

Hand Rehabilitation

Current Awareness Newsletter



MARCH 2016

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New Activity in UpToDate

New updates in point-of-care evidence summarising tools UpToDate

[de Quervain tendinopathy](#)

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

Literature review current through: Feb 2016. | **This topic last updated:** Jun 10, 2015.

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

The pathogenesis, clinical manifestations, diagnosis, and treatment of de Quervain tendinopathy are discussed here. An overview of the anatomy and basic biomechanics of the wrist is presented elsewhere. (See "[Anatomy and basic biomechanics of the wrist](#)".)

EPIDEMIOLOGY — de Quervain tendinopathy is a common cause of wrist pain in adults. It is most common among women between the ages of 30 and 50 years of age, including a small subset of women in the postpartum period [[1-3](#)]. These women tend to develop symptoms about four to six weeks after delivery.

http://www.uptodate.com/contents/de-quervain-tendinopathy?source=search_result&search=hand+pain&selectedTitle=5~45

[Dupuytren's contracture](#)

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

Literature review current through: Feb 2016. | **This topic last updated:** Aug 04, 2015.

INTRODUCTION — Dupuytren's contracture is a relatively common disorder characterized by progressive fibrosis of the palmar fascia [[1](#)]. It is a benign, slowly progressive fibroproliferative disease of the palmar fascia. Initial fascial thickening is usually seen as a nodule in the palm, which can be painful or painless and often goes unnoticed and undiagnosed. Joint stiffness and a loss of full extension develop insidiously over decades.

http://www.uptodate.com/contents/dupuytren-s-contracture?source=search_result&search=hand+pain&selectedTitle=9~45

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
- Dislocations Fingers (Proximal Interphalangeal Joints)
- Dupuytren's (fasciectomy)
- Flexor and Tendon Injuries
- Mallet Finger/Thumb Deformity
- Nerve Injuries
- Trapeziectomy (Osteoarthritis thumb)
- Trigger finger/thumb
- Ulnar Collateral ligament Sprain- Thumb
- Wrist and Finger fractures (distal radius/scaphoid)

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Altered Neurodynamics upper limb

No new evidence this month

Complex Regional Pain Syndrome (CRPS)

Title: The Efficacy of Movement Representation Techniques for Treatment of Limb Pain-A Systematic Review and Meta-Analysis.

Citation: Journal of Pain, 2016, vol./is. 17/2(167-180)

Author(s): Thieme, Holm, Morkisch, Nadine, Rietz, Christian, Dohle, Christian,

Abstract: Unlabelled: Relatively new evidence suggests that movement representation techniques (ie, therapies that use the observation and/or imagination of normal pain-free movements, such as mirror therapy, motor imagery, or movement and/or action observation) might be effective in reduction of some types of limb pain. To summarize the evidence regarding the efficacy of those techniques, a systematic review with meta-analysis was performed. We searched Cochrane Central Register of Controlled Trials, MEDLINE,

EMBASE, CINAHL, AMED, PsychINFO, Physiotherapy Evidence Database, and OT-seeker up to August 2014 and hand-searched further relevant resources for randomized controlled trials that studied the efficacy of movement representation techniques in reduction of limb pain. The outcomes of interest were pain, disability, and quality of life. Study selection and data extraction were performed by 2 reviewers independently. We included 15 trials on the effects of mirror therapy, (graded) motor imagery, and action observation in patients with complex regional pain syndrome, phantom limb pain, poststroke pain, and nonpathological (acute) pain. Overall, movement representation techniques were found to be effective in reduction of pain (standardized mean difference [SMD] = -.82, 95% confidence interval [CI], -1.32 to -.31, $P = .001$) and disability (SMD = .72, 95% CI, .22-1.22, $P = .004$) and showed a positive but nonsignificant effect on quality of life (SMD = 2.61, 85% CI, -3.32 to 8.54, $P = .39$). Especially mirror therapy and graded motor imagery should be considered for the treatment of patients with complex regional pain syndrome. Furthermore, the results indicate that motor imagery could be considered as a potential effective treatment in patients with acute pain after trauma and surgery. To date, there is no evidence for a pain reducing effect of movement representation techniques in patients with phantom limb pain and poststroke pain other than complex regional pain syndrome.

Perspective: In this systematic review we synthesize the evidence for the efficacy of movement representation techniques (ie, motor imagery, mirror therapy, or action observation) for treatment of limb pain. Our findings suggest effective pain reduction in some types of limb pain. Further research should address specific questions on the optimal type and dose of therapy.

Title: Factors associated with disability and sick leave in early complex regional pain syndrome type-1

Citation: Clinical Journal of Pain, 2016, vol./is. 32/2(130-138)

Author(s): Bean D.J., Johnson M.H., Heiss-Dunlop W., Kydd R.R.

Abstract: Objective: Factors influencing disability and work absence in complex regional pain syndrome type-1 (CRPS)-1 have not been thoroughly described in the literature. We sought to determine whether demographic variables, work-related factors, CRPS clinical severity ratings, pain scores, or psychological variables were associated with disability and sick leave in early CRPS-1. Methods: A total of 66 CRPS-1 patients were recruited within 12 weeks of CRPS onset. Patients completed measures of pain, depression, anxiety, stress, pain catastrophizing, and pain-related fear. A physical examination was conducted to assess signs and symptoms of CRPS and to calculate a CRPS severity score. Demographic details, clinical details, treatments, work type, and work status were recorded. Results: In multivariate analyses, the following factors were associated with greater disability: higher pain scores, more restricted ankle or wrist extension, and higher levels of depression. Among the 49 who were either working or studying before developing CRPS, 28 had stopped work or study at the time of assessment. Multivariate analyses showed that sick leave was more likely among those whose CRPS was triggered by more severe injuries, whose work was more physically demanding, among those with higher disability scores, and there was also a significant effect of depression on sick leave, which was mediated by disability. Discussion: Although the study was cross-sectional and so cannot differentiate cause from effect, results suggest that even in the early stages of CRPS, a cycle of pain, disability, depression, and work

absence can emerge. Treatments aimed to prevent this cycle may help prevent adverse long-term outcomes.

De-Quervain's tenosynovitis

Title: The prevalence of tenosynovitis of the interosseous tendons of the hand in patients with rheumatoid arthritis.

Citation: European radiology, Feb 2016, vol. 26, no. 2, p. 444-450

Author(s): Rowbotham, Emma L, Freeston, Jane E, Emery, Paul, Grainger, Andrew J

Abstract: The aim of this study was to establish the prevalence of tenosynovitis affecting the interosseous tendons of the hand in a rheumatoid arthritis (RA) population and to assess for association with metacarpophalangeal (MCP) joint synovitis, flexor tendon tenosynovitis or ulnar drift. Forty-four patients with RA underwent hand MRI along with 20 normal controls. Coronal 3D T1 VIBE sequences pre- and post-contrast were performed and reconstructed. The presence of interosseous tendon tenosynovitis was recorded alongside MCP joint synovitis, flexor tendon tenosynovitis and ulnar drift. Twenty-one (47.7 %) patients with RA showed interosseous tendon tenosynovitis. Fifty-two (14.8 %) interosseous tendons showed tenosynovitis amongst the RA patients. Interosseous tendon tenosynovitis was more commonly seen in association with adjacent MCP joint synovitis ($p < 0.001$), but nine MCP joints (5.1 %) showed adjacent interosseous tenosynovitis in the absence of joint synovitis. Interosseous tendon tenosynovitis was more frequently seen in fingers which also showed flexor tendon tenosynovitis ($p < 0.001$) and in patients with ulnar drift of the fingers ($p = 0.01$). Tenosynovitis of the hand interosseous tendons was found in 47.7 % of patients with RA. In the majority of cases this was adjacent to MCP joint synovitis; however, interosseous tendon tenosynovitis was also seen in isolation. • Tenosynovitis of the interosseous tendons of the hand occurs in rheumatoid arthritis. • Interosseous tendon tenosynovitis has a prevalence of 47.7 % in patients with RA. • Interosseous tendon tenosynovitis is related to MCP joint synovitis in the adjacent joints.

Title: Magnetic resonance imaging in early rheumatoid arthritis: a multicenter, prospective study.

Citation: Clinical rheumatology, Feb 2016, vol. 35, no. 2, p. 303-308

Author(s): Li, Ru, Liu, Xia, Ye, Hua, Yao, Hai-Hong, Guo, Jia-Long, Li, Guang-Tao, Li,

Abstract: To identify the magnetic resonance imaging (MRI) features of hands and wrists in early rheumatoid arthritis (RA). A total of 129 early arthritis patients (≤ 1 year) were enrolled in the study. At presentation, MRI of the hands was performed, with clinical and laboratory analyses. After a 1-year follow-up, clinical diagnosis of early RA or non-RA was confirmed by two rheumatologists. The characteristics of MRI variables at baseline in RA patients not fulfilling ACR 1987 criteria [RA-87(-)] were compared with those fulfilling ACR1987 criteria [RA-87(+)] and non-RA. In the 129 early arthritis patients, 90 were diagnosed with RA in a 1-

year follow-up. There were 47.8 % (43/90) of the RA patients not fulfilling ACR 1987 criteria [RA-87(-)]. The scores of synovitis in RA-87(-) patients were similar with those in RA-87(+) [Synovitis score, 14.0 (IQR, 4.0-25.0) vs. 14.0 (IQR, 10.0-25.0), $p > 0.05$]. Compared with those in non-RA, RA-87(-) patients had higher synovitis scores and occurrence of synovitis in proximal interphalangeal (PIP) joints [synovitis score, 14.0 (IQR, 4.0-25.0) vs. 6.0 (IQR, 2.0-14.5), $p = 0.046$; occurrence of PIP synovitis: 53.5 vs. 27.3 %, $p = 0.02$]. There was no significant difference of bone marrow edema, bone erosion, and tenosynovitis between RA-87(-) and non-RA. Synovitis in PIP joints was independent predictor for RA-87(-) [OR, 3.1 (95 %CI 1.2-8.1)]. High synovitis scores and synovitis in PIP joints on MRI were important in early RA, especially those not fulfilling ACR 1987 criteria.

Title: Identification of peroneal tenosynovitis by point-of-care ultrasonography

Citation: Journal of Emergency Medicine, February 2016, vol./is. 50/2(e79-e81)

Author(s): Shewmaker D.M., Guderjahn O., Kummer T.

