection: retrospective case series and literature review

**Citation:** Infection, December 2015, vol./is. 43/6(655-662)

**Author(s):** Johnson M.G., Stout J.E.

**Abstract:** Purpose: Invasive Mycobacterium marinum disease (tenosynovitis and osteomyelitis) may be an increasingly common manifestation of M. marinum infection that presents unique diagnostic and therapeutic challenges. We conducted a retrospective case series and literature review of M. marinum infection to better understand the clinical spectrum of invasive versus cutaneous disease. Methods: We reviewed electronic medical records for all M. marinum infections at Duke University Medical Center from January 1, 1996 to April 30, 2014. Published case series of M. marinum infection since 1990 reporting >5 cases were systematically ascertained and reviewed. Results: Twenty-eight cases of M. marinum infection were identified from our institution. Twenty cases (87 %) involved aquatic exposure, and 26 (93 %) involved finger and/or hand lesions. Median time to diagnosis was 3.5 months. Nineteen (68 %) cases had invasive infection, and 9 (32 %) were cutaneous; invasive infection was more common with older age. Granulomatous inflammation and acid-fast bacilli were noted on pathologic examination in 11 (58 %) and 3 (16 %) cases, respectively. Primarily monotherapy was used in 2 (12 %) cases, dual therapy in 8 (47 %) cases, and three-drug therapy in 7 (41 %) cases; three-drug therapy was more common with invasive infection. Median duration of treatment was 5 months. Adjunctive surgery was performed for 18 (95 %) cases of invasive infection and 4 (44 %) of cutaneous infection. Twenty-one (75 %) cases improved, while 7 (25 %) were lost to follow-up. Conclusions: Distinguishing between invasive and cutaneous M. marinum infection may have important consequences in terms of antibiotic choice and need for adjunctive surgery.
Title: Validation of the OMERACT Psoriatic Arthritis Magnetic Resonance Imaging Score (PsAMRIS) for the hand and foot in a randomized placebo-controlled trial

Citation: Journal of Rheumatology, December 2015, vol./is. 42/12(2473-2479)

Author(s): Glinatsi D., Bird P., Gandjbakhch F., Mease P.J., Boyesen P., Peterfy C.G.,

Abstract: Objective. To assess changes following treatment and the reliability and responsiveness to change of the Outcome Measures in Rheumatology (OMERACT) Psoriatic Arthritis Magnetic Resonance Imaging Score (PsAMRIS) in a randomized controlled trial. Methods. Forty patients with PsA randomized to either placebo or abatacept (ABA) had MRI of either 1 hand (n = 20) or 1 foot (n = 20) at baseline and after 6 months. Images were scored blindly twice by 3 independent readers according to the PsAMRIS (for synovitis, tenosynovitis, periarticular inflammation, bone edema, bone erosion, and bone proliferation). Results. Inflammatory features improved numerically but statistically nonsignificantly in the ABA group but not the placebo group. Baseline intrareader intraclass correlation coefficients (ICC) were good (> 0.50) to very good (> 0.80) for all features in both hand and foot. Baseline interreader ICC were good (ICC 0.72-0.96) for all features, except periarticular inflammation and bone proliferation in the hand and tenosynovitis in the foot (ICC 0.25-0.44). Intrareader and interreader ICC for change scores varied. Guyatt's responsiveness index (GRI) was high for inflammatory features in the hand and metatarsophalangeal joints (GRI -0.67 to -3.13; bone edema not calculable). Minimal change and low prevalence resulted in low ICC and GRI for bone damage. Conclusion. PsAMRIS showed overall good intrareader agreement in the hand and foot, and inflammatory feature scores were responsive to change, suggesting that PsAMRIS may be a valid tool for MRI assessment of hands and feet in PsA clinical trials.

Title: Tendinopathies of the Hand and Wrist.

Citation: The Journal of the American Academy of Orthopaedic Surgeons, Dec 2015, vol. 23, no. 12, p. 741-750 (December 2015)

Author(s): Adams, Julie E, Habbu, Rohan

Abstract: Tendinopathies involving the hand and wrist are common. Many are diagnosed easily, and in many cases, the management is straightforward, provided the pathology and principles are understood. Common conditions involving the tendons of the hand and wrist include trigger finger, tenosynovitis of the first through sixth dorsal extensor compartments, and flexor carpi radialis tendinitis. Management strategies include nonsurgical treatments, such as splinting, injection, or therapy, and surgical techniques such as tendon release. Copyright 2015 by the American Academy of Orthopaedic Surgeons.
**Dupuytrens (fasciectomy)**

**Title:** YAP1 Is a Driver of Myofibroblast Differentiation in Normal and Diseased Fibroblasts.

**Citation:** The American journal of pathology, Dec 2015, vol. 185, no. 12, p. 3326-3337

**Author(s):** Piersma, Bram, de Rond, Saskia, Werker, Paul M N, Boo, Stellar, Hinz, Boris

**Abstract:** Dupuytren disease is a fibrotic disorder characterized by contraction of myofibroblast-rich cords and nodules in the hands. The Hippo member Yes-associated protein 1 (YAP1) is activated by tissue stiffness and the profibrotic transforming growth factor-β1, but its role in cell fibrogenesis is yet unclear. We hypothesized that YAP1 regulates the differentiation of dermal fibroblasts into highly contractile myofibroblasts and that YAP1 governs the maintenance of a myofibroblast phenotype in primary Dupuytren cells. Knockdown of YAP1 in transforming growth factor-β1-stimulated dermal fibroblasts decreased the formation of contractile smooth muscle α-actin stress fibers and the deposition of collagen type I, which are hallmark features of myofibroblasts. Translating our findings to a clinically relevant model, we found that YAP1 deficiency in Dupuytren disease myofibroblasts resulted in decreased expression of ACTA2, COL1A1, and CCN2 mRNA, but this did not result in decreased protein levels. YAP1-deficient Dupuytren myofibroblasts showed decreased contraction of a collagen hydrogel. Finally, we showed that YAP1 levels and nuclear localization were elevated in affected Dupuytren disease tissue compared with matched control tissue and partly co-localized with smooth muscle α-actin-positive cells. In conclusion, our data show that YAP1 is a regulator of myofibroblast differentiation and contributes to the maintenance of a synthetic and contractile phenotype, in both transforming growth factor-β1-induced myofibroblast differentiation and primary Dupuytren myofibroblasts. Copyright © 2015 American Society for Investigative Pathology. Published by Elsevier Inc. All rights reserved.

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**Title:** Dupuytren's disease therapy: Targeting the vicious cycle of myofibroblasts?

**Citation:** Expert Opinion on Therapeutic Targets, December 2015, vol./is. 19/12(1677-1687)

**Author(s):** Musumeci M., Vadala G., Russo F., Pelacchi F., Lanotte A., Denaro V.

**Abstract:** Introduction: Dupuytren disease (DD) is a proliferative fibromatosis of the hand, which causes permanent flexion contracture of the digits and, ultimately, loss of function. The treatment of DD is complex and involves surgical and nonsurgical approaches, with the goal of removing the affected tissue. New biological targets are under investigation in order to develop innovative therapies. Areas covered: The etiology of DD is still unknown. Several authors who focused their studies on the genetics of DD recognized an inherited autosomal dominant pattern. Actually, DD is a multifactorial and complex disease. Myofibroblasts are thought to play a crucial role in its pathogenesis, although their origin is not clear. Expert opinion: There is a general consensus that a better understanding of cellular and molecular mechanisms of DD will lead to the design of more specific and effective treatment alternatives. In this review, the authors hypothesize a new biological model for DD pathology, where myofibroblasts enhance the reservoir of the disease acting as if in a
vicious cycle. This could help, ultimately, in identifying new therapeutic strategies to treat this common and disabling fibroproliferative disorder.

Title: Wnt pathway in Dupuytren disease: connecting profibrotic signals.

Citation: Translational research : the journal of laboratory and clinical medicine, Dec 2015, vol. 166, no. 6, p. 762 (December 2015)

Author(s): van Beuge, Marike M, Ten Dam, Evert-Jan P M, Werker, Paul M N, Bank, Ruud A

Abstract: A role of Wnt signaling in Dupuytren disease, a fibroproliferative disease of the hand and fingers, has not been fully elucidated. We examined a large set of Wnt pathway components and signaling targets and found significant dysregulation of 41 Wnt-related genes in tissue from the Dupuytren nodules compared with patient-matched control tissue. A large proportion of genes coding for Wnt proteins themselves was downregulated. However, both canonical Wnt targets and components of the noncanonical signaling pathway were upregulated. Immunohistochemical analysis revealed that protein expression of Wnt1-inducible secreted protein 1 (WISP1), a known Wnt target, was increased in nodules compared with control tissue, but knockdown of WISP1 using small interfering RNA (siRNA) in the Dupuytren myofibroblasts did not confirm a functional role. The protein expression of noncanonical pathway components Wnt5A and VANGL2 as well as noncanonical coreceptors Ror2 and Ryk was increased in nodules. On the contrary, the strongest downregulated genes in this study were 4 antagonists of Wnt signaling (DKK1, FRZB, SFRP1, and WIF1). Downregulation of these genes in the Dupuytren tissue was mimicked in vitro by treating normal fibroblasts with transforming growth factor β1 (TGF-β1), suggesting cross talk between different profibrotic pathways. Furthermore, siRNA-mediated knockdown of these antagonists in normal fibroblasts led to increased nuclear translocation of Wnt target β-catenin in response to TGF-β1 treatment. In conclusion, we have shown extensive dysregulation of Wnt signaling in affected tissue from Dupuytren disease patients. Components of both the canonical and the noncanonical pathways are upregulated, whereas endogenous antagonists are downregulated, possibly via interaction with other profibrotic pathways. Copyright © 2015 Elsevier Inc. All rights reserved.