Abstract: Background Ankle pain is a frequent chief complaint, and although peroneal tendon disorders are relatively uncommon, if treated inappropriately they may cause persistent pain and dysfunction. Peroneal tendon disorders, including the tendon sheath inflammatory condition tenosynovitis, are a major cause of chronic lateral ankle pain. Although magnetic resonance imaging has emerged as the modality of choice to assess the majority of these injuries, dynamic ultrasonography detects tendon pathology such as tenosynovitis. Case Report A 69-year-old woman presented to the Emergency Department (ED) after several months of atraumatic, progressive right foot and ankle pain. On physical examination, she had swelling and point tenderness posterior and inferior to the lateral malleolus, which was exacerbated by eversion. Plain radiography of the foot and ankle showed only soft tissue swelling. Bedside ultrasonography performed by the emergency physician quickly identified findings consistent with peroneal tenosynovitis without tears. Management with a walking boot and nonsteroidal antiinflammatory drugs was initiated prior to discharge. Why Should an Emergency Physician Be Aware of This? In this case of peroneal tenosynovitis, point-of-care ultrasonography was used to promptly and accurately identify hyperemia, synovial thickening, and a marked effusion within the right peroneal tendon sheath. Nonoperative treatment of tenosynovitis was initiated in the ED while findings were subsequently confirmed with magnetic resonance imaging. Emergency physicians should be aware of the utility of identifying tenosynovitis by point-of-care ultrasonography, which can expedite nonoperative management and prevent long-term complications.

Dislocations Fingers (Proximal Interphalangeal Joints)

Title: Management algorithm for index through small finger carpometacarpal fracture dislocations.

Citation: European journal of trauma and emergency surgery : official publication of the European Trauma Society, Feb 2016, vol. 42, no. 1, p. 37-42, 1863-9941 (February 2016)

Author(s): Büren, C, Gehrmann, S, Kaufmann, R, Windolf, J, Lögters, T

Abstract: Injuries to the carpometacarpal (CMC) joints are rare. The most common CMC fracture dislocations occur in the ring and small finger CMC joints. The aim of this study was to review the structured diagnostic procedure and different treatment options. We review the importance of early and correct diagnosis in CMC fracture dislocation, because it is needed to ensure pain-free hand function. Moreover, we contrast different therapeutic options, including non-operative and surgical therapy for CMC fracture dislocation. If a clinical suspicion for a CMC dislocation based on patient examination or radiographic findings exists, then a thin slice CT should be considered. Non-operative treatment is rarely indicated. Surgical treatment may include closed or open reduction efforts. In the case of most fracture dislocations, open reduction is recommended. Fracture fixation may be accomplished with K-wires, mini plates or screws. CMC fracture dislocations of the fourth and fifth CMC joints are uncommon and often overlooked. Primary goal of treatment is to restore normal function to the hand. Therefore, operative therapy might be the method of choice.

Title: Extension Block Pinning for Unstable Proximal Interphalangeal Joint Dorsal Fracture Dislocations.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 196-202

Author(s): Waris, Eero, Mattila, Simo, Sillat, Tarvo, Karjalainen, Teemu

Abstract: To evaluate the outcomes of extension block pinning used to treat unstable dorsal fracture dislocations of the proximal interphalangeal (PIP) joint. The factors affecting the functional outcome were analyzed. A series of 53 patients with 55 dorsal fracture dislocations of the PIP joint treated with closed reduction and extension block pinning were retrospectively reviewed. Additional percutaneous intramedullary fracture reduction (16 cases) or open fracture reduction (4 cases) had been performed. The radiological and clinical evaluations were included. At a mean follow-up of 5.2 years (range, 1.0-10.6 years), 39 patients with 41 injured fingers were evaluated. The fracture fragments involved 30% to 69% (mean, 50%) of the articular surface of the middle phalanx. The mean range of motion was 80° (range, 35° to 115°) at the PIP joint with a mean extension loss of 6° (range, 0° to 50°) excluding 2 joints that were salvaged with arthrodesis. The mean range of motion of the distal interphalangeal joint was 68° (range, 5° to 90°). The mean visual analog scale for digit pain was 1.5/10. The reduction of the joint was achieved intraoperatively in all cases. However, after the hardware removal, recurrent minimal subluxation was observed in 12 cases (29%). Recurrent subluxation was associated with increased residual pain. The length of follow-up time had a positive correlation, whereas the patient age had a negative correlation with the range of motion of the injured PIP joint. The extension block pinning technique is a simple and valuable technique for treating unstable dorsal PIP fracture-dislocation injuries producing satisfactory long-term results. Therapeutic IV.

Title: Surgical Approaches to the Proximal Interphalangeal Joint.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 294-305

Author(s): Cheah, Andre Eu-Jin, Yao, Jeffrey

Abstract: The proximal interphalangeal (PIP) joint may be affected by many conditions such as arthropathy, fractures, dislocations, and malunions. Whereas some of these conditions may be treated nonsurgically, many require open surgical intervention. Open interventions include implant arthroplasty or arthrodesis for arthropathy, open reduction internal fixation, or hemi-hamate arthroplasty for dorsal fracture-dislocations. Volar plate arthroplasty and corrective osteotomy for malunion about the PIP joint are also surgeries that may be required. The traditional approach to the PIP joint has been dorsal, which damages the delicate extensor apparatus with subsequent development of an extensor lag. This has led surgeons to explore volar and lateral approaches to the PIP joint. In this article, we describe each of these surgical approaches, discuss their advantages and disadvantages, and provide some guidance on which approach to choose based on the surgery that is to be performed.

Dupuytren's (fasciectomy)

Title: Supplementary arthrolysis of the proximal interphalangeal finger joint in Dupuytren's contracture: primary operation versus revision

Citation: Archives of Orthopaedic and Trauma Surgery, March 2016, vol./is. 136/3(435-439)

Author(s): Hohendorff B., Spies C.K., Muller L.P., Ries C.

Abstract: Introduction: In operative treatment of Dupuytren's disease, in certain cases proximal interphalangeal joint (PIP) flexion contracture remains after fasciectomy which can be corrected by a supplementary arthrolysis, but few data comparing primary and revision surgery are available. Materials and methods: Fifteen patients who had a fasciectomy and supplementary PIP arthrolysis at the affected finger for the first time were compared to 13 patients who had a revision fasciectomy with a supplementary PIP arthrolysis. Upon follow-up at 22 months, flexion contracture was measured and data were compared to the preoperative values. Patient satisfaction with the outcome of the operation was determined and patients completed the Disabilities of the Arm, Shoulder and Hand outcome measure questionnaire. Results: Fingers of patients with Dupuytren's disease that had a partial fasciectomy and supplementary arthrolysis of the PIP for the first time had a median residual PIP flexion contracture of 30degree compared 39degree of fingers that had a partial fasciectomy and supplementary arthrolysis of the PIP as a revision. The patients of both groups were equally satisfied with the outcome of the operation, while their DASH scores were nearly identical. Conclusion: After a mean follow-up of 2 years, the outcome of recurrent PIP contracture is comparable in patients with Dupuytren's disease that were treated by partial fasciectomy and supplementary arthrolysis for the first time and as a revision.

Flexor and Tendon Injuries

Title: Adeno-associated virus-2-mediated TGF-beta1 microRNA transfection inhibits adhesion formation after digital flexor tendon injury

Citation: Gene Therapy, February 2016, vol./is. 23/2(167-175)

Author(s): Wu Y.F., Mao W.F., Zhou Y.L., Wang X.T., Liu P.Y., Tang J.B.

Abstract: Adhesion formation after digital flexor tendon injury greatly affects gliding function of the tendon, which is a major clinical complication after hand surgery. Transforming growth factor beta 1 (TGF-beta1) has a critical role in adhesion formation during tendon healing. Persistent regulation of TGF-beta1 through application of microRNA (miRNA) specifically inhibiting the function of TGF-beta1 (TGF-beta1-miRNA) holds promise for treatment of such a complication. Adeno-associated virus (AAV) was used to transfer TGF-beta1-miRNA to the chicken digital flexor tendons, which had been injured and surgically repaired. Four doses of AAV2-TGF-beta1-miRNA (2×10^{11} , 2×10^{10} , 2×10^9 and 2×10^8 vector genomes (vg)) were used to determine the transfection efficiency. At postoperative 3 weeks, we found a positive correlation between the administered AAV2-TGF-beta1-miRNA doses and transfection efficiency. The transfection rate ranged from 10% to 77% as the doses increased. Production of TGF-beta1 protein in the tendons decreased on increasing vector dosage. When 2×10^{11} and 2×10^{10} vg were injected into the tendon, gliding excursion of the repaired tendon and work of flexion of chicken toes were significantly increased and adhesion score decreased 6 and 8 weeks later, indicating the improvement of tendon gliding and decreases in adhesion formations. However, the ultimate strength of the tendons transfected at the dose of 2×10^{10} vg was 12-24% lower than that of the control tendons. The results of this study demonstrate that application of TGF-beta1-miRNA had a mixed impact on tendon healing: adhesion around the tendon is reduced but strength of the tendon healing is adversely affected. Future studies should aim at maintaining the beneficial effects of reducing tendon adhesions, while eliminating the adverse effects of decreasing the healing strength.

Title: Accuracy of High-Resolution Ultrasonography in the Detection of Extensor Tendon Lacerations.

Citation: Annals of plastic surgery, Feb 2016, vol. 76, no. 2, p. 187-192

Author(s): Dezfuli, Bobby, Taljanovic, Mihra S, Melville, David M, Krupinski, Elizabeth A,

Abstract: Lacerations to the extensor mechanism are usually diagnosed clinically. Ultrasound (US) has been a growing diagnostic tool for tendon injuries since the 1990s. To date, there has been no publication establishing the accuracy and reliability of US in the evaluation of extensor mechanism lacerations in the hand. The purpose of this study is to determine the accuracy of US to detect extensor tendon injuries in the hand. Sixteen fingers and 4 thumbs in 4 fresh-frozen and thawed cadaveric hands were used. Sixty-eight 0.5-cm

transverse skin lacerations were created. Twenty-seven extensor tendons were sharply transected. The remaining skin lacerations were used as sham dissection controls. One US technologist and one fellowship-trained musculoskeletal radiologist performed real-time dynamic US studies in and out of water bath. A second fellowship trained musculoskeletal radiologist subsequently reviewed the static US images. Dynamic and static US interpretation accuracy was assessed using dissection as "truth." All 27 extensor tendon lacerations and controls were identified correctly with dynamic imaging as either injury models that had a transected extensor tendon or sham controls with intact extensor tendons (sensitivity = 100%, specificity = 100%, positive predictive value = 1.0; all significantly greater than chance). Static imaging had a sensitivity of 85%, specificity of 89%, and accuracy of 88% (all significantly greater than chance). The results of the dynamic real time versus static US imaging were clearly different but did not reach statistical significance. Diagnostic US is a very accurate noninvasive study that can identify extensor mechanism injuries. Clinically suspected cases of acute extensor tendon injury scanned by high-frequency US can aid and/or confirm the diagnosis, with dynamic imaging providing added value compared to static. Ultrasonography, to aid in the diagnosis of extensor mechanism lacerations, can be successfully used in a reliable and accurate manner.

Title: Early Passive Movement in flexor tendon injuries of the hand.

Citation: Archives of orthopaedic and trauma surgery, Feb 2016, vol. 136, no. 2, p. 285-293

Author(s): Quadlbauer, S, Pezzei, Ch, Jurkowitsch, J, Reb, P, Beer, T, Leixnering, M

Abstract: Flexor tendon injuries are underestimated considering their anatomical function in the hand. According to the publications of Kleinert, Verdan and Kessler, primary suturing of the flexor tendon combined with immediate postoperative physiotherapy in terms of "Early Passive Movement" became the standard form of therapy following acute flexor tendon injuries of the hand. In a study between 2007 and 2009, a total of 115 flexor tendon injuries were analysed retrospectively. All patients were treated using a two-strand repair technique according to Zechner. They received physiotherapy from the first postoperative day according to the Viennese flexor tendon rehabilitation protocol. For statistical purposes, the factors: age, gender, range of motion (ROM), follow up interval, affected flexor tendon and zone were analysed. The time between injury and surgery was also determined, classified into groups and included in the study. On the basis of the range of motion AROM, the Buck-Gramcko and modified Strickland Score was calculated. The mean follow-up interval was 7 months. Using the Buck-Gramcko and Strickland Score an "excellent" overall result was achieved. Complications occurred in 3.5 %, one secondary rupture (0.9 %), two tendon adhaesions requiring tenolysis (1.7 %) and one case of infection (0.9 %). The time interval between injury and operation, gender, affected zone, flexor tendon and affected finger nerve had no influence on the Buck-Gramcko and Strickland Score. Using Zechner's core suture technique as the primary treatment, combined with immediate postoperative physiotherapy in terms of "Early Passive Movement" according to the Viennese flexor tendon rehabilitation programme, an excellent clinical outcome and low complication rate was achieved. IV: case series.

Title: Adeno-associated virus-2-mediated TGF- β 1 microRNA transfection inhibits adhesion formation after digital flexor tendon injury.

Citation: Gene therapy, Feb 2016, vol. 23, no. 2, p. 167-175

Author(s): Wu, Y F, Mao, W F, Zhou, Y L, Wang, X T, Liu, P Y, Tang, J B

Abstract: Adhesion formation after digital flexor tendon injury greatly affects gliding function of the tendon, which is a major clinical complication after hand surgery. Transforming growth factor beta 1 (TGF- β 1) has a critical role in adhesion formation during tendon healing. Persistent regulation of TGF- β 1 through application of microRNA (miRNA) specifically inhibiting the function of TGF- β 1 (TGF- β 1-miRNA) holds promise for treatment of such a complication. Adeno-associated virus (AAV) was used to transfer TGF- β 1-miRNA to the chicken digital flexor tendons, which had been injured and surgically repaired. Four doses of AAV2-TGF- β 1-miRNA (2×10^{11}), 2×10^{10} , 2×10^9 and 2×10^8) vector genomes (vg)) were used to determine the transfection efficiency. At postoperative 3 weeks, we found a positive correlation between the administered AAV2-TGF- β 1-miRNA doses and transfection efficiency. The transfection rate ranged from 10% to 77% as the doses increased. Production of TGF- β 1 protein in the tendons decreased on increasing vector dosage. When 2×10^{11} and 2×10^{10} vg were injected into the tendon, gliding excursion of the repaired tendon and work of flexion of chicken toes were significantly increased and adhesion score decreased 6 and 8 weeks later, indicating the improvement of tendon gliding and decreases in adhesion formations. However, the ultimate strength of the tendons transfected at the dose of 2×10^{10} vg was 12-24% lower than that of the control tendons. The results of this study demonstrate that application of TGF- β 1-miRNA had a mixed impact on tendon healing: adhesion around the tendon is reduced but strength of the tendon healing is adversely affected. Future studies should aim at maintaining the beneficial effects of reducing tendon adhesions, while eliminating the adverse effects of decreasing the healing strength.

Title: Sports hernias: experience in a sports medicine center.

Citation: Hernia : the journal of hernias and abdominal wall surgery, Feb 2016, vol. 20, no. 1, p. 77-84

Author(s): Santilli, O L, Nardelli, N, Santilli, H A, Tripoloni, D E

Abstract: Chronic pain of the inguino-crural region or "pubalgia" explains the 0.5-6.2 % of the consultations by athletes. Recently, areas of weakness in the posterior wall called "sports hernias," have been identified in some of these patients, capable of producing long-standing pain. Several authors use different image methods (CT, MRI, ultrasound) to identify the lesion and various techniques of repair, by open or laparoscopic approaches, have been proposed but there is no evidence about the superiority of one over others due to the difficulty for randomizing these patients. In our experience, diagnosis was based on clinical and ultrasound findings followed by laparoscopic exploration to confirm and repair the injury. The present study aims to assess the performance of our diagnostic and therapeutic management in a series of athletes affected by "pubalgia". 1450 athletes coming from the

orthopedic office of a sport medicine center were evaluated. In 590 of them (414 amateur and 176 professionals) sports hernias were diagnosed through physical examination and ultrasound. We performed laparoscopic "TAPP" repair and, thirty days after, an assessment was performed to determine the evolution of pain and the degree of physical activity as a sign of the functional outcome. We used the U Mann-Whitney test for continuous scale variables and the chi-square test for dichotomous variables with $p < 0.05$ as a level of significance. In 573 patients ultrasound examination detected some protrusion of the posterior wall with normal or minimally dilated inguinal rings, which in 498 of them coincided with areas affected by pain. These findings were confirmed by laparoscopic exploration that also diagnosed associated contralateral (30.1 %) and ipsilateral defects, resulting in a total of 1006 hernias. We found 84 "sport hernias" in 769 patients with previous diagnosis of adductor muscle strain (10.92 %); on the other hand, in 127 (21.52 %) of our patients with "sport hernias" US detected concomitant injuries of the adductor longus tendon, 7 of which merited additional surgical maneuvers (partial tenotomy). Compared with the findings of laparoscopy, ultrasound had a sensitivity of 95.42 % and a specificity of 100 %; the positive and negative predictive values were 100 and 99.4 % respectively. No postoperative complications were reported. Only seven patients suffered recurrence of pain (successful rate: 98.81 %); the ultrasound ruled out hernia recurrence, but in three cases it diagnosed tendinitis of the rectus abdominis muscle. Our series reflects the multidisciplinary approach performed in a sports medicine center in which patients are initially evaluated by orthopedic surgeons in order to discard the most common causes of "pubalgia". "Sports hernias" are often associated with adductor muscle strains and other injuries of the groin allowing speculate that these respond to a common mechanism of production. We believe that, considering the difficulty to design randomized trials, only a high coincidence among the diagnostic and therapeutic instances can ensure a rational health care.

Title: Extensor tendon gap reconstruction: a review.

Citation: Journal of plastic surgery and hand surgery, Feb 2016, vol. 50, no. 1, p. 1-6

Author(s): Türker, Tolga, Hassan, Kareem, Capdarest-Arest, Nicole

Abstract: The extensor tendons of the hand are located in a superficial position on the dorsal aspect of the hand and are highly susceptible to injury. Laceration, crush and avulsion injuries are common extensor tendon injuries presenting for acute care. Such injuries that involve tendon loss or gaps in the extensor tendons require specialised attention and can be some of the most challenging to repair, as extensor tendons have less excursion than flexor tendons. Reconstructive techniques for such defects may differ according to the location of the defect, especially in Verdan's extensor zones 1-5. Adequate repair of extensor tendon defects in zones 1-5 is especially important because (a) even a 1 mm tendon gap in those zones may cause 20° extension loss, and (b) shortening of the extensor tendon by as little as 1 mm may cause decreased finger flexion. This article reviews and discusses the literature on the various approaches and techniques for extensor tendon reconstruction, delineated by zone of injury (zones 1-8). Conclusions: Awareness of the various techniques available to repair defects in each zone of injury is important so that surgeons can choose the technique

most in alignment with the type of injury, the surgeon's skills, and patient characteristics, and optimise the repair of such injuries.

Title: Prognostic factors in two-stage flexor tendon reconstruction: Is it possible to predict surgical failure?

Citation: Orthopaedics & traumatology, surgery & research : OTSR, Feb 2016, vol. 102, no. 1, p. 53-59

Author(s): Djerbi, I, Chammas, M, Mirous, M-P, Lazerges, C, Coulet, B

Abstract: Two-stage surgical reconstruction of the flexor tendons by the Hunter technique is the salvage option in case of old tears or a severely damaged fibro-osseous canal. The identification of poor prognostic factors during the assessment of injuries at presentation could help determine indications and predict failures. We report a retrospective single center series of reconstruction of zone 2 of the flexor digitorum profundus of the long fingers between 2000 and 2012, in 22 patients, mean age 33 years old with a mean follow-up of 36.4 months. The total active range of motion (TAM) of the rays was 110° with a mean range of motion of the PIP and DIP of 71° and 39° respectively. Sixty-three percent of patients were satisfied and 73% returned to their professional activities. A group with good and fair results was determined based on the Strickland classification (68%, 15 patients, mean TAM 126°, mean QuickDASH 22.6) and a group with poor results (32%, 7 patients, mean TAM 77°, mean QuickDASH 43.4). The factors of a poor prognosis were associated injuries to the extensor apparatus, infection (phlegmon) (P=0.023) and joint injuries (P=0.09). There are no factors in the literature to predict a poor prognosis except for reconstruction of the flexor pollicis longus. A simplified procedure could provide better results in patients with associated injuries to the extensor apparatus, infection (phlegmon) or osteoarticular damage, in terms of the duration of physical therapy, additional surgery and overall socioeconomic cost. The results in the literature of superficialis finger reconstruction are significantly better (P<0.001). Although the Hunter technique is still the reference procedure for the reconstruction of flexor tendons, our study identified prognostic factors of poor functional results such as infection and associated extensor apparatus damage, which should orient the surgeon towards a simplified technique such as the superficialis finger procedure. IV: retrospective study.