Title: A Simple Dressing Technique Following Dermofasciectomy and Full Thickness Skin Grafting of the Fingers in the Treatment of Severe Dupuytren's Contracture.

Citation: Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 317-319, 0974-3227 (December 2015)

Author(s): Tanagho, Andy, Beaumont, Jan, Thomas, Roshin

Abstract: Dupuytren's disease with severe finger contractures and recurrent contractures following previous surgery often have extensive skin involvement. In these severe cases, excision of the diseased chord along with the involved skin is a good option to reduce the risk of recurrence. The resulting skin defect can be covered with a full thickness skin graft (FTSG) or a cross finger flap. Cross finger flaps have donor finger morbidity and hence a full thickness graft is usually preferred. The FTSG extending to the midlateral margins on both
sides of the finger reduces the risk of joint contracture due to graft shrinkage. Once the FTSG is sutured in place, the standard practice is to compress and secure the graft to its recipient bed with a tie-over dressing and this can be time consuming. We present a simple dressing technique to secure the FTSG without the need for a tie-over dressing.

**Dislocations Fingers (Proximal Interphalangeal Joints)**

**Title:** Dorsal Fracture-Dislocations of the Proximal Interphalangeal Joint.

**Citation:** The Journal of hand surgery, Dec 2015, vol. 40, no. 12, p. 2453-2455

**Author(s):** Gonzalez, Ronald M, Hammert, Warren C

**Title:** Carpometacarpal joint fracture dislocation of second to fifth finger

**Citation:** CiOS Clinics in Orthopedic Surgery, December 2015, vol./is. 7/4(430-435), 2005-291X;2005-4408 (December 2015)

**Author(s):** Pundkare G.T., Patil A.M.

**Abstract:** Background: Carpometacarpal joint fracture dislocation of the second to fifth finger is a rare hand injury associated with high energy trauma. Due to severe swelling and overlapping of bones on the radiograph of wrist-hand, dislocations are missed. We reported a series of six patients with rare carpometacarpal joint fracture dislocation treated with open reduction. Methods: We retrospectively studied six cases of carpometacarpal joint fracture dislocation. All patients were treated with open reduction and internal fixation with Kirschner wire. Functional assessment was done with Quick Disabilities of the Arm, Shoulder and Hand score (Quick DASH score) at regular intervals. Results: Average Quick DASH score was improved from 75.76 to 1.9 from 6 weeks to 18 months of duration. Of the six patients, three patients had a Quick DASH score of 0 at the end of 18 months. Conclusions: Careful hand examination and radiographic assessment is necessary to avoid missed diagnosis of carpometacarpal joint fracture dislocation. Early open reduction and internal fixation lead to excellent recovery of hand function.

**Title:** In-bag dislocation of intraocular lens in patients with uveitis: a case series

**Citation:** Journal of Ophthalmic Inflammation and Infection, December 2015, vol./is. 5/1(no pagination), 1869-5760 (01 Dec 2015)

**Author(s):** Tao L.W., Hall A.

**Abstract:** Background: Improvement in surgical devices and intraocular lenses has made modern cataract surgery a safe procedure with decreasing complication rates. Intraocular lens dislocation is a serious complication after cataract surgery. Although most dislocations occur during the first week postoperative period, late intraocular lens dislocation occurring 3 months or later post-surgery has been reported with increasing frequency in recent years.
as a result of progressive zonular dehiscence. We report the clinical features, management and outcomes of five cases of late in-bag dislocation of intraocular lens in patients with underlying uveitis. This is a retrospective case series and literature review. Results: We identified five eyes in five patients with uveitis and late in-bag intraocular lens dislocation. Two patients had multifocal choroiditis, two herpetic uveitis and retinitis and two Fuchs’ heterochromic iridocyclitis in five patients. Mean age at the time of cataract surgery was 50. Best vision ranged from counting fingers to 6/18 preoperatively and ranged from 6/36 to 6/6 postoperatively. All had right eye dislocation with mean time from initial cataract surgery to intraocular lens dislocation of 81 months. Explantation of dislocated intraocular lens and vitrectomy were performed in four cases; three had anterior chamber intraocular lens placement. One case was managed conservatively. Best vision ranged from light perception to 6/7.5 at time of dislocation and ranged from 6/36 to 6/6 at follow-up. Conclusions: Late in-bag dislocation intraocular lens can complicate cataract surgery in patients with underlying uveitis. This case series identified that the mean time to in-bag intraocular lens dislocation in five uveitis patients was 81 months after uncomplicated cataract surgery, comparable with the time reported in the available literature of patients with pseudoexfoliation syndrome. This series also found that lens explantation and replacement with anterior chamber intraocular lens achieved good outcomes. Further investigation is warranted to ascertain the strategies to identify patients at risk and to prevent and better manage intraocular lens dislocation in patients with uveitis.

Title: Current Concepts in Treatment of Fracture-Dislocations of the Proximal Interphalangeal Joint.

Citation: Plastic and reconstructive surgery, Dec 2015, vol. 136, no. 6, p. 851e

Author(s): Huq, Nasim S, Siddiqui, Farhaj, Hossain, Shahan

Title: Artificial finger joint replacement due to a giant cell tumor of the tendon sheath with bone destruction: A case report

Citation: Oncology Letters, December 2015, vol./is. 10/6(3502-3504), 1792-1074;1792-1082 (December 2015)

Author(s): Lu H., Shen H., Chen Q., Shen X.-Q., Wu S.-C.

Abstract: The current study presents the case of a 25-year-old male who developed tumor recurrence of the proximal phalange of the ring finger on the right hand 4 years after partial tumor resection surgery. An X-ray of the right hand showed that the distal bone of the proximal phalange on the ring finger was destroyed. An artificial finger joint replacement was performed using a silicone joint for this unusual tumor recurrence. The pathological findings were indicative of a giant cell tumor of the tendon sheath. As a result of surgery, the patient’s proximal interphalangeal joint motion recovered to the pre-operative level. The pre-operative and post-operative disabilities of the arm, at shoulder and hand and total activity measurement values were 1.67 and 3.33, and 255 and 243degree, respectively. Complications such as tumor recurrence, joint dislocation and the requirement for prosthetic training were not observed during the 5-year follow-up period.
What Middle Phalanx Base Fracture Characteristics are Most Reliable and Useful for Surgical Decision-making?

Clinical orthopaedics and related research, Dec 2015, vol. 473, no. 12, p. 3943-3950 (December 2015)

Janssen, Stein J, Molleman, Jeroen, Guittion, Thierry G, Ring, David, Science Of Variation Group

Fracture-dislocations of the proximal interphalangeal joint are vexing because subluxation and articular damage can lead to arthrosis and the treatments are imperfect. Ideally, a surgeon could advise a patient, based on radiographs, when the risk of problems merits operative intervention, but it is unclear if middle phalanx base fracture characteristics are sufficiently reliable to be useful for surgical decision making. We evaluated (1) the degree of interobserver agreement as a function of fracture characteristics, (2) the differences in interobserver agreement between experienced and less-experienced hand surgeons, and (3) what fracture characteristics and surgeon characteristics were associated with the decision for operative treatment. Ninety-nine (33%) of 296 hand surgeons evaluated 21 intraarticular middle phalanx base fractures on lateral radiographs. Eighty-one surgeons (82%) were in academic practice and 57 (58%) had less than 10 years experience. Participants assessed six fracture characteristics and recommended treatment (nonoperative or operative: extension block pinning, external fixation, open reduction and internal fixation, volar plate arthroplasty, or hemihamate autograft arthroplasty) for all cases. With all surgeons pooled together, the interobserver agreement for fracture characteristics was substantial for assessment of a 2-mm articular step or gap (kappa, 0.73; 95% CI, 0.60-0.86; p < 0.001), subluxation or dislocation (kappa, 0.72; 95% CI, 0.58-0.86; p < 0.001), and percentage of articular surface involved (intraclass correlation coefficient [ICC], 0.67; 95% CI, 0.54-0.81; p < 0.001); moderate for comminution (kappa, 0.55; 95% CI, 0.39-0.70; p < 0.001) and stability (kappa, 0.54; 95% CI, 0.39-0.69; p < 0.001); and fair for the number of fracture fragments (ICC, 0.39; 95% CI, 0.27-0.57; p < 0.001). When recommending treatment, interobserver agreement was substantial (kappa, 0.69; 95% CI, 0.50-0.88; p < 0.001) for the recommendation to operate or not to operate, but only fair (kappa, 0.34; 95% CI, 0.21-0.47; p < 0.001) for the specific type of treatment, indicating variation in operative techniques. There were no differences in agreement for any of the fracture characteristics or treatment preference between less-experienced and more-experienced surgeons, although statistical power on this comparison was low. None of the surgeon characteristics was associated with the decision for operative treatment, whereas all fracture characteristics were, except for stable and uncertain joint stability. Articular step or gap (β, 0.90; R-squared, 0.89; 95% CI, 0.75-1.05; p < 0.001), likelihood of subluxation or dislocation (β, 0.80; R-squared, 0.76; 95% CI, 0.59-1.02; p < 0.001), and unstable fractures (β, 0.88; R-squared, 0.81; 95% CI, 0.67-1.1; p < 0.001), are most strongly associated with the decision for operative treatment. We found that assessment of a step or gap and likelihood of subluxation were most reliable and are strongly associated with the decision for operative treatment. Surgeons largely agree on which fractures might benefit from surgery, and the variation seems to be with the operative technique. Efforts at improving the care of
these fractures should focus on the comparative effectiveness of the various operative
treatment options. Level III, diagnostic study.