Title: Use of the Volar Plate of the Distal Interphalangeal Joint as a Distally Based Flap in Flexor Tendon Surgery.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 287-290, 1531-6564

Author(s): Al-Qattan, Mohammed M

Abstract: The usual treatment for flexor digitorum profundus (FDP) avulsions as well as FDP lacerations in the distal part of zone I is tendon reinsertion into bone. Although there are several different techniques of FDP tendon reinsertion into bone, they are generally complex and have a weak tensile strength. A technique for treating these injuries is to use the volar plate of the distal interphalangeal joint as a distally based flap for tendon repair.

The current communication discusses the technique and its potential complications. Initial clinical experience is encouraging and the volar plate flap technique may take its place in flexor tendon surgery.

Mallet Finger/Thumb Deformity

Title: Pressing fixation of mallet finger fractures with the end of a K-wire (a new fixation technique for mallet fractures).

Citation: Injury, Feb 2016, vol. 47, no. 2, p. 377-382,

Author(s): Zhang, Wenlong, Zhang, Xu, Zhao, Gang, Gao, Shunhong, Yu, Zhiliang

Abstract: The aim of this study was to describe and evaluate a surgical technique for the treatment of mallet finger fractures using a K-wire stabilization of the distal interphalangeal (DIP) joint and another K-wire pressing the bone fragment. Between June 2007 and March 2014, 41 patients (28 men, 13 women) with isolated closed mallet finger fracture were treated using two K-wires. In the cohort, the mean joint surface involvement was 44.3% (range: 28-62%). With a mean period of 23.6 months, patient follow-up lasted 13-34 months. The fingers were evaluated for loss of extension and flexion of the (DIP) joints. The results were graded using Crawford's criteria. Union of all fractures took place at an average of 5.5 weeks after the surgical procedure. Average extension lag was 4°, and active flexion 71°. According to the Crawford rating scale, 35 fingers were excellent, four were good, one was fair, and one was poor. Pressing fixation of the bone fragment with the end of a K-wire was a useful technique in the treatment of mallet finger fractures. Therapeutic IV.

Nerve Injuries

Title: High-energy injuries of the wrist.

Citation: Orthopaedics & traumatology, surgery & research : OTSR, Feb 2016, vol. 102, no. 1 Suppl, p. S81

Author(s): Obert, L, Loisel, F, Jardin, E, Gasse, N, Lepage, D

Abstract: High-energy injuries to the wrist gather complex fractures of the distal radius, radiocarpal dislocations, perilunate dislocations, and other intracarpal dislocations. Depending on the energy of the injury and the position of the wrist at the time of impact, the patient, often a young male with a high functional demand, presents one of these injuries associating fracture(s) and ligament injury. The trauma is often bilateral, with proximal lesions (elbow) very often associated with contusion or compression of the median nerve. Diagnosis is confirmed by wrist X-rays, which are sufficient to determine treatment for radiocarpal and perilunate dislocations. In cases of distal radius fractures or other intracarpal dislocations, a preoperative CT is necessary. Reduction of the dislocation and

relief of neurovascular compression are performed immediately. The final treatment of each lesion (bone fixation, ligament repair) can be undertaken simultaneously or delayed, depending on the patient and the lesions. Cartilage lesions, resulting from the high-energy injury, can be estimated using arthroscopy but cannot be repaired and determine the prognosis. The surgeon's objective is to restore joint congruence, which does not prevent stiffness, the main complication of these rare injuries, which the surgeon must know how to recognize and treat.

Title: Direct Coaptation of the Phrenic Nerve With the Posterior Division of the Lower Trunk to Restore Finger and Elbow Extension Function in Patients With Total Brachial Plexus Injuries.

Citation: Neurosurgery, Feb 2016, vol. 78, no. 2, p. 208-215,

Author(s): Wang, Shu-Feng, Li, Peng-Cheng, Xue, Yun-Hao, Zou, Ji-Yao, Li, Wen-Jun,

Abstract: To overcome the mismatch in nerve sizes in phrenic nerve transfer to the radial nerve for elbow and finger extension reanimation for patients with total brachial plexus injuries (TBPI), a selective neurotization procedure was designed. To investigate the long-term results of phrenic nerve transfer to the posterior division of the lower trunk with direct coaptation in restoring elbow and finger extension after TBPI. Phrenic nerve was transferred to and directly coapted with the posterior division of the lower trunk in 27 patients with TBPI. Seven patients were <18 years old (adolescent group), and the remaining 20 patients ≥18 years (adult group). Postoperative mean follow-up period was 54 ± 9 months (range, 48-85 months). The motor function attained M3 or greater in 81.5% of patients for elbow extension and in 48% of patients for finger extension. The percentage of patients who regained M3 or greater muscle power of finger extension in the adolescent group and the adult group was 71.4%, and 40%, respectively. Meanwhile, 85.7% in the adolescent group and 80% in the adult group achieved M3 or greater muscle power of elbow extension. There were no significant differences between the 2 groups. The elbow extension and finger extension were synchronous contractions and did not become independent of respiratory effort. This procedure simultaneously and effectively restores the function of elbow and finger extension in patients after TBPI. However, the patients could not do elbow and finger extension separately. CC7, contralateral C7FEV1, forced expiratory volume in 1 secondFVC, forced vital capacityLT, lower trunkMMV, maximum voluntary ventilationPDLT, posterior division of lower trunkTBPAI, total brachial plexus avulsion injuryTBPI, total brachial plexus injuryTLC, total lung capacity.

Title: Prophylactic treatment with sulphonated immunoglobulin G attenuates development of mechanical allodynia-like response in mice with neuropathic pain.

Citation: The Journal of veterinary medical science / the Japanese Society of Veterinary Science, Feb 2016, vol. 78, no. 1, p. 77-82,

Author(s): Yamamoto, Wataru, Itano, Yasuhiro, Kobayashi, Tsunefumi, Miura, Daishiro,

Abstract: Human immunoglobulin G (IgG) concentrates are immune-modulating, anti-inflammatory plasma-derived products. Clinical studies in recent years have suggested that IgG attenuates neuropathic pain. In this study, effects of sulphonated IgG on the development and maintenance of a mechanical allodynia-like response were examined in mice with neuropathic pain induced by a partial sciatic nerve ligation (PSL). When sulphonated IgG (400 or 1,000 mg/kg/day, i.p.) was administered for 5 days, from 1 day before surgery to post-operative day (POD) 3, the development of a mechanical allodynia-like response was attenuated. On the other hand, sulphonated IgG had little effect on the maintenance of a mechanical allodynia-like response when administered for 5 days, from POD 11 to POD 15, at which time a mechanical allodynia-like response had already been developed. To explore the mechanism of sulphonated IgG, the mRNA expression of inflammatory cytokines was evaluated in the injured sciatic nerve. Sulphonated IgG (1,000 mg/kg/day, i.p.) that was administered for 3 days, from 1 day before surgery to POD 1, significantly attenuated the up-regulation of tumor necrosis factor- α and monocyte chemoattractant protein-1 mRNAs on POD 1. These results suggest that prophylactic treatment with sulphonated IgG attenuates the development of mechanical allodynia-like response by inhibition of inflammatory cytokine expression in mice with PSL.

Title: Shoulder and Elbow Recovery at 2 and 11 Years Following Brachial Plexus Reconstruction.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 173-179, 1531-6564

Author(s): Wang, Jung-Pan, Rancy, Schneider K, Lee, Steve K, Feinberg, Joseph H,

Abstract: To report short-term and long-term outcomes on a single patient cohort observed longitudinally after nerve reconstruction for adult brachial plexus injury. Eleven male patients who underwent plexus reconstruction by the same surgeon at 2 institutions presented for clinical examination 7.5 or more years after surgery (average, 11.4 years; range, 7.5-22 years). Average age at the time of operation was 35 years (range, 17-73 years). Mean delay until surgery was 5 months (range, 2-11 months). Two patients had C5 paralysis, 2 had C5-C6 paralysis, 2 had C5-C7 paralysis, and 5 had complete 5-level injuries. Outcome parameters included active range of motion (ROM) in degrees, a modified British Medical Research Council (mBMRC) scale for muscle strength, and electromyographic motor unit configuration and recruitment pattern. Differences in ROM and mBMRC between 2-year and long-term follow-up were assessed with paired-sample t tests using an alpha value of .05. Average shoulder abduction and mBMRC at final follow-up were both significantly improved compared with the 2-year follow-up results ($P < .05$). Average elbow flexion and mBMRC increased significantly between 2 years and final follow-up ($P < .05$). Electromyographic results for 6 patients at final follow-up showed improved motor unit configuration in 10 of 15 muscles and improved recruitment in 3 of 15 muscles compared with 2-year electromyographic results. Patients continued to gain ROM and strength in the shoulder and elbow well after 2 to 3 years after surgery, contrary to previous reports. Although the precise mechanism is unknown, we speculate that a number of factors may be involved, including terminal collateral sprouting, maturation of motor units, improvements in motor unit recruitment, additional muscle fiber hypertrophy, or an as-yet undescribed mechanism. We recommend that patients be encouraged to continue strengthening exercises well after

the initial recovery period and that more comparative long-term data be collected to expand on these observations. Therapeutic IV.

Title: Functional outcome and quality of life after traumatic total brachial plexus injury treated by nerve transfer or single/double free muscle transfers: a comparative study.

Citation: The bone & joint journal, Feb 2016, vol. 98-B, no. 2, p. 209-217, 2049-4408

Author(s): Satbhai, N G, Doi, K, Hattori, Y, Sakamoto, S

Abstract: Between 2002 and 2011, 81 patients with a traumatic total brachial plexus injury underwent reconstruction by double free muscle transfer (DFMT, 47 cases), single muscle transfer (SMT, 16 cases) or nerve transfers (NT, 18 cases). They were evaluated for functional outcome and quality of life (QoL) using the Disability of Arm, Shoulder and Hand questionnaire, both pre- and post-operatively. The three groups were compared and followed-up for at least 24 months. The mean shoulder abduction and flexion were comparable in all groups, but external rotation was significantly better in the DFMT group as were range and quantitative power of elbow flexion. Patients who had undergone DFMT had reasonable total active finger movement and hook grip strength. All groups showed improvement in function at a level greater than a minimum clinically important difference. The DFMT group showed the greatest improvement. Patients in the DFMT group had a better functional outcome and QoL recovery than those in the NT and SMT groups. Double free muscle transfer procedure is capable of restoring maximum function in patients of total brachial plexus palsy. Cite this article: Bone Joint J 2016;97-B:209-17.

Title: Early Passive Movement in flexor tendon injuries of the hand.