**Flexor and Tendon Injuries**

**Title:** The differential effects of leukocyte-containing and pure platelet-rich plasma (PRP) on
tendon stem/progenitor cells - implications of PRP application for the clinical treatment of
tendon injuries

**Citation:** Stem Cell Research and Therapy, December 2015, vol/is. 6/1(no pagination), 1757-6512 (01 Dec 2015)

**Author(s):** Zhou Y., Zhang J., Wu H., Hogan M.V., Wang J.H.-C.

**Language:** English

**Abstract:** Introduction: Platelet-rich plasma (PRP) is widely used to treat tendon injuries in
clinics. These PRP preparations often contain white blood cells or leukocytes, and the
precise cellular effects of leukocyte-rich PRP (L-PRP) on tendons are not well defined.
Therefore, in this study, we determined the effects of L-PRP on tendon stem/progenitor
cells (TSCs), which play a key role in tendon homeostasis and repair. Methods: TSCs isolated
from the patellar tendons of rabbits were treated with L-PRP or P-PRP (pure PRP without
leukocytes) in vitro, followed by measuring cell proliferation, stem cell marker expression,
inflammatory gene expression, and anabolic and catabolic protein expression by using
immunostaining, quantitative real-time polymerase chain reaction, Western blot, and
enzyme-linked immunosorbent assay, respectively. Results: Cell proliferation was induced
by both L-PRP and P-PRP in a dose-dependent manner with maximum proliferation at a 10
% PRP dose. Both PRP treatments also induced differentiation of TSCs into active tenocytes.
Nevertheless, the two types of PRP largely differed in several effects exerted on TSCs. L-PRP
induced predominantly catabolic and inflammatory changes in differentiated tenocytes; its
treatment increased the expression of catabolic marker genes, matrix metalloproteinase-1
(MMP-1), MMP-13, interleukin-1beta (IL-1beta), IL-6 and tumor necrosis factor-alpha (TNF-
alpha), and their respective protein expression and prostaglandin E<inf>2</inf> (PGE<inf>2</inf>) production. In contrast, P-PRP mainly induced anabolic changes; that is, P-PRP
increased the gene expression of anabolic genes, alpha-smooth muscle actin (alpha-SMA),
collagen types I and III. Conclusions: These findings indicate that, while both L-PRP and P-
PRP appear to be "safe" in inducing TSC differentiation into active tenocytes, L-PRP may be
detrimental to the healing of injured tendons because it induces catabolic and inflammatory
effects on tendon cells and may prolong the effects in healing tendons. On the other hand,
when P-PRP is used to treat acutely injured tendons, it may result in the formation of
excessive scar tissue due to the strong potential of P-PRP to induce inordinate cellular
anabolic effects.

**Title:** Effect of Heparin on Post-Operative Adhesion in Flexor Tendon Surgery of the Hand.

**Citation:** Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 244-249, 0974-3227
**Author(s):** Akbari, Hossein, Rahimi, Amir Asadollah Khajeh, Ghavami, Yaser, Mousavi, Seyyed Jaber, Fatemi, Mohammad Javad

**Abstract:** Flexor tendon laceration is a common hand injury. Timely and correct diagnosis of this defect is an important factor for restoring hand function. Post-operative adhesion is a frequent problem after tendon repair and its prevention is difficult in some types of tendon lacerations. There have been some controversial studies on the positive effect of some materials and substances on prevention of these adhesions. This study aims to evaluate effects of the Heparin in postoperative tendon adhesions. In this clinical trial, 100 patients with laceration of flexor tendons in zone II of the hand were enrolled. The patients were randomly divided into two groups. In the first group, 0.5 cc Heparin (5000 IU/cc) was injected into each tendon ends before tendon repair. In the control group, repair was carried out without any heparin injection. After 3 months the total active range of motion (TAROM), mean extension gap (MEG) and mean flexion gap (MFG) were measured and compared between these two groups. The TAROM and MEGs were not significantly different between two groups; but MFGs were significantly better in Heparin treated group (P < 0.02). However rupture rate was significantly higher in heparin treated group (P = 0.003). Heparin may improve the tendons function and reduce the postoperative adhesions in zone II of the hand; however there is a significant risk of tendon rupture.

**Title:** Traumatic flexor tendon injuries.

**Citation:** Diagnostic and interventional imaging, Dec 2015, vol. 96, no. 12, p. 1279-1292

**Author(s):** Lapegue, F, Andre, A, Brun, C, Bakouche, S, Chiavassa, H, Sans, N, Faruch, M

**Abstract:** The flexor system of the fingers consisting of flexor tendons and finger pulleys is a key anatomic structure for the grasping function. Athletes and manual workers are particularly at risk for closed injuries of the flexor system: ruptured pulleys, ruptures of the flexor digitorum profundus from its distal attachment ("jersey finger"), and less frequently, ruptures of the flexor digitorum superficialis and of the lumbrical muscles. Open injuries vary more and their imaging features are more complex since tendons may be torn in several locations, the locations may be unusual, the injuries may be associated with nerve and vascular injuries, fibrosis... Sonography is the best imaging modality to associate with the clinical exam for it allows an experienced physician to make an accurate and early diagnosis, crucial to appropriate early treatment planning. Copyright © 2015 Éditions françaises de radiologie. Published by Elsevier Masson SAS. All rights reserved.

**Title:** Single tendon transfer of the flexor carpi ulnaris for high radial nerve injury.

**Citation:** Journal of orthopaedic surgery (Hong Kong), Dec 2015, vol. 23, no. 3, p. 345-348

**Author(s):** Sankaran, A, Thora, A, Arora, S, Dhal, A

**Abstract:** To evaluate the outcome after single tendon transfer of the flexor carpi ulnaris (FCU) to the digital extensors for high radial nerve palsy. Records of 10 patients aged 16 to
43 (median, 27) years who underwent single tendon transfer of the FCU to the digital extensors for high radial nerve palsy secondary to closed (n=4) or open (n=4) diaphyseal humeral fractures or deltoid injection (n=2) were reviewed. Two of the patients with open fractures also underwent treatment for non-union in a staged manner. Grip strength (power grip and precision grip) was measured monthly using an automated dynamometer. The range of motion of the wrist, and metacarpophalangeal joints of the thumb and fingers was measured monthly using a goniometer. All patients were followed up for at least one year. Preoperatively, the overall power grip strength of the injured hands was about 1/5 of the normal hands. At 12 months, the mean improvement was 202.5% for overall power grip strength and 43% to 57% for precision grip strength parameters. Compared with the normal hands, the mean deficit of the operated hands was 39% for overall power grip strength and 32% to 37% for precision grip strength parameters. At 12 months, mean wrist extension was 50.4°, with about 10° lag in finger and thumb extension. The mean total active motion was 86.7° in the operated wrists and 128.1° in normal wrists. The decrease in wrist flexion and ulnar deviation was 7.8° and 6.8°, respectively. Single tendon transfer of the FCU is a viable option to restore hand function and strength following high radial nerve injuries.

**Title:** Anatomic relationships in distal radius bridge plating: a cadaveric study.

**Citation:** Hand (New York, N.Y.), Dec 2015, vol. 10, no. 4, p. 657-662

**Author(s):** Dahl, Jason, Lee, Daniel J, Elfar, John C

**Abstract:** Two separate approaches have been described for radiocarpal spanning internal fixation for high-energy distal radius fractures with metaphyseal extension. To our knowledge, relevant anatomic relationships and structures at risk for iatrogenic injury have not been identified in the literature. Twelve fresh frozen cadaver arms were randomized to fixation with a dorsal radiocarpal spanning plate using one of two techniques: (1) index finger metacarpal fixation (index group) or (2) middle finger metacarpal fixation (middle group). Cadaveric dissection and relevant anatomic relationships were assessed in relation to the plate. Superficial branches of the radial sensory nerve were in contact with the index group plate in all specimens, while no contact occurred in the middle group specimens. No extensor digitorum comminus (EDC) middle extensor tendons contacted the plate in the index group; an average of 10 cm of plate contact was seen in the middle group. The extensor pollicis longus (EPL) tendon contacted the plate in both the index and middle groups for an average distance of 12.4 and 25.5 mm, respectively. One complication [EPL and extensor indicis proprius (EIP) entrapment] was observed in the middle finger metacarpal group. Mounting the dorsal bridge plate to the index finger metacarpal places the superficial branches of the radial sensory nerve at risk during dissection, while mounting the plate to the middle finger metacarpal leads to a greater degree of tendon-plate contact.

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**Mallet Finger/Thumb Deformity**

**Title:** Examination of the torque required to passively palmar abduct the thumb CMC joint in a pediatric population with hemiplegia and stroke.
**Abstract:** Many activities of daily living involve precision grasping and bimanual manipulation, such as putting toothpaste on a toothbrush or feeding oneself. However, children afflicted by stroke, cerebral palsy, or traumatic brain injury may have lost or never had the ability to actively and accurately control the thumb. To translate insights from adult rehabilitation robotics to innovative therapies for hand rehabilitation in pediatric care, specifically for thumb deformities, an understanding of the torque needed to abduct the thumb to assist grasping tasks is required. Participants (n=16, 10 female, 13.2±3.1 years) had an upper extremity evaluation and measures were made of their passive range of motion, anthropometrics, and torques to abduct the thumb for both their affected and non-affected sides. Torque measures were made using a custom wrist orthosis that was adjusted for each participant. The torque to achieve maximum abduction was 1.47±0.61 inlb for the non-affected side and 1.51±0.68 inlb for the affected side, with a maximum recorded value of 4.87 inlb. The overall maximum applied torque was observed during adduction and was 5.10 inlb. We saw variation in the applied torque, which could have been due to the applied torques by the Occupational Therapist or the participant actively assisting or resisting the motion rather than remaining passive. We expect similar muscle and participant variation to exist with an assistive device. Thus, the data presented here can be used to inform the specifications for the development of an assistive thumb orthosis for children with "thumb-in-palm" deformity. Copyright © 2015 Elsevier Ltd. All rights reserved.