Citation: Archives of orthopaedic and trauma surgery, Feb 2016, vol. 136, no. 2, p. 285-293

Author(s): Quadlbauer, S, Pezzej, Ch, Jurkowitsch, J, Reb, P, Beer, T, Leixnering, M

Abstract: Flexor tendon injuries are underestimated considering their anatomical function in the hand. According to the publications of Kleinert, Verdan and Kessler, primary suturing of the flexor tendon combined with immediate postoperative physiotherapy in terms of "Early Passive Movement" became the standard form of therapy following acute flexor tendon injuries of the hand. In a study between 2007 and 2009, a total of 115 flexor tendon injuries were analysed retrospectively. All patients were treated using a two-strand repair technique according to Zechner. They received physiotherapy from the first postoperative day according to the Viennese flexor tendon rehabilitation protocol. For statistical purposes, the factors: age, gender, range of motion (ROM), follow up interval, affected flexor tendon and zone were analysed. The time between injury and surgery was also determined, classified into groups and included in the study. On the basis of the range of motion AROM, the Buck-Gramcko and modified Strickland Score was calculated. The mean follow-up interval was 7 months. Using the Buck-Gramcko and Strickland Score an "excellent" overall result was achieved. Complications occurred in 3.5 %, one secondary rupture (0.9 %), two tendon adhesions requiring tenolysis (1.7 %) and one case of infection (0.9 %). The time interval between injury and operation, gender, affected zone, flexor tendon and affected finger

nerve had no influence on the Buck-Gramcko and Strickland Score. Using Zechner's core suture technique as the primary treatment, combined with immediate postoperative physiotherapy in terms of "Early Passive Movement" according to the Viennese flexor tendon rehabilitation programme, an excellent clinical outcome and low complication rate was achieved. IV: case series.

Title: Manual therapy as an effective treatment for fibrosis in a rat model of upper extremity overuse injury.

Citation: Journal of the Neurological Sciences, Feb 2016, vol. 361, p. 168-180

Author(s): Bove, Geoffrey M., Harris, Michele Y., Zhao, Huaqing, Barbe, Mary F.

Abstract: Key clinical features of carpal tunnel syndrome and other types of cumulative trauma disorders of the hand and wrist include pain and functional disabilities. Mechanistic details remain under investigation but may involve tissue inflammation and/or fibrosis. We examined the effectiveness of modeled manual therapy (MMT) as a treatment for sensorimotor behavior declines and increased fibrogenic processes occurring in forearm tissues of rats performing a high repetition high force (HRHF) reaching and grasping task for 12 weeks. Young adult, female rats were examined: food restricted control rats (FRC, n = 12); rats that were trained for 6 weeks before performing the HRHF task for 12 weeks with no treatment (HRHF-CON, n = 11); and HRHF task rats received modeled manual therapy (HRHF-MMT, n = 5) for 5 days/week for the duration of the 12-week of task. Rats receiving the MMT expressed fewer discomfort-related behaviors, and performed progressively better in the HRHF task. Grip strength, while decreased after training, improved following MMT. Fibrotic nerve and connective tissue changes (increased collagen and TGF- β 1 deposition) present in 12-week HRHF-CON rats were significantly decreased in 12-week HRHF-MMT rats. These observations support the investigation of manual therapy as a preventative for repetitive motion disorders.

Title: Manual therapy as an effective treatment for fibrosis in a rat model of upper extremity overuse injury.

Citation: Journal of the neurological sciences, Feb 2016, vol. 361, p. 168-180, 1878-5883

Author(s): Bove, Geoffrey M, Harris, Michele Y, Zhao, Huaqing, Barbe, Mary F

Abstract: Key clinical features of carpal tunnel syndrome and other types of cumulative trauma disorders of the hand and wrist include pain and functional disabilities. Mechanistic details remain under investigation but may involve tissue inflammation and/or fibrosis. We examined the effectiveness of modeled manual therapy (MMT) as a treatment for sensorimotor behavior declines and increased fibrogenic processes occurring in forearm tissues of rats performing a high repetition high force (HRHF) reaching and grasping task for 12 weeks. Young adult, female rats were examined: food restricted control rats (FRC, n=12); rats that were trained for 6 weeks before performing the HRHF task for 12 weeks with no treatment (HRHF-CON, n=11); and HRHF task rats received modeled manual therapy (HRHF-MMT, n=5) for 5 days/week for the duration of the 12-week of task. Rats receiving the MMT

expressed fewer discomfort-related behaviors, and performed progressively better in the HRHF task. Grip strength, while decreased after training, improved following MMT. Fibrotic nerve and connective tissue changes (increased collagen and TGF- β 1 deposition) present in 12-week HRHF-CON rats were significantly decreased in 12-week HRHF-MMT rats. These observations support the investigation of manual therapy as a preventative for repetitive motion disorders.

Title: Outcomes using the extensor digitorum communis splitting approach for the treatment of radial head fractures.

Citation: Journal of shoulder and elbow surgery / American Shoulder and Elbow Surgeons ... [et al.], Feb 2016, vol. 25, no. 2, p. 276-282

Author(s): Han, Fucai, Teo, Alex Quok An, Lim, Jia Chen, Ruben, Manohara, Tan,

Abstract: Surgery on the radial head is usually performed via the Kocher interval. Iatrogenic injury to the posterior interosseous nerve (PIN) and lateral ligamentous complex are known complications of lateral elbow approaches. The extensor digitorum communis (EDC) splitting approach for lateral elbow exposure is known to provide better access to the anterior half of the radial head while reducing the risk of injury to the lateral ligaments. The aim of this study was to provide clinical outcome data for the EDC splitting approach. Thirteen patients with closed radial head fractures underwent internal fixation or replacement via the EDC splitting approach. Patients were evaluated using the Mayo Elbow Performance, American Shoulder and Elbow Surgeons (ASES), and Disabilities of Arm, Shoulder and Hand scores. Clinical assessments of the elbows were also performed. Ten patients underwent open reduction and internal fixation of their radial heads, and 3 underwent radial head replacements. At final follow-up, all patients achieved good to excellent Mayo Elbow Performance scores, with a mean score of 90 (range 80-100). They had a mean ASES elbow score of 89.6 (range 77-97) and a mean Disabilities of Arm, Shoulder and Hand score of 12.8 (range 6.67-25.8). Patients reported a mean overall ASES satisfaction score of 8.5 (range 6-10). There were no significant surgical complications, including iatrogenic damage to the PIN or the lateral ligaments. The EDC splitting approach is a feasible method of exposing the lateral elbow, providing safe and reliable access to the radial head

Title: Useful Functional Outcome Can Be Achieved After Motor Nerve Transfers in Management of the Paralytic Hand. An Observational Study.

Citation: HSS journal : the musculoskeletal journal of Hospital for Special Surgery, Feb 2016, vol. 12, no. 1, p. 2-7

Author(s): Sallam, Asser A, El-Deeb, Mohamed S, Imam, Mohamed A

Abstract: Nerve transfers have demonstrated encouraging outcomes in peripheral nerve reconstructions compared with the conventional direct repair or grafting. We aimed to identify whether the patient's demographics, delay to surgery, degree of loss of grip and pinch strengths, mechanism of injury, and compliance to hand therapy have an impact on the functional outcome of motor nerve transfers in patients with paralytic hand. Fifty-five

patients with a mean age of 31.05 (18-48) years with complete isolated high injuries of radial, ulnar, and median nerves, who underwent motor nerve transfers, were reviewed. The outcome was assessed using the Medical Research Council (MRC) scale and measurement of grip and pinch strengths of the hand at minimum 1-year follow-up (mean of 14.4 (12-18) months). Patient's age and gender, delay to surgery, body mass index (BMI), degree of loss of grip and pinch strengths, educational level, occupation, mechanism of injury, and compliance to hand therapy were analyzed to determine their impact on the extent of recovery of hand function. Forty of fifty five (72.73%) patients regained useful functional recovery (M3-M4) with satisfactory grip hand functions. Worse motor recovery was observed in older ages, delayed surgical intervention, higher BMI, and greater postoperative loss of grip and pinch strengths in comparison to the healthy opposite hand. Better outcomes are significantly associated with higher educational level and postoperative compliance to hand therapy. Contrarily, there was no significant association between gender, occupation, mechanism of injury, and achievement of useful functional recovery. Successful nerve transfers are expected with experienced skilled surgeons. However, outstanding outcomes are not the standard, with about one fourth failing to achieve M3 grade. The educational level, hand dominance, compliance to hand therapy, loss of grip and pinch strengths, age, injury-surgery interval, and BMI are possible predictors of patients' outcome.

Title: Direct electrical stimulation on the injured ulnar nerve using acupuncture needles combined with rehabilitation accelerates nerve regeneration and functional recovery-A case report.

Citation: Complementary therapies in medicine, Feb 2016, vol. 24, p. 103-107

Author(s): Tang, You-Jen, Wu, Min Huan, Tai, Chen-Jei

Abstract: This study illustrates that direct electrical stimulation (ES) improve functional recovery and time of return to work evaluated by prognostic scoring system after ulnar nerve injury. The Rosén and Lundborg (R&L) protocol, Disabilities of the Arm, Shoulder and Hand (DASH) scores, and electromyography were applied for measuring improvements after direct ES intervention. A 32-year-old male with deep cutting wound and total rupture of right proximal forearm ulnar nerve was treated using direct ES and daily rehabilitation activities. Direct ES, transmitted using 2 acupuncture needles inserted in the cubital tunnel, was applied along the site of the injured ulnar nerve. Other needles were placed according to muscle origins and insertions. All needles were connected to electrical stimulators. We executed these procedures once per week and conducted rehabilitating activities daily. The R&L protocol, DASH scores, and electromyography were used to measure the intervention outcomes. The total score in the R&L protocol was 0.703 of the initial state; the sensory domain contributed the least amount. Among the improved numerical factors, pain/discomfort domain was the first to reach a stable ameliorative state in the first month. The sensory and motor domains reached stable growth in fourth and third months, respectively. The patient returned to the previous job in third month; his time off work was 75 days. Directly applying ES to the proximal site of an injured nerve can augment nerve regeneration through three suspected mechanisms. Although direct ES on the injured nerve contributed to an effective recovery of this patient with minimal adverse effects, additional

investigation of treatment protocols is warranted and the actual mechanism must be identified.

Trapeziectomy (Osteoarthritis thumb)

Title: Partial trapeziectomy and interposition of fascia lata allograft in the operative treatment of thumb base osteoarthritis.

Citation: Journal of plastic surgery and hand surgery, Feb 2016, vol. 50, no. 1, p. 35-39,

Author(s): Spaans, Anne J, Weijns, Marieke E, Braakenburg, Assa, van Minnen, Leo Paul,

Abstract: The purpose of this retrospective cohort study was to evaluate the results of fascia lata allograft interposition after partial trapeziectomy in patients with symptomatic first carpometacarpal joint osteoarthritis. Twenty-one patients (22 thumbs) with Eaton-Glickel stage II or III first carpometacarpal joint osteoarthritis were included. After a mean follow-up duration of 70.2 months, most patients experienced minimal pain. The operation was graded excellent or good by 15 patients (15 hands). Active range of motion and strength measurements were comparable to the contralateral hand, except for extension, which was slightly better in the contralateral hand. The mean radiologically measured difference pre- and postoperatively in distance between distal part of the trapezium and base of the metacarpal was 2.7 mm. Two patients had reoperations in the first year after the initial operation because of ongoing pain. Partial trapeziectomy with interposition of fascia lata allograft in patients with symptomatic first carpometacarpal joint osteoarthritis can achieve reasonable results. It may be considered a reliable operative treatment option in patients with first carpometacarpal joint osteoarthritis.

Trigger finger/thumb

Title: SET8 induces epithelial-mesenchymal transition and enhances prostate cancer cell metastasis by cooperating with ZEB1

Citation: Molecular Medicine Reports, February 2016, vol./is. 13/2(1681-1688)

Author(s): Hou L., Li Q., Yu Y., Li M., Zhang D.

Abstract: Mounting evidence suggested that histone H4K20-specific methyltransferase SET8 is required to maintain the malignant phenotype of various cancer types; however, the role of SET8 in mediating tumor metastasis in prostate cancer (PCa) has remained elusive. The present study demonstrated that small interfering RNA-mediated knockdown of SET8 inhibited the invasive potential of the PCa cell line PC-3 in vitro. Knockdown of SET8 reduced sphere formation, downregulated E-cadherin and alpha-catenin, and upregulated N-cadherin and vimentin expression in CaP cells, while upregulation of SET8 expression with a

recombinant plasmid had the opposite effect. Furthermore, SET8 was shown to be physically associated with the epithelial-mesenchymal transition (EMT) inducer zinc finger E-box-binding homeobox 1 (ZEB1) in PCa cell lines. Chromatin immunoprecipitation suggested that SET8 binds to the promoter of cell adhesion molecule E-cadherin and vimentin. Luciferase reporter assays suggested that E-cadherin and vimentin are direct targets of SET8; furthermore, loss- and gain-of function studies of SET8 and ZEB1 indicated that suppression of downstream E-cadherin and activation of vimentin are important mechanisms by which SET8 and ZEB1 cooperatively trigger metastasis. Furthermore, SET8-induced methylated H4K20 was indicated to exert a dual function in ZEB1-regulated gene expression. In conclusion, the present study revealed that SET8 and ZEB1 are functionally interdependent in promoting the EMT and enhancing the invasive potential of PCa cells in vitro.

Title: Emergency Department Visits After Hand Surgery Are Common and Usually Related to Pain or Wound Issues

Citation: Clinical Orthopaedics and Related Research, February 2016, vol./is. 474/2(551-556)

Author(s): Menendez M.E., Ring D.

Abstract: Background: As payment models shift toward a focus on value and reimbursement becomes increasingly tied to quality and patient experience, minimizing unexpected acute health needs has become a priority for both policymakers and clinical leaders. Despite recent emphasis on emergency department (ED) visits as a quality measure in surgery, little is known about the role of the ED in the early postoperative period after hand surgery. Questions/purposes: The purpose of this study was to determine the rates, reasons, and factors associated with ED visits within 30 days of elective outpatient hand surgery. Methods: Using our institutional database for 2009 through 2013, we assessed ED visit rates for 2332 patients undergoing carpal tunnel or trigger finger release. Medical records were manually reviewed to ascertain the primary reason for the ED visit. Multivariable logistic regression modeling was used to identify factors independently associated with ED use. Results: A total of 67 patients (3%) experienced at least one ED visit within 30 days of hand surgery (carpal tunnel: 3%; trigger finger: 3%). Most visits (66%) occurred within the first 2 weeks of surgery, and 31% led to hospitalization. The most common reasons for ED visits were pain (18%) and wound issues (16%). Unmarried and medically infirm patients were more likely to visit the ED. Conclusions: ED visits after hand surgery are common, often related to the procedure, and potentially responsive to quality improvement initiatives. Targeted efforts to educate patients about pain management, wound care, and the expected course of recovery before surgery, together with close postoperative contact (eg, routine phone calls, facsimile correspondence by email, or secure messaging) may limit visits to the ED. Level of Evidence: Level IV, prognostic study.

Ulnar Collateral ligament Sprain- Thumb

Title: Partial trapeziectomy and interposition of fascia lata allograft in the operative treatment of thumb base osteoarthritis.

Citation: Journal of plastic surgery and hand surgery, Feb 2016, vol. 50, no. 1, p. 35-39,

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Title: Hook Plate Versus Suture Anchor Fixation for Thumb Ulnar Collateral Ligament Fracture-Avulsions: A Cadaver Study.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 192-195,

Author(s): Shin, Emily H, Drake, Matthew L, Parks, Brent G, Means, Kenneth R

Abstract: To compare the biomechanical properties of hook plate fixation and suture anchor fixation for collateral ligament fracture-avulsions of the thumb metacarpophalangeal ulnar collateral ligament (UCL). A thumb UCL fracture-avulsion model was created in 7 matched pairs of cadaver hands. An osteotomy was made parallel to the shaft of the proximal phalanx along the entire insertion of the UCL. The simulated fracture was secured using either a suture anchor tied over bone tunnels in the avulsion fragment or with a hook plate. Specimens were mounted on a servohydraulic load frame and loaded to failure. Motion perpendicular to the osteotomy was measured using an implanted 3-mm differential variable reluctance transducer device. Differences in load to failure and construct stiffness were compared and analyzed using a t test. The hook plate construct failed at significantly higher loads than suture fixation. Mean load to failure in the hook plate construct was 58 N (± 20 N) compared with 27 N (± 19 N) in the suture anchor construct. The difference in construct stiffness was 49 N/mm (± 17 N/mm) for the plate compared with 7 N/mm (± 13 N/mm) for the suture anchor. The main mechanism of failure for the hook plate construct was screw pullout or screw bending. The usual mechanism of failure for the suture anchor construct was anchor pullout. The hook plate construct was biomechanically superior to the suture anchor construct for fixation of thumb metacarpophalangeal joint UCL fracture-avulsions with regard to load to failure. The hook plate construct provides stronger fixation than a suture anchor for thumb UCL fracture-avulsions. Copyright © 2016 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Flexor Digitorum Superficialis Opposition Transfer for Augmenting Function in Types II and IIIA Thumb Hypoplasia.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 244-249

Author(s): Vuillermin, Carley, Butler, Lesley, Lake, Amy, Ezaki, Marybeth, Oishi, Scott

Abstract: To report the functional outcomes associated with the flexor digitorum superficialis (FDS) opposition transfer for types II and IIIA thumb hypoplasia and determine if there is any noteworthy difference in the outcome dependent on the pulley used. We included patients who underwent a ring FDS opposition transfer and had at least 2 years follow-up. The study group consisted of 36 patients with 40 treated thumbs. All patients underwent follow-up examination and standardized testing. Outcome functional measures were recorded using the Pediatric Outcomes Data Collection Instrument (PODCI). There were 9 type II and 31 type IIIA hypoplastic thumbs. All patients underwent a ring FDS opposition transfer and a 4-flap z-plasty for first web space deepening. The pulley for opposition was flexor carpi ulnaris in 19 and the transverse carpal ligament in 21. Thirty-six thumbs had ulnar collateral ligament reconstructions, with 5 of the 36 undergoing combined ulnar collateral ligament/radial collateral ligament stabilizations. Average follow-up was 7.6 years (range, 2-16 years). Average postoperative Kapandji score was 8 (range, 4-10). Grip, lateral pinch, and tripod pinch strengths averaged 46%, 49%, and 48% of age- and sex-matched normal controls, respectively. There was no significant difference between surgical pulleys used. The Pediatric Outcomes Data Collection Instrument global was 91 (range, 53-100), and PODCI happiness was 87 (range, 15-100). We found the ring FDS opposition transfer to be an effective method for providing opposition for both type II and IIIA thumb hypoplasia. At follow-up, excellent opposition function and PODCI scores were noted, with no difference related to the type of pulley used. Type II thumbs had significantly greater grip and pinch strengths when compared with type IIIA thumbs. Therapeutic IV.

Title: Lateral Ulnar Collateral Ligament Reconstruction: An Analysis of Ulnar Tunnel Locations.

Citation: American journal of orthopedics (Belle Mead, N.J.), Feb 2016, vol. 45, no. 2, p. 53-57

Author(s): Anakwenze, Oke A, Khanna, Krishn, Levine, William N, Ahmad, Christopher S

Abstract: We conducted a study to determine precise ulnar tunnel location during lateral ulnar collateral ligament reconstruction to maximize bony bridge and graft construct perpendicularity. Three-dimensional computer models of 15 adult elbows were constructed. These elbow models were manipulated for simulated 4-mm tunnel drilling. The proximal ulna tunnels were placed at the radial head-neck junction and sequentially 0, 5, and 10 mm posterior to the supinator crest. The bony bridges created by these tunnels were measured. Location of the humeral isometric point was determined and marked as the humeral tunnel location. Graft configuration was simulated. Using all the simulated ulna tunnels, we measured the proximal and distal limbs of the graft. In addition, we measured the degree of perpendicularity of the graft limbs. The ulnar tunnel bony bridge was significantly longer

with more posterior placement of the proximal tunnel relative to the supinator crest. An increase in degree of perpendicularity of graft to ulnar tunnels was noted with posterior shifts in proximal tunnel location. Posterior placement of the proximal ulna tunnel allows for a larger bony bridge and a more geometrically favorable reconstruction.

Wrist and Finger fractures (distal radius/scaphoid)

Title: Current concepts for the treatment of acute scaphoid fractures.