**Title:** Short-term and Long-term Clinical Results of the Surgical Correction of Thumb-in-Palm Deformity in Patients With Cerebral Palsy.

**Abstract:** Thumb-in-palm deformity disturbs a functional grip of the hand in patients with cerebral palsy. Reported recurrence rates after surgical correction are contradicting and earlier studies are limited to short-term follow-up. Therefore, the aim of this retrospective clinical outcome study is to evaluate the success rate of surgical correction of thumb-in-palm deformity around 1 year and at a minimum of 5 years follow-up. In addition, long-term patient satisfaction of the treatment is evaluated. Patients with cerebral palsy who underwent a surgical correction for their thumb-in-palm deformity between April 2003 and April 2008 at the Academic Medical Center in Amsterdam were included. All patients were classified into 4 categories according to the assessment system of the Committee on Spastic Hand Evaluation. The result of surgery was considered "short-term successful" and "long-term successful" when, respectively, short-term and long-term classification was better compared with preoperative. The association between the patient satisfaction outcomes and the long-term clinical outcomes were statistically analyzed. Data were collected from 39 patients and their charts. The success rate was 87% at short-term follow-up, which in the long term decreased to 80%. Interestingly, thumb position deteriorated in 29% of the patients between short-term and long-term follow-up. In the long term, 74% of the patients...
were satisfied with the position of their thumb and 87% would undergo the surgery again. Both these outcomes were statistically significant associated with the long-term success rate (P<0.05). The surgical correction of thumb-in-palm deformity has a high clinical success rate and patient satisfaction in the long term. However, it should be taken into account that the clinical result around 1 year postoperative cannot be considered final. Level IV.

Title: The Snow-Fink technique as an opposition tendon transfer for children born with a hypoplastic or absent thumb.

Citation: Hand (New York, N.Y.), Dec 2015, vol. 10, no. 4, p. 732-737, 1558-9447

Author(s): Yoon, Alfred P, Jones, Neil F

Abstract: A novel opposition tendon transfer, previously described by Snow and Fink in adults but not in children, can provide better functional results and cosmetic appearance than the currently preferred Huber transfer. Thirty-one children were born either without a thumb (17) or with a hypoplastic thumb (14). Thirty-eight thumbs were classified according to the Blauth classification as stages II, IIIA, IIIB, IV, and V respectively. The opposition tendon transfer was performed between the ages of 4 and 10, using the expendable flexor digitorum superficialis (FDS) tendon from the ring finger which was passed through a 3-mm-diameter window in the transverse carpal ligament, routed subcutaneously across the palm and attached to the insertion of the abductor pollicis brevis on the base of the proximal phalanx of the thumb. This creates a vector of pull from the ulnar side of the hand which both abducts and pronates the thumb. Twenty-one hands underwent additional procedures such as four-flap Z-plasty (11), ulnar collateral ligament reconstruction (6), joint transfer, full-thickness skin grafting, and distraction lengthening. The ability of each child to oppose their thumb to the index finger (score 2), middle finger (score 3), ring finger (score 4), or small finger (score 5) was assessed preoperatively and postoperatively by their Kapandji score. Thirty-one children (81.6 %) achieved a postoperative Kapandji score of 5, while 7 children (18.4 %) had a postoperative Kapandji score of 4. No deformities were observed, and the metacarpophalangeal (MCP) joint was stabilized with the other slip of the FDS when necessary. An opposition transfer using the FDS tendon of the ring finger through a window in the transverse carpal ligament is a simple and reliable technique for improving thumb function in children born with an absent or hypoplastic thumb. This transfer does not produce a concave deformity in the hypothenar eminence like the Huber transfer, provides better pronation, and affords concurrent stabilization of the MCP joint.

Nerve Injuries

Title: Entrapment and traumatic neuropathies of the elbow and hand: An imaging approach.

Citation: Diagnostic and interventional imaging, Dec 2015, vol. 96, no. 12, p. 1261-1278

Author(s): Deniel, A, Causeret, A, Moser, T, Rolland, Y, Dréano, T, Guillin, R
**Abstract:** Ultrasound and magnetic resonance imaging currently offer a detailed analysis of the peripheral nerves. Compressive and traumatic nerve injuries are the two main indications for imaging investigation of nerves with several publications describing the indications, technique and diagnostic capabilities of imaging signs. Investigation of entrapment neuropathies has three main goals, which are to confirm neuronal distress, search for the cause of nerve compression and exclude a differential diagnosis on the entire nerve. For traumatic nerve injuries, imaging, predominantly ultrasound, occasionally provides essential information for management including the type of nerve lesion, its exact site and local extension. Copyright © 2015 Éditions françaises de radiologie. Published by Elsevier Masson SAS. All rights reserved.

**Title:** Vascularized Heterodigital Island Flap for Fingertip and Dorsal Finger Reconstruction.

**Citation:** The Journal of hand surgery, Dec 2015, vol. 40, no. 12, p. 2458-2464

**Author(s):** Pham, Dang T, Netscher, David T

**Abstract:** A heterodigital vascularized island flap can functionally restore large soft tissue defects to the injured fingertip in a single stage. It is optimally used for digits of unequal length so that the donor fingertip is not violated, and the skin island is best taken from the less dominant side of the donor finger. Because it is a transposition flap with a proximal axis of rotation, its transposition arc can also reach the dorsum of an adjacent digit. This article describes how the heterodigital arterialized flap preserves the donor finger digital nerve and distal pulp, thus reducing donor site morbidity. Indications, method of flap elevation, and flap design will be reviewed to optimize case selection, minimize donor site morbidity, and enhance safety of flap elevation and transposition. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

**Title:** Brain functional network abnormality extends beyond the sensorimotor network in brachial plexus injury patients.

**Citation:** Brain Imaging and Behavior, Dec 2015, (Dec 2, 2015), 1931-7557 (Dec 2, 2015)

**Author(s):** Feng, Jun-Tao, Liu, Han-Qiu, Hua, Xu-Yun, Gu, Yu-Dong, Xu, Jian-Guang

**Abstract:** Brachial plexus injury (BPI) is a type of severe peripheral nerve trauma that leads to central remodeling in the brain, as revealed by functional MRI analysis. However, previously reported remodeling is mostly restricted to sensorimotor areas of the brain. Whether this disturbance in the sensorimotor network leads to larger-scale functional remodeling remains unknown. We sought to explore the higher-level brain functional abnormality pattern of BPI patients from a large-scale network function connectivity dimension in 15 right-handed BPI patients. Resting-state functional MRI data were collected and analyzed using independent component analysis methods. Five components of interest were recognized and compared between patients and healthy subjects. Patients showed significantly altered brain local functional activities in the bilateral fronto-parietal network (FPN), sensorimotor network (SMN), and executive-control network (ECN) compared with healthy subjects. Moreover, functional connectivity between SMN and ECN were
significantly less in patients compared with healthy subjects, and connectivity strength between ECN and SMN was negatively correlated with patients' residual function of the affected limb. Functional connectivity between SMN and right FPN were also significantly less than in controls, although connectivity between ECN and default mode network (DMN) was greater than in controls. These data suggested that brain functional disturbance in BPI patients extends beyond the sensorimotor network and cascades serial remodeling in the brain, which significantly correlates with residual hand function of the paralyzed limb. Furthermore, functional remodeling in these higher-level functional networks may lead to cognitive alterations in complex tasks.

Title: Tetraplegia Management Update.

Citation: The Journal of hand surgery, Dec 2015, vol. 40, no. 12, p. 2489-2500

Author(s): Fridén, Jan, Gohritz, Andreas

Abstract: Tetraplegia is a profound impairment of mobility manifesting as a paralysis of all 4 extremities owing to cervical spinal cord injury. The purpose of this article is to provide an update and analyze current management, treatment options, and outcomes of surgical reconstruction of arm and hand function. Surgical restoration of elbow and wrist extension or handgrip has tremendous potential to improve autonomy, mobility, and critical abilities, for example, eating, personal care, and self-catheterization and productive work in at least 70% of tetraplegic patients. Tendon and nerve transfers, tenodeses, and joint stabilizations reliably enable improved arm and hand usability, reduce muscle imbalance and pain in spasticity, and prevent joint contractures. One-stage combined procedures have proven considerable advantages over traditional multistage approaches. Immediate activation of transferred muscles reduces the risk of adhesions, facilitates relearning, avoids adverse effects of immobilization, and enhances functional recovery. Transfer of axillary, musculocutaneous, and radial nerve fascicles from above the spinal cord injury are effective and promising options to enhance motor outcome and sensory protection, especially in groups with limited resources. Improved communication between medical disciplines, therapists, patients, and their relatives should help that more individuals can benefit from these advances and could empower many thousands tetraplegic individuals "to take life into their own hands" and live more independently. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: TrkB Signaling in Retinal Glia Stimulates Neuroprotection after Optic Nerve Injury.