Citation: European journal of trauma and emergency surgery : official publication of the European Trauma Society, Feb 2016, vol. 42, no. 1, p. 3-10, 1863-9941 (February 2016)

Author(s): Arsalan-Werner, A, Sauerbier, M, Mehling, I M

Abstract: Fractures of the scaphoid are common injuries, accounting for approximately 80 % of carpal fractures. Differentiation between stable and unstable fractures (Herbert classification) cannot be made with conventional X-rays, so evaluation by computed tomography should additionally be performed. Under most circumstances, minimally invasive surgery with cannulated screws is the treatment of choice. A longer cast immobilization after minimal-invasive surgery is not necessary. Conservative treatment still has a place if the fracture is not dislocated nor unstable, but operative treatment can be offered to reduce the period of cast immobilization. Displaced fractures have a greater risk for nonunion and therefore should be treated operatively. Proximal pole fractures are definitely unstable, requiring treatment with screw fixation. The surgical approach depends on the location of the fracture and the preference of the surgeon.

Title: Corrective osteotomies of the radius: Grafting or not?

Citation: World journal of orthopedics, Feb 2016, vol. 7, no. 2, p. 128-135, 2218-5836

Author(s): Mugnai, Raffaele, Tarallo, Luigi, Lancellotti, Enrico, Zambianchi, Francesco,

Abstract: To review the current literature regarding corrective osteotomies to provide the best evidence of the rule of bone grafting. Our MEDLINE literature search included 280 studies using the following key words "Malunited distal radius fracture" and 150 studies using key words "Corrective osteotomy of the distal radius". Inclusion criteria were: Malunited distal radial, extra articular fracture, volar locking plate, use of iliac bone graft (cancellous or corticocancellous), non-use of bone graft. Twelve studies met the inclusion criteria. Seven of the 12 studies considered, described the use of a graft; the remaining five studies didn't use any graft. Type of malunion was dorsal in most of the studies. The healing time was comparable using the graft or not (mean 12.5 wk), ranging from 7.5 to 16 wk. The mean disabilities of the arm, shoulder and hand score improvement was 23 points both in the studies that used the graft and in those not using the graft. This review demonstrated that corrective osteotomy of extra-articular malunited fractures of the distal radius treated by volar locking plate does not necessarily require bone graft.

Title: Free tendon grafts in elder patients, a case report of repair of flexor pollicis longus tendon with a free palmaris longus graft in an 89-year-old woman.

Citation: Annales de chirurgie plastique et esthétique, Feb 2016, vol. 61, no. 1, p. 76-79

Author(s): de Panafieu, E, Upex, P, Doursounian, L, Robert, N

Abstract: Flexor tendon rupture is a potential complication after volar plating of distal radius fracture. Palliative procedures such as tenodesis and arthrodesis are usually employed in elder patients with imperfect results. We report a case of delayed flexor pollicis longus rupture seven years after volar plating of a distal radius fracture occurring in an 89-year-old woman. The repair with a free tendon graft of palmaris longus was successful in terms of strength and range of motion. Free tendon grafts should not be limited to younger patients and could be used in elder patients after careful selection. Copyright © 2014 Elsevier Masson SAS. All rights reserved.

Title: Assessment of penetration of dorsal screws after fixation of the distal radius using ultrasound: cadaveric study.

Citation: Annals of the Royal College of Surgeons of England, Feb 2016, vol. 98, no. 2, p. 138-142

Author(s): Williams, D, Singh, J, Heidari, N, Ahmad, M, Noorani, A, Di Mascio, L

Abstract: Introduction Volar locking plates are used to treat unstable and displaced fractures of the distal radius. Potential advantages of stable anatomical reduction (eg early mobilisation) can be limited by penetration of dorsal screws, leading to synovitis and potential rupture of extensor tendons. Despite intraoperative imaging, penetration of dorsal screws continues to be a problem in volar plating of the distal radius. Ultrasound is a well recognised, readily available, diagnostic tool used to assess soft-tissue impingement by orthopaedic hardware. In this cadaveric study, we wished to ascertain the sensitivity and specificity of ultrasound for identification of protrusion of dorsal screws after volar plating of the distal radius. Methods Four adult, unpaired phenol-embalmed cadaveric distal radii were used. A VariAx™ Distal Radius Volar Locking Plate system (Stryker, Kalamazoo, MI, USA) was employed for instrumented fixation. A portable SIUI CTS 900 ultrasound machine (Providian Medical, Eastlake, OH, USA) was used to image the dorsal cortex to ascertain screw penetration. Results Specificity and sensitivity of ultrasound for detection of screw protrusion through the dorsal cortex was 100%. Conclusions Ultrasound was found to be a safe and accurate method for assessment of dorsal-screw penetration through the dorsal cortex of the radius after volar plating of the distal radius. It also aids diagnosis of associated tendon disorders (eg tenosynovitis) that might cause pain and limit wrist function.

Title: Cone-Beam CT in diagnosis of scaphoid fractures.

Citation: Skeletal radiology, Feb 2016, vol. 45, no. 2, p. 197-204

Author(s): Edlund, Rolf, Skorpil, Mikael, Lapidus, Gunilla, Bäcklund, Jenny

Abstract: This prospective study investigated the sensitivity of cone beam computed tomography (CBCT), a low dose technique recently made available for extremity examinations, in detecting scaphoid fractures. Magnetic resonance imaging (MRI) was used as gold standard for scaphoid fractures. A total of 95 patients with a clinically suspected scaphoid fracture were examined with radiography and CBCT in the acute setting. A negative CBCT exam was followed by an MRI within 2 weeks. When a scaphoid fracture was detected on MRI a new CBCT was performed. Radiography depicted seven scaphoid fractures, all of which were also seen with CBCT. CBCT detected another four scaphoid fractures. With MRI another five scaphoid fractures were identified that were not seen with radiography or with CBCT. These were also not visible on the reexamination CBCT. Sensitivity for radiography was 44, 95 % confidence interval 21-69 %, and for CBCT 69 %, 95 % confidence interval 41-88 % ($p = 0.12$). Several non-scaphoid fractures in the carpal region were identified, radiography and CBCT depicted 7 and 34, respectively ($p < 0.0001$). CBCT is a superior alternative to radiography, entailing more accurate diagnoses of carpal region fractures, and thereby requiring fewer follow-up MRI examinations. However, CBCT cannot be used to exclude scaphoid fractures, since MRI identified additional occult scaphoid fractures.

Title: Extension Block Pinning for Unstable Proximal Interphalangeal Joint Dorsal Fracture Dislocations.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 196-202

Author(s): Waris, Eero, Mattila, Simo, Sillat, Tarvo, Karjalainen, Teemu

Abstract: To evaluate the outcomes of extension block pinning used to treat unstable dorsal fracture dislocations of the proximal interphalangeal (PIP) joint. The factors affecting the functional outcome were analyzed. A series of 53 patients with 55 dorsal fracture dislocations of the PIP joint treated with closed reduction and extension block pinning were retrospectively reviewed. Additional percutaneous intramedullary fracture reduction (16 cases) or open fracture reduction (4 cases) had been performed. The radiological and clinical evaluations were included. At a mean follow-up of 5.2 years (range, 1.0-10.6 years), 39 patients with 41 injured fingers were evaluated. The fracture fragments involved 30% to 69% (mean, 50%) of the articular surface of the middle phalanx. The mean range of motion was 80° (range, 35° to 115°) at the PIP joint with a mean extension loss of 6° (range, 0° to 50°) excluding 2 joints that were salvaged with arthrodesis. The mean range of motion of the distal interphalangeal joint was 68° (range, 5° to 90°). The mean visual analog scale for digit pain was 1.5/10. The reduction of the joint was achieved intraoperatively in all cases. However, after the hardware removal, recurrent minimal subluxation was observed in 12 cases (29%). Recurrent subluxation was associated with increased residual pain. The length of follow-up time had a positive correlation, whereas the patient age had a negative correlation with the range of motion of the injured PIP joint. The extension block pinning technique is a simple and valuable technique for treating unstable dorsal PIP fracture-dislocation injuries producing satisfactory long-term results. Therapeutic IV.

Title: Radiographic Parameters to Predict Union After Volar Percutaneous Fixation of Herbert Type B1 and B2 Scaphoid Fractures.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 203-207, 1531-6564

Author(s): Mahmoud, Mostafa, Hegazy, Mohamed, Khaled, Sherif Ahmed, Abdelatif, Nasef Mohamed Nasef, Osman, Walid, Elfar, John C

Abstract: To study the angle of screw placement in relation to the scaphoid fracture plane and its effect on union after percutaneous fixation of scaphoid waist fractures. Twenty-four consecutive scaphoid waist fractures were retrospectively evaluated for the orientation of screws in relation to the fracture plane using a method in which the sum-of-smaller angles (SSA) in 3 different radiographs were used to correlate with time to fracture union. All but one patient achieved union after percutaneous fixation of the scaphoid. Another patient required revision surgery within the study period for inadequate fixation. A shortened time to union was significantly correlated to larger SSA. SSA may be a reasonable predictor of union after percutaneous fixation of scaphoid waist fracture. It can be reliably calculated using plain radiographs. An SSA of 190° or more correlated with union by 8 weeks postoperatively. Prognostic IV.

Title: Fixation of distal radial epiphyseal fracture: Comparison of K-wire and prebent intramedullary nail.

Citation: The Journal of international medical research, Feb 2016, vol. 44, no. 1, p. 122-130

Author(s): Cai, Haoqi, Wang, Zhigang, Cai, Haiqing

Abstract: To compare the use of crossed K-wire and prebent intramedullary nail techniques for the fixation of distal radius metaphyseal fracture in children. Intraoperative and follow-up data for children with distal radius metaphyseal fracture, treated using crossed K-wire or prebent intramedullary nail fixation, were retrospectively analysed. Patient groups were matched for age, sex and clinical parameters (fracture location, affected side, fracture type). Patients treated using prebent intramedullary nail fixation (n = 52) had significantly shorter surgery duration, fewer intraoperative X-radiographs, and lower prevalence of postoperative redisplacement and malalignment deformity than those treated using crossed K-wire fixation (n = 52). Both techniques resulted in similar postoperative complications and recovery of forearm rotation. Prebent intramedullary nail fixation has a better functional outcome than crossed K-wire fixation in the treatment of distal radial epiphyseal fracture in children.

Title: Bidirectional Dislocation of the Distal Radioulnar Joint After Distal Radius Fracture: Case Report.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 233-236

Author(s): Arimitsu, Sayuri, Moritomo, Hisao

Abstract: We report a patient with bidirectional dislocation of the distal radioulnar joint after malunited distal radius fracture, in which the ulnar head dislocated dorsally during forearm pronation and palmarly during supination without manual compression of the ulnar head. The patient had chronic ulnar wrist pain and experienced a painful clunk during forearm rotation. The distal radioulnar joint ballottement test was positive in both the dorsal and palmar directions. Her distal radius was malunited with a 20° dorsal angulation and 18° pronation deformity. A corrective osteotomy of the radius with open repair of the triangular fibrocartilage complex foveal avulsion yielded success. At the 7-year follow-up, there was almost a normal range of wrist and forearm motion, 83% grip strength, no arthritis, and a stable distal radioulnar joint.

Title: Assessment Following Distal Radius Fractures: A Comparison of 4 Scoring Systems, Visual Numerical Scales, and Objective Measurements.

Citation: The Journal of hand surgery, Feb 2016, vol. 41, no. 2, p. 219

Author(s): Barker, Scott L, Rehman, Haroon, McCullough, Anna L, Fielding, Shona,
Abstract: To compare 4 recognized upper-limb scoring systems that are regularly used to assess wrist function after injury. We reviewed 116 patients 6 months after volar locking plate fixation for distal radius fractures. Two purely subjective and 2 composite scoring systems composed of both subjective and objective components were compared along with visual numerical scores for pain and function and objective measures of function. Each score was standardized into a scale from 0 to 100. The distribution of the standardized total scores was statistically significantly different and indicated marked variability between scoring systems and therefore the information provided. Overall, the subjective scoring systems correlated well with each other and with both visual numerical scores for pain and function. However, the composite scores and objective measures of function correlated poorly with the subjective scores including the visual numerical scores. Results from wrist scoring systems should be interpreted with caution. It is important to ensure that the component parts of each score are taken into consideration separately because total scores may be misleading. Composite scores may be outdated and should be avoided

Title: Compressive neuropathy of the palmar cutaneous branch of the median nerve after a malunited fracture of the distal radius.

Citation: The Journal of hand surgery, European volume, Feb 2016, vol. 41, no. 2, p. 231-232,

Author(s): Kamath, J, Jayasheelan, N, Mathews, R

Title: Volar plate versus k-wire fixation of distal radius fractures.

Citation: Injury, Feb 2016, vol. 47, no. 2, p. 372-376,

Author(s): Brennan, Stephen A, Kiernan, Christine, Beecher, Suzanne, O'Reilly, Rory T,

Abstract: The optimal management of distal radius fractures remains controversial. The aim of this study was to compare the radiographic and functional outcomes of 318 patients who underwent k-wire fixation or volar plating for fractures of the distal radius. Patients were aged between 20 and 65 years and followed for a mean of 32 months. The mean values for volar tilt, radial inclination, radial length and ulnar variance were all significantly better in the volar plate group. Malunion occurred in 13.2% of patients undergoing k-wiring and 4% of patients treated with a volar plate ($p < 0.007$). Higher values for radial inclination, radial length and volar tilt correlated with better functional outcome as measured by disabilities of the arm shoulder and hand (DASH) and patient rated wrist evaluation (PRWE) scores. Lower values for ulnar variance correlated with better functional outcome. Although volar plate treatment resulted in a superior radiological outcome, there was no evidence that this translated into a superior functional outcome (DASH 13.12 vs. 11.25, $p = 0.28$) (PRWE 17.56 vs. 16.31, $p = 0.69$). The k-wiring procedure remains a suitable inexpensive option for simple fractures. Volar plating should be reserved for complex fractures that cannot be reduced by closed means.

Title: Stabilisation of distal radius fractures: Lessons learned and future directions.

Citation: Injury, Feb 2016, vol. 47, no. 2, p. 313-319

Author(s): Horst, Taylor A, Jupiter, Jesse B

Abstract: Our understanding of the diagnosis and management of distal radius fractures has been a long developed over centuries. There has been a shift in treatment of these very common injuries from closed reduction and casting to internal fixation. The answer to the best method of treatment has yet to be found. Today, we have a multitude of treatment options available with varying degrees of evidence to support their use. This review helps to illustrate the lessons we have learned and future directions for treatment.

Title: Uncommon carpal fractures.

Citation: European journal of trauma and emergency surgery : official publication of the European Trauma Society, Feb 2016, vol. 42, no. 1, p. 15-27

Author(s): Pan, T, Lögters, T T, Windolf, J, Kaufmann, R

Abstract: Fractures of the hand are frequently encountered with injuries to the phalanges and metacarpals comprising the vast majority. Fractures of the carpal bones excluding the scaphoid, however, are fairly uncommon. Despite the rarity of fractures of the remaining seven carpal bones, they can cause a disproportionate amount of morbidity from missed diagnosis due to their subtlety as well as their frequent association with significant ligamentous disruption or even other carpal bone fractures. Delayed diagnosis can result in inadequate fracture care, which places the wrist at risk of disabling sequelae. This review focuses on the current concepts of pathophysiology, diagnosis, and treatment of carpal fractures other than the scaphoid.

Title: Management algorithm for index through small finger carpometacarpal fracture dislocations.

Citation: European journal of trauma and emergency surgery : official publication of the European Trauma Society, Feb 2016, vol. 42, no. 1, p. 37-42

Author(s): Büren, C, Gehrmann, S, Kaufmann, R, Windolf, J, Lögters, T

Abstract: Injuries to the carpometacarpal (CMC) joints are rare. The most common CMC fracture dislocations occur in the ring and small finger CMC joints. The aim of this study was to review the structured diagnostic procedure and different treatment options. We review the importance of early and correct diagnosis in CMC fracture dislocation, because it is needed to ensure pain-free hand function. Moreover, we contrast different therapeutic options, including non-operative and surgical therapy for CMC fracture dislocation. If a clinical suspicion for a CMC dislocation based on patient examination or radiographic findings exists, then a thin slice CT should be considered. Non-operative treatment is rarely indicated. Surgical treatment may include closed or open reduction efforts. In the case of most fracture dislocations, open reduction is recommended. Fracture fixation may be accomplished with K-wires, mini plates or screws. CMC fracture dislocations of the fourth and fifth CMC joints are uncommon and often overlooked. Primary goal of treatment is to restore normal function to the hand. Therefore, operative therapy might be the method of choice.

Title: Investigating the effect of intra-articular PRP injection on pain and function improvement in patients with distal radius fracture.

Citation: Orthopaedics & traumatology, surgery & research : OTSR, Feb 2016, vol. 102, no. 1, p. 47-52

Author(s): Namazi, H, Mehbudi, A

Abstract: Distal radius fractures are common injuries that cause pain and disability. There is a clear need for biomedical engineering research to develop novel strategies to improve functional results following intra-articular distal radius fractures. However, no pharmacotherapeutic agent has been investigated to resolve this problem. The aim of this study was to evaluate whether the platelet-rich plasma (PRP) can be considered a novel additional therapy to improve the outcomes of this injury. Pain reduction and functional improvement can be noticed after PRP use in distal radius fracture. A randomized trial study was designed with 30 patients who had intra-articular distal radius fractures (Frykman type 3, 4, 7, 8). Closed reduction and percutaneous pinning under guide of fluoroscopy were done for them. Fifteen cases received intra-articular autologous PRP. Patients were followed for 3 and 6 months and "patient-rated wrist evaluation" (PRWE) questionnaire was completed and range of motion of the wrist was measured. The mean of pain score and the score of specific and usual activities at 3 months follow-up in the case group and in the control group were (8.33 versus 19.67), (10.66 versus 26.8), and (6.2 versus 13.4), respectively. The mean of pain score and score of specific and usual activities at 6 months follow-up in the case group and in the control group were (3.6 versus 12), (3 versus 15.7),

and (1.2 versus 6.8), respectively. The case group was significantly different from the control group. The mean of loss of flexion and extension of the wrist at 3 months follow-up in the case group was significantly different from the control group as well. PRP may have significant effect on reduction of pain and amount of difficulty in functions, including specific and usual activities after intra-articular distal radius fractures. Level III, Therapeutic trial.

Title: High-energy injuries of the wrist.

Citation: Orthopaedics & traumatology, surgery & research : OTSR, Feb 2016, vol. 102, no. 1 Suppl, p. S81.

Author(s): Obert, L, Loisel, F, Jardin, E, Gasse, N, Lepage, D

Abstract: High-energy injuries to the wrist gather complex fractures of the distal radius, radiocarpal dislocations, perilunate dislocations, and other intracarpal dislocations. Depending on the energy of the injury and the position of the wrist at the time of impact, the patient, often a young male with a high functional demand, presents one of these injuries associating fracture(s) and ligament injury. The trauma is often bilateral, with proximal lesions (elbow) very often associated with contusion or compression of the median nerve. Diagnosis is confirmed by wrist X-rays, which are sufficient to determine treatment for radiocarpal and perilunate dislocations. In cases of distal radius fractures or other intracarpal dislocations, a preoperative CT is necessary. Reduction of the dislocation and relief of neurovascular compression are performed immediately. The final treatment of each lesion (bone fixation, ligament repair) can be undertaken simultaneously or delayed, depending on the patient and the lesions. Cartilage lesions, resulting from the high-energy injury, can be estimated using arthroscopy but cannot be repaired and determine the prognosis. The surgeon's objective is to restore joint congruence, which does not prevent stiffness, the main complication of these rare injuries, which the surgeon must know how to recognize and treat. Copyright © 2015 Elsevier Masson SAS. All rights reserved.

Title: A finite element analysis of two novel screw designs for scaphoid waist fractures.

Citation: Medical engineering & physics, Feb 2016, vol. 38, no. 2, p. 131-139

Author(s): Varga, Peter, Zysset, Philippe K, Schefzig, Philip, Unger, Ewald, Mayr, Winfried,

Abstract: The scaphoid is the most often fractured carpal bone. Scaphoid fracture repair with a headless compression screw allows for early functional recovery. The rotational stability of a single screw may be limited, having a potential negative impact on the healing process. Two novel screws have been designed to provide improved rotational stability compared to the existing ones. Using a computational finite element model of a scaphoid osteotomy, we compared the efficacy of one simple screw and the two new screws in restricting inter-fragmentary motion (IFM) in three functional positions of the wrist and as a function of inter-fragmentary compression force. The in-plane IFM was primary rotational and was better restricted by the new screws compared to the conventional one when the inter-fragmentary compression force was below 15-20 N, but provided no clear benefit in

total flexion independently of the compression force. To better understand the differences in the non-compressed case, we analyzed the acting moments and investigated the effects of the bending and torsional screw stiffness on IFM. By efficiently restricting the inter-fragmentary shear, the new screws may be clinically advantageous when the inter-fragmentary compression force is partially or completely lost and may provide further benefits toward earlier and better healing of transverse waist fractures of the scaphoid.

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March: Vol. 41, Iss 3; 2016

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