Citation: The American journal of pathology, Dec 2015, vol. 185, no. 12, p. 3238-3247

Author(s): Harada, Chikako, Azuchi, Yuriko, Noro, Takahiko, Guo, Xiaoli, Kimura, Atsuko, Namekata, Kazuhiko, Harada, Takayuki

Abstract: Brain-derived neurotrophic factor (BDNF) regulates neural cell survival mainly by activating TrkB receptors. Several lines of evidence support a key role for BDNF-TrkB
signaling in survival of adult retinal ganglion cells in animal models of optic nerve injury (ONI), but the neuroprotective effect of exogenous BDNF is transient. Glial cells have recently attracted considerable attention as mediators of neural cell survival, and TrkB expression in retinal glia suggests its role in neuroprotection. To elucidate this point directly, we examined the effect of ONI on TrkB(flox/flox):gliarial fibrillary acidic protein (GFAP)-Cre+ (TrkB(GFAP)) knockout (KO) mice, in which TrkB is deleted in retinal glial cells. ONI markedly increased mRNA expression levels of basic fibroblast growth factor (bFGF) in wild-type (WT) mice but not in TrkB(GFAP) KO mice. Immunohistochemical analysis at 7 days after ONI (d7) revealed bFGF up-regulation mainly occurred in Müller glia. ONI-induced retinal ganglion cell loss in WT mice was consistently mild compared with TrkB(GFAP) KO mice at d7. On the other hand, ONI severely decreased TrkB expression in both WT and TrkB(GFAP) KO mice after d7, and the severity of retinal degeneration was comparable with TrkB(GFAP) KO mice at d14. Our data provide direct evidence that glial TrkB signaling plays an important role in the early stage of neural protection after traumatic injury. Copyright © 2015 American Society for Investigative Pathology. Published by Elsevier Inc. All rights reserved.

Title: Acute Median Neuropathy and Carpal Tunnel Release in Perilunate Injuries Can We Predict Who Gets a Median Neuropathy?

Citation: Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 237-240

Author(s): Wickramasinghe, Neil R, Duckworth, Andrew D, Clement, Nick D,

Abstract: This study addressed the following null hypotheses: 1) There are no demographic differences between patients with perilunate dislocation (PLD) or fracture-dislocation (PLFD); 2) There are no factors associated with the development of median nerve symptoms in the setting of a PLD or PLFD; and 3) There are no factors associated with carpal tunnel release. Using a retrospective search of a prospective trauma database, we identified all patients who had sustained a radiologically confirmed PLD or PLFD over a 10-year period at two trauma centers. From the medical records we identified median nerve symptoms and carpal tunnel release in addition to demographic and injury characteristics. Among the 71 patients treated for PLD or PLFD, acute median neuropathy was diagnosed in 33 patients (47%). The only significant difference between PLD and PLFD was a younger age with PLFD. No demographic or injury factors were associated with symptoms of median neuropathy. Carpal tunnel release surgery during the initial operative management was related to the presence of median nerve symptoms and the trauma center. We report a high incidence of acute median neuropathy accompanying perilunate injuries. As there are no demographic or injury factors associated with symptoms of median neuropathy; all patients with PLD/PLFD merit equally high vigilance for acute median neuropathy. Level III, prognostic study.

Soft tissue wrist injuries

Title: Accuracy of simple plain radiographic signs and measures to diagnose acute scapholunate ligament injuries of the wrist.
**Citation:** European radiology, Dec 2015, vol. 25, no. 12, p. 3488-3498 (December 2015)

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

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

**Title:** Surgical treatment of dorsal perilunate fracture-dislocations and prognostic factors.

**Citation:** International journal of surgery (London, England), Dec 2015, vol. 24, p. 57-63

**Author(s):** Kara, Adnan, Celik, Haluk, Seker, Ali, Kilinc, Eray, Camur, Savas, Uzun, Metin

**Abstract:** Perilunate injuries are rare entities which can be difficult to diagnose. Most common type is dorsal perilunate fracture dislocation (97%). The purpose of treatment is anatomic reduction and stable fixation. We aimed to present the radiologic and functional results of surgically treated dorsal perilunate fracture-dislocations and discuss the factors influencing the prognosis. Between 2007 and 2013, 17 patients were operated for perilunate fracture-dislocations. The mechanism of injuries, soft tissue traumas, etiologic factors and stages according to Herzberg classification were determined. The MAYO wrist score was used for functional evaluation. Scapholunate distance and scapholunate angle were measured and, degenerative changes were investigated by comparing with contralateral side on plain x-ray images in terms of radiologic evaluation. Mean follow-up was 37,8 (range, 16-84) months. The average age at surgery was 35.1 (range, 18-51) years. Fifteen patients were male and two were female. Functional results were excellent in four (23.5%), good in two (11.8%), satisfactory in five (29.4%) and poor in six (35.3%) patients. Degenerative changes were determined in radiocarpal and mid-carpal joints of 14 wrists (82.4%). Scapholunate dissociation more than 2 mm was detected in three wrists. In four wrists osteochondral fragments were determined on the head of the capitate. Stage 2
lesions, delayed presentations, open fractures, scapholunate dissociations more than 2 mm had worse functional results. Despite anatomic reduction, ligamentous and chondral injuries that occurred at the time of trauma may cause persistent wrist pain in patients who suffer perilunate fracture dislocation. Mechanism of injury, presence of soft tissue defects and the time between injury and treatment can affect clinical and radiologic results. Copyright © 2015 IJS Publishing Group Limited. Published by Elsevier Ltd. All rights reserved.

**Title:** Trigger Wrist.

**Citation:** Clinics in orthopedic surgery, Dec 2015, vol. 7, no. 4, p. 523-526

**Author(s):** Park, Il-Jung, Lee, Yoon-Min, Rhee, Seung-Koo, Song, Seok-Whan, Kim,

**Abstract:** Trigger wrist is a relatively rare disease compared to trigger finger, which is the most common disorder found in hands. Patients with trigger wrist usually complain about the following symptoms: snapping and clicking or triggering around carpal tunnel with or without mild to moderate median neuropathy. There are a total of five cases of trigger wrist: three cases of anomalous muscle belly of flexor digitorum superficialis and two cases of fibroma around flexor tendon sheath within carpal tunnel. This study reports on two of those cases: one with anomalous muscle and the other with fibroma of flexor tendon sheath. Accurate examination and proper diagnosis are mandatory to obviate improper and time-wasting treatment for patients with trigger wrist.

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**Trapeziectomy (Osteoarthritic thumb)**

**Title:** Arthroscopic interposition in thumb carpometacarpal osteoarthritis: A series of 26 cases

**Citation:** Chirurgie de la Main, December 2015, vol./is. 34/6(307-311)

**Author(s):** Pereira A., Ichihara S., Facca S., Hendriks S., Gouzou S., Liverneaux P.

**Abstract:** In 2011, we reported good results after a mean follow-up of 14 months for a series of 25 patients who underwent thumb carpometacarpal osteoarthritis surgery in which a poly-L-lactic acid implant was interposed arthroscopically. The aim of this study was to evaluate the outcomes after a longer follow-up. The new series consisted of 26 patients, whose average age was 60 years, operated with arthroscopy for the interposition of an implant made of poly-L-lactic acid in 12 cases and tendon interposition in 14 cases. After an average follow-up of 20 months, the pain assessed with a visual analog scale was on average 6.61/10 before surgery and 6.03/10 after, the QuickDASH score was 56.36/100 before and 53.65/100 after, grip strength was 15.34 kg before and 12.8 kg after, pinch strength was 3.7 kg before and 2.18 kg after, Kapandji thumb opposition score was 8.96/10 before and 8.26/10 after. The radiological stage did not change. We noted one case of type 1 complex regional pain syndrome and 12 poor results, 11 of which were reoperated by trapeziectomy. Given our results and the lack of published studies with a high level of
Trigger finger/thumb

**Title:** Early Patient Satisfaction with Different Treatment Pathways for Trigger Finger and Thumb.

**Citation:** Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 283-293, 0974-3227

**Author(s):** Becker, Stéphanie J E, Braun, Yvonne, Janssen, Stein J, Neuhaus, Valentin,

**Abstract:** Little is known about factors related to patient satisfaction with treatment for trigger digits. This study tested the null hypothesis that there are no factors associated with treatment satisfaction 2 months after completion of treatment (absence of triggering) or 4 months after the last visit for patients with a trigger thumb or finger. Secondary null hypotheses were: 1) There are no factors associated with a change in patients' preferred treatment before and after consultation with a hand surgeon; and 2) Initial treatment provided is not different from final received treatment. In an observational study, 63 English-speaking adult patients were enrolled after being diagnosed with one or more new idiopathic trigger digits by one of two hand surgeons, but before the hand surgeon discussed treatment options. Patients were asked to fill out questionnaires at enrollment. Final evaluation was by phone. Satisfaction with treatment was not related to the initial treatment or other patient or disease factors. Twenty-three patients (37 %) had a different preference for treatment after talking with a hand surgeon. Involvement of the long and ring fingers were the only factors associated with staying with pre-visit treatment preferences. There was a significant difference in proportions of the various treatments provided at enrollment and final treatment recorded at the final phone evaluation, 14 patients (22 %) had a subsequent alternative form of treatment. Patients' preferences for trigger finger treatment often change after consulting with a hand surgeon and during treatment, but these choices do not affect treatment satisfaction.

**Title:** Ultrasound-Guided Hyaluronic Acid Injections for Trigger Finger: A Double-Blinded, Randomized Controlled Trial

**Citation:** Archives of Physical Medicine and Rehabilitation, December 2015, vol./is. 96/12(2120-2127)

**Author(s):** Liu D.-H., Tsai M.-W., Lin S.-H., Chou C.-L., Chiu J.-W., Chiang C.-C., Kao C.-L.

**Abstract:** Objectives To investigate the effects of ultrasound-guided injections of hyaluronic acid (HA) versus steroid for trigger fingers in adults. Design Prospective, double-blinded, randomized controlled study. Setting Tertiary care center. Participants Subjects with a diagnosis of trigger finger (N=36; 39 affected digits) received treatment and were evaluated. Interventions Subjects were randomly assigned to HA and steroid injection groups. Both study medications were injected separately via ultrasound guidance with 1 injection. Main
Outcome Measures The classification of trigger grading, pain, functional disability, and patient satisfaction were evaluated before the injection and 3 weeks and 3 months after the injection. Results At 3 months, 12 patients (66.7%) in the HA group and 17 patients (89.5%) in the steroid group exhibited no triggering of the affected fingers (P=.124). The treatment results at 3 weeks and 3 months showed similar changes in the Quinnell scale (P=.057 and.931, respectively). A statistically significant interaction effect between group and time was found for visual analog scale (VAS) and Michigan Hand Outcome Questionnaire (MHQ) evaluation (P<.05). The steroid group had a lower VAS at 3 months after injection (steroid 0.5+/-.1.1 vs HA 2.7+/-.2.4; P<.001). The HA group demonstrated continuing significant improvement in MHQ at 3 months (change from 3wk: steroid -2.6+/-.14.1 vs HA 19.1+/-.37.0; P=.023; d=.78). Conclusions Ultrasound-guided injection of HA demonstrated promising results for the treatment of trigger fingers. The optimal frequency, dosage, and molecular weight of HA injections for trigger fingers deserve further investigation for future clinical applications.

Title: Mining Discriminative Patterns from Graph Data with Multiple Labels and Its Application to Quantitative Structure-Activity Relationship (QSAR) Models.

Citation: Journal of chemical information and modeling, Dec 2015, vol. 55, no. 12, p. 2519-2527

Author(s): Shao, Zheng, Hirayama, Yuya, Yamanishi, Yoshihiro, Saigo, Hiroto

Abstract: Graph data are becoming increasingly common in machine learning and data mining, and its application field pervades to bioinformatics and cheminformatics. Accordingly, as a method to extract patterns from graph data, graph mining recently has been studied and developed rapidly. Since the number of patterns in graph data is huge, a central issue is how to efficiently collect informative patterns suitable for subsequent tasks such as classification or regression. In this paper, we consider mining discriminative subgraphs from graph data with multiple labels. The resulting task has important applications in cheminformatics, such as finding common functional groups that trigger multiple drug side effects, or identifying ligand functional groups that hit multiple targets. In computational experiments, we first verify the effectiveness of the proposed approach in synthetic data, then we apply it to drug adverse effect prediction problem. In the latter dataset, we compared the proposed method with L1-norm logistic regression in combination with the PubChem/Open Babel fingerprint, in that the proposed method showed superior performance with a much smaller number of subgraph patterns. Software is available from https://github.com/axot/GLP.

Title: Novel endoscopic over-the-scope clip system.

Citation: World journal of gastroenterology, Dec 2015, vol. 21, no. 48, p. 13587-13592

Author(s): Armellini, Elia, Crinò, Stefano Francesco, Orsello, Marco, Ballarè, Marco, Tari, Roberto, Saettone, Silvia, Montino, Franco, Occhipinti, Pietro
Abstract: This paper reports our experience with a new over-the-scope clip in the setting of recurrent bleeding and oesophageal fistula. We treated five patients with the over-the-scope Padlock ClipTM. It is a nitinol ring, with six inner needles preassembled on an applicator cap, thumb press displaced by the Lock-ItTM delivery system. The trigger wire is located alongside the shaft of the endoscope, and does not require the working channel. Three patients had recurrent bleeding lesions (bleeding rectal ulcer, post polypectomy delayed bleeding and duodenal Dieulafoy's lesion) and two patients had a persistent respiratory-oesophageal fistula. In all patients a previous endoscopic attempt with standard techniques had been useless. All procedures were conducted under conscious sedation but for one patient that required general anaesthesia due to multiple comorbidities. We used one Padlock ClipTM for each patient in a single session. Simple suction was enough in all of our patients to obtain tissue adhesion to the instrument tip. A remarkably short application time was recorded for all cases (mean duration of the procedure: 8 min). We obtained technical and immediate clinical success for every patient. No major immediate, early or late (within 24 h, 7 d or 4 wk) adverse events were observed, over follow-up durations lasting a mean of 109.4 d. One patient, treated for duodenal bulb bleeding from a Dieulafoy's lesion, developed signs of mild pancreatitis 24 h after the procedure. The new over-the-scope Padlock ClipTM seems to be simple to use and effective in different clinical settings, particularly in "difficult" scenarios, like recurrent bleeding and respiratory-oesophageal fistulas.

Title: Task-specific stability of abundant systems: Structure of variance and motor equivalence.

Citation: Neuroscience, Dec 2015, vol. 310, p. 600-615 (December 3, 2015)

Author(s): Mattos, D, Schöner, G, Zatsiorsky, V M, Latash, M L

Abstract: Our main goal was to test a hypothesis that transient changes in performance of a steady-state task would result in motor equivalence. We also estimated effects of visual feedback on the amount of reorganization of motor elements. Healthy subjects performed two variations of a four-finger pressing task requiring accurate production of total pressing force (FTOT) and total moment of force (MTOT). In the Jumping-Target task, a sequence of target jumps required transient changes in either FTOT or MTOT. In the Step-Perturbation task, the index finger was lifted by 1cm for 0.5s leading to a change in both FTOT and MTOT. Visual feedback could have been frozen for one of these two variables in both tasks. Deviations in the space of finger modes (hypothetical commands to individual fingers) were quantified in directions of unchanged FTOT and MTOT (motor equivalent - ME) and in directions that changed FTOT and MTOT (non-motor equivalence - nME). Both the ME and nME components increased when the performance changed. After transient target jumps leading to the same combination of FTOT and MTOT, the changes in finger modes had a large residual ME component with only a very small nME component. Without visual feedback, an increase in the nME component was observed without consistent changes in the ME component. Results from the Step-Perturbation task were qualitatively similar. These findings suggest that both external perturbations and purposeful changes in performance trigger a reorganization of elements of an abundant system, leading to large ME change. These results are consistent with the principle of motor abundance.
corroborating the idea that a family of solutions is facilitated to stabilize values of important performance variables. Published by Elsevier Ltd.

**Title:** Factor XII full and partial null in rat confers robust antithrombotic efficacy with no bleeding.

**Citation:** Blood coagulation & fibrinolysis : an international journal in haemostasis and thrombosis, Dec 2015, vol. 26, no. 8, p. 893-902 (December 2015)

**Author(s):** Cai, Tian-Quan, Wu, Weizhen, Shin, Myung K, Xu, Yiming, Jochnowitz, Nina, Zhou, Yuchen, Hoos, Lizbeth, Bentley, Ross, Strapps, Walter, Thankappan, Anil, Metzger, Joseph M, Ogletree, Martin L, Tadin-Strapps, Marija, Seiffert, Dietmar A, Chen, Zhu

**Abstract:** This report aims at exploring quantitatively the relationship between FXII inhibition and thromboprotection. FXII full and partial null in rats were established via zinc finger nuclease-mediated knockout and siRNA-mediated knockdown, respectively. The rats were subsequently characterized in thrombosis and hemostasis models. Knockout rats exhibited complete thromboprotection in both the arteriovenous shunt model (~100% clot weight reduction) and the FeCl3-induced arterial thrombosis model (no reduction in blood flow), without any increase in cuticle bleeding time compared with wild-type control rats. Ex-vivo aPTT and the ellagic acid-triggered thrombin generation assay (TGA) exhibited anticoagulant changes. In contrast, ex-vivo PT or high tissue factor-triggered TGA was indistinguishable from control. Rats receiving single doses (0, 0.01, 0.03, 0.1, 0.3, 1 mg/kg) of FXII siRNA exhibited dose-dependent knockdown in liver FXII mRNA and plasma FXII protein (95 and 99%, respectively, at 1 mg/kg) at day 7 post dosing. FXII knockdown was associated with dose-dependent thromboprotection (maximal efficacy achieved with 1 mg/kg in both models) and negligible change in cuticle bleeding times. Ex-vivo TGA triggered with low-level (0.5 μmol/l) ellagic acid tracked best with the knockdown levels and efficacy. Our findings confirm and extend literature reports of an attractive benefit-to-risk profile of targeting FXII for antithrombotic therapies. Titrating of FXII is instructive for its pharmacological inhibition. The knockout rat is valuable for evaluating both mechanism-based safety concerns and off-target effects of FXII(a) inhibitors. Detailed TGA analyses will inform on optimal trigger conditions in studying pharmacodynamic effects of FXII(a) inhibition.

**Ulnar Collateral ligament Sprain - Thumb** – no new evidence this month

**Wrist and Finger fractures (distal radius/scaphoid)**

**Title:** Utilization of Post-Acute Care Following Distal Radius Fracture Among Medicare Beneficiaries.

**Citation:** The Journal of hand surgery, Dec 2015, vol. 40, no. 12, p. 2401 (December 2015)
Author(s): Zhong, Lin, Mahmoudi, Elham, Giladi, Aviram M, Shauver, Melissa,

Abstract: To examine the utilization and cost of post-acute care following isolated distal radius fractures (DRFs) among Medicare beneficiaries. We examined utilization of post-acute care among Medicare beneficiaries who experienced an isolated DRF (n = 38,479) during 2007 using 100% Medicare claims data. We analyzed the effect of patient factors on hospital admission following DRF and the receipt of post-acute care delivered by skilled nursing facilities, inpatient rehabilitation facilities, home health care agencies, and outpatient occupational therapy/physical therapy for the recovery of DRF. In this cohort of isolated DRF patients, 1,694 (4.4%) were admitted to hospitals following DRF, and 20% received post-acute care. Women and patients with more comorbid conditions were more likely to require hospital admission. The utilization of post-acute care was higher among women, patients who resided in urban areas, and patients of higher socioeconomic status. The average cost per patient of post-acute care services from inpatient rehabilitation facilities and skilled nursing facilities ($15,888/patient) was significantly higher than the average cost other aspects of DRF care and accounted for 69% of the total DRF-related expenditure among patients who received inpatient rehabilitation. Sociodemographic factors, including sex, socioeconomic status, and age, were significantly correlated with the use of post-acute care following isolated DRFs, and post-acute care accounted for a substantial proportion of the total expenditures related to these common injuries among the elderly. Identifying patients who will derive the greatest benefit from post-acute care can inform strategies to improve the cost efficiency of rehabilitation and optimize scarce health care resources. Therapeutic III. Copyright © 2015 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Prevalence of Low Bone Mineral Density in Younger Versus Older Women With Distal Radius Fractures.


Author(s): Massey, Patrick A, James, Jeremy R, Bonvillain, Joseph, Nelson, Bradley G, Massey, Stacey R, Hollister, Anne

Abstract: Although distal radius fractures (DRFs) are the most common fractures among younger women, few studies have examined bone health in this age group. We compared bone mineral density (BMD) of younger women (35-50 years) and older women (>50 years) treated for DRFs. Between January 2005 and August 2010, our orthopedic service obtained dual-energy x-ray absorptiometry scans from 128 women with DRFs (47 were 35-50 years old; 81 were older than 50 years). According to the World Health Organization classification system, 43% of the younger patients were osteopenic, and 6% were osteoporotic. Mean femoral neck BMD was 0.91 for the younger group and 0.80 for the older group (P < .05); t scores were -0.87 and -1.65, respectively (P < .05). The difference in femoral neck z scores between the younger and older patients was not statistically different: -0.69 and -0.67, respectively (P = .92). A notable proportion of younger patients with DRFs have osteopenia or osteoporosis. The similarity in z scores among younger and older women with DRFs and
among patient groups differentiated by mechanism of injury suggests that any younger or older woman with a DRF should have her BMD evaluated and treated as appropriate.

**Title:** A Brachioradialis Splitting Approach Sparing the Pronator Quadratus for Volar Plating of the Distal Radius.

**Citation:** Techniques in hand & upper extremity surgery, Dec 2015, vol. 19, no. 4, p. 176-181

**Author(s):** Kashir, Abdalla, O'Donnell, Turlough

**Abstract:** Fractures of the distal radius account for up to 15% of all extremity fractures. Volar plating has become more popular, as it allows locking plate technology to be applied. Traditionally, access to the volar radius has been achieved through the approach of Henry using the interval between flexor carpi radialis and the radial artery, involving incising the radial border of the pronator quadratus (PQ). With this approach, PQ repair is difficult, and when attempted is often incomplete or tenuous, as it is a direct muscle-to-muscle repair. Theoretical advantages of repairing the PQ include the provision of plate coverage, a protective gliding layer, a well-vascularized coverage of the fracture fragments, and a protective barrier against deep infection in the case of superficial infection. Techniques have been developed to try and improve on the Henry approach. We have developed a surgical approach to volar plating that utilizes the anatomic relationship between brachioradialis and PQ in a way that allows simple and stable reattachment of the PQ muscle. We have termed the technique the "Brachioradialis splitting" approach. We present it here.

**Title:** Circulating sclerostin and estradiol levels are associated with inadequate response to bisphosphonates in postmenopausal women with osteoporosis.

**Citation:** Maturitas, Dec 2015, vol. 82, no. 4, p. 402-410

**Author(s):** Morales-Santana, Sonia, Díez-Pérez, Adolfo, Olmos, José M, Nogués, Xavier, Sosa, Manuel, Díaz-Curiel, Manuel, Pérez-Castrillón, José L, Pérez-Cano, Ramón, Torrijos, Antonio, Jodar, Esteban, Rio, Luis Del, Caeiro-Rey, José R, Reyes-García, Rebeca, García-Fontana, Beatriz, González-Macias, Jesús, Muñoz-Torres, Manuel

**Abstract:** The biological mechanisms associated with an inadequate response to treatment with bisphosphonates are not well known. This study investigates the association between circulating levels of sclerostin and estradiol with an inadequate clinical outcome to bisphosphonate therapy in women with postmenopausal osteoporosis. This case-control study is based on 120 Spanish women with postmenopausal osteoporosis being treated with oral bisphosphonates. Patients were classified as adequate responders (ARs, n=66, mean age 68.2±8 years) without incident fractures during 5 years of treatment, or inadequate responders (IRs, n=54, mean age 67±9 years), with incident fractures between 1 and 5 years of treatment. Bone mineral density (DXA), structural analysis of the proximal femur and structural/fractal analysis of the distal radius were assessed. Sclerostin concentrations were measured by ELISA and 17β-estradiol levels by radioimmunoassay based on ultrasensitive methods. In the ARs group, sclerostin serum levels were significantly lower (p=0.02) and estradiol concentrations significantly higher (p=0.023) than in the IRs group. A logistic
regression analysis was performed, including as independent variables in the original model femoral fracture load, 25 hydroxyvitamin D, previous history of fragility fracture, sclerostin and estradiol. Only previous history of fragility fracture (OR 14.04, 95% CI 2.38-82.79, p=0.004) and sclerostin levels (OR 1.11, 95% CI 1.02-1.20, p=0.011), both adjusted by estradiol levels remained associated with IRs. Also, sclerostin concentrations were associated with the index of resistance to compression (IRC) in the fractal analysis of the distal radius, a parameter on bone microstructure. Sclerostin and estradiol levels are associated with the response to bisphosphonate therapy in women with postmenopausal osteoporosis. Copyright © 2015 Elsevier Ireland Ltd. All rights reserved.

**Title:** Histomorphometric Assessment of Cancellous and Cortical Bone Material Distribution in the Proximal Humerus of Normal and Osteoporotic Individuals: Significantly Reduced Bone Stock in the Metaphyseal and Subcapital Regions of Osteoporotic Individuals.

**Citation:** Medicine, Dec 2015, vol. 94, no. 51, p. e2043. (December 2015)

**Author(s):** Sprecher, Christoph M, Schmidutz, Florian, Helfen, Tobias, Richards, R Geoff, Blauth, Michael, Milz, Stefan

**Abstract:** Osteoporosis is a systemic disorder predominantly affecting postmenopausal women but also men at an advanced age. Both genders may suffer from low-energy fractures of, for example, the proximal humerus when reduction of the bone stock or/and quality has occurred. The aim of the current study was to compare the amount of bone in typical fracture zones of the proximal humerus in osteoporotic and non-osteoporotic individuals. The amount of bone in the proximal humerus was determined histomorphometrically in frontal plane sections. The donor bones were allocated to normal and osteoporotic groups using the T-score from distal radius DXA measurements of the same extremities. The T-score evaluation was done according to WHO criteria. Regional thickness of the subchondral plate and the metaphyseal cortical bone were measured using interactive image analysis. At all measured locations the amount of cancellous bone was significantly lower in individuals from the osteoporotic group compared to the non-osteoporotic one. The osteoporotic group showed more significant differences between regions of the same bone than the non-osteoporotic group. In both groups the subchondral cancellous bone and the subchondral plate were least affected by bone loss. In contrast, the medial metaphyseal region in the osteoporotic group exhibited higher bone loss in comparison to the lateral side. This observation may explain prevailing fracture patterns, which frequently involve compression fractures and certainly has an influence on the stability of implants placed in this medial region. It should be considered when planning the anchoring of osteosynthesis materials in osteoporotic patients with fractures of the proximal humerus.

**Title:** Revisiting spontaneous rupture of the extensor pollicis longus tendon: eight cases without identifiable predisposing factor.

**Citation:** Hand (New York, N.Y.), Dec 2015, vol. 10, no. 4, p. 726-731

**Author(s):** Hu, Ching-Hsuan, Fufa, Duretti, Hsu, Chung-Chen, Lin, Yu-Te, Lin, Chih-Hung
**Abstract:** Rupture of the extensor pollicis longus (EPL) tendon has been reported in the setting of distal radius fracture, chronic inflammatory arthritis, following steroid injection, and with excessive or repetitive activities. Truly, spontaneous EPL rupture, without an identifiable predisposing factor, has rarely been reported. We present a retrospective case series of eight patients with spontaneous EPL rupture who were treated in our institution. The majority of the cases were female (75 %, n = 6), and the nondominant (75 %, n = 6) hand was most commonly involved. No identifiable predisposing factor could be identified in four patients. While four patients reported a history of a fall, radiographs failed to demonstrate skeletal abnormality in all four cases. No additional pathology could be identified at the time of surgery. Patients were treated using tendon transfer (n = 7) or interpositional graft (n = 1). There has been no case of clinical recurrence in the mean of 74.8 months (range 23-140 months) follow-up period. The EPL tendon is at risk for spontaneous rupture even in the absence of identifiable predisposing risk factor. Rather than pure mechanical irritation, vascular and metabolic factors may also play a substantial role in the etiology of this uncommon diagnosis.

**Title:** Sexual Function Is Impaired After Common Orthopaedic Nonpelvic Trauma.

**Citation:** Journal of orthopaedic trauma, Dec 2015, vol. 29, no. 12, p. e487.

**Author(s):** Shulman, Brandon S, Taormina, David P, Patsalos-Fox, Bianka, Davidovitch, Roy I, Karia, Raj J, Egol, Kenneth A

**Abstract:** The purpose of this study was to investigate the prevalence and longitudinal improvement of patient reported sexual dysfunction after 5 common nonpelvic orthopaedic traumatic conditions. Retrospective analysis of prospectively collected data. Academic Medical Center. The functional status of 1324 patients with acute proximal humerus fractures (n = 104), acute distal radius fractures (n = 396), acute tibial plateau fractures (n = 118), acute ankle fractures (n = 434), and chronic long bone fracture nonunions (n = 272) was prospectively assessed at baseline, 3, 6, and 12 months of posttreatment. Patient reported sexual dysfunction, acquired from validated functional outcomes surveys, was compared with overall patient reported functional outcome for each follow-up visit. Men and women were analyzed separately. Sexual dysfunction at the 3-month follow-up was reported in 31% of proximal humerus fracture patients, 32% of distal radius fracture patients, 47% of tibial plateau patients, 11% of ankle fracture patients, and 42% of long bone nonunions. By 1-year follow-up, greater than 80% of patients with all fracture types reported mild or no sexual dysfunction. Women reported a significantly higher degree of sexual dysfunction than men at 6 months (P = 0.003) and 12 months of follow-up (P = 0.031). After treatment of acute and chronic orthopaedic trauma conditions, a considerable number of patients experience sexual dysfunction, with women reporting more dysfunction than men. The results of this study should allow orthopaedic trauma surgeons to counsel patients regarding expectations of sexual function after traumatic orthopaedic conditions. Prognostic Level IV. See Instructions for Authors for a complete description of levels of evidence.
Title: Altered trabecular bone morphology in adolescent and young adult athletes with menstrual dysfunction.

Citation: Bone, Dec 2015, vol. 81, p. 24-30 (December 2015)

Author(s): Mitchell, Deborah M, Tuck, Padrig, Ackerman, Kathryn E, Cano Sokoloff, Natalia, Woolley, Ryan, Slattery, Meghan, Lee, Hang, Bouxsein, Mary L, Misra, Madhusmita

Abstract: Young amenorrheic athletes (AA) have lower bone mineral density (BMD) and an increased prevalence of fracture compared with eumenorrheic athletes (EA) and non-athletes. Trabecular morphology is a determinant of skeletal strength and may contribute to fracture risk. To determine the variation in trabecular morphology among AA, EA, and non-athletes and to determine the association of trabecular morphology with fracture among AA. A cross-sectional study performed at an academic clinical research center. 161 girls and young women aged 14-26 years (97 AA, 32 EA, and 32 non-athletes). We measured volumetric BMD (vBMD) and skeletal microarchitecture using high-resolution peripheral quantitative computed tomography. We evaluated trabecular morphology (plate-like vs. rod-like), orientation, and connectivity by individual trabecula segmentation. At the non-weight-bearing distal radius, the groups did not differ for trabecula vBMD. However, plate-like trabecular bone volume fraction (pBV/TV) was lower in AA vs. EA (p=0.03), as were plate number (p=0.03) and connectivity (p=0.03). At the weight-bearing distal tibia, trabecular vBMD was higher in athletes vs. non-athletes (p=0.05 for AA and p=0.009 for EA vs. non-athletes, respectively). pBV/TV was higher in athletes vs. non-athletes (p=0.04 AA and p=0.005 EA vs. non-athletes), as were axially-aligned trabeculae, plate number, and connectivity. Among AA, those with a history of recurrent stress fracture had lower pBV/TV, axially-aligned trabeculae, plate number, plate thickness, and connectivity at the distal radius. Trabecular morphology and alignment differ among AA, EA, and non-athletes. These differences may be associated with increased fracture risk. Copyright © 2015. Published by Elsevier Inc.

Title: Radiographical measurements for distal intra-articular fractures of the radius using plain radiographs and cone beam computed tomography images.

Citation: Skeletal radiology, Dec 2015, vol. 44, no. 12, p. 1769-1775

Author(s): Suojärvi, Nora, Sillat, T, Lindfors, N, Koskinen, S K

Abstract: Operative treatment of an intra-articular distal radius fracture is one of the most common procedures in orthopedic and hand surgery. The intra- and interobserver agreement of common radiographical measurements of these fractures using cone beam computed tomography (CBCT) and plain radiographs were evaluated. Thirty-seven patients undergoing open reduction and volar fixation for a distal radius fracture were studied. Two radiologists analyzed the preoperative radiographs and CBCT images. Agreement of the measurements was subjected to intra-class correlation coefficient and the Bland-Altman analyses. Plain radiographs provided a slightly poorer level of agreement. For fracture diastasis, excellent intraobserver agreement was achieved for radiographs and good or excellent agreement for CBCT, compared to poor interobserver agreement (ICC 0.334) for
radiographs and good interobserver agreement (ICC 0.621) for CBCT images. The Bland-Altman analyses indicated a small mean difference between the measurements but rather large variation using both imaging methods, especially in angular measurements. For most of the measurements, radiographs do well, and may be used in clinical practice. Two different measurements by the same reader or by two different readers can lead to different decisions, and therefore a standardization of the measurements is imperative. More detailed analysis of articular surface needs cross-sectional imaging modalities.

**Title:** Percutaneous Screw Fixation of Scaphoid Waist Fracture Non-Union Without Bone Grafting.

**Citation:** Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 250-255, 0974-3227

**Author(s):** Hegazy, Galal

**Abstract:** The aim of the study was to evaluate results of volar percutaneous headless compression screw fixation without bone grafting in 21 patients with scaphoid waist nonunion fractures. The inclusion criteria in this series were scaphoid waist fracture nonunion with intact cartilaginous envelope, minimal fracture line at nonunion interface, no cyst or sclerosis, no avascular necrosis and normal scapholunate angle without humpback deformity. There were 17 male and 4 female patients with an average age of 23 years (range 16-45 years). All patients had radiographic examinations that included Posteroanterior, lateral, oblique and scaphoid views. Preoperative MRI to assess the cartilaginous shell and vascularity of scaphoid was done. CT scans were performed postoperatively to confirm scaphoid fracture healing. The average clinical follow-up was at 25 months (range 18-35) postoperatively. All fractures united successfully with no additional procedures. The average DASH score (disabilities of the arm, shoulder, and hand) at final follow-up was 8 (range 0-16). Percutaneous fixation for selected scaphoid nonunion can avoid the morbidity of an open approach and bone grafting.

**Title:** Factors Associated with Patient Delay in Scaphoid Nonunions.

**Citation:** Journal of hand and microsurgery, Dec 2015, vol. 7, no. 2, p. 300-305, 0974-3227

**Author(s):** Heidsieck, David S P, Ten Berg, Paul W L, Schep, Niels W L, Strackee, Simon D

**Abstract:** Delay in seeking medical attention by patients, –so-called patient delay, contributes to the relative high rate of delayed diagnosis and treatment in scaphoid nonunion cases. In this retrospective study we investigated the incidence of patients with a patient delay exceeding 6 months, thus by definition having an established nonunion. In addition to this, we investigated demographic, injury and patient related factors associated with this patient delay in scaphoid nonunion patients. We included 101 patients with established scaphoid nonunions treated surgically at our specialized hand surgery unit. Information regarding demographic and injury characteristics, and subjective patient related factors was obtained from medical records and a questionnaire-based survey. Sixty-four patients (63 %) responded to our survey. A quarter (25 %) of the patients showed a delay of more than 6 months. Demographic and injury characteristics were not related to this delay.
In contrast to this, not attributing post-injury symptoms to a fracture but to e.g. a sprain instead, showed to be an independent predictor of patient delay. We report a high incidence of patients with an established scaphoid nonunion who delayed seeking medical attention. As there appears to be no demographic or injury characteristics associated with this patient delay, future developments of strategies to reduce patient delay should be targeted on all patients with a suspected scaphoid injury.

**Title:** Retrospective study of two fixation methods for 4-corner fusion: Shape-memory staple vs. dorsal circular plate.

**Citation:** Chirurgie de la main, Dec 2015, vol. 34, no. 6, p. 300-306 (December 2015)

**Author(s):** Le Corre, A, Ardouin, L, Loubersac, T, Gaisne, E, Bellemère, P

**Abstract:** The purpose of this study was to compare the results of two groups of patients with four-corner fusion, one group fixed with shape-memory staples and the other with locked circular plates. This retrospective study compared 52 wrists operated for scaphoid excision and four-corner fusion between 2005 and 2011. The arthrodesis was ensured by a shape-memory quadripodal staple (4Fusion®, MemometalTM) in 37 cases and a locking dorsal circular plate (Xpode®, Biotech OrthoTM) in 15 cases. In the staple group, the mean age was 58.5 years and the average follow-up was 4.3 years. In the circular plate group, the mean age was 58.6 years and the average follow-up was 3.1 years. Pain, range of motion, grip strength, functional scores (QuickDASH and PWRE), fusion of the midcarpal joint, complications (implant fracture and reoperation) and patients' satisfaction were used as outcome measures. There was no pain in 43% of patients in the staple group and 40% of patients in the circular plate group at the follow-up; range of motion and functional scores were similar in both groups. Seventy-five percent of patients in the staple group were satisfied or very satisfied versus 60% in the circular plate group. The implant broke in 24.3% of cases in the staple group and 60% in the circular plate group. Reoperation was needed in 18% of the staple cases and 14% of the plate cases. There was no difference between the implants in terms of pain, range of motion, functional scores and patient satisfaction. The implant fracture rate in the plate group was high. This study brings into question implant reliability for the four-corner fusion procedure. Copyright © 2015 SFCM. Published by Elsevier Masson SAS. All rights reserved.
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Journal of Hand Surgery (America)
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http://www.jhandsurg.org/current

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