

Hand Rehabilitation

Current Awareness Newsletter



August 2016

Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.



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Lunchtime Drop-in Sessions

All sessions are 1 hour

July (1pm)

Tue 5th **Critical Appraisal**
 Wed 13th **Statistics**
 Thurs 21st **Information resources**
 Fri 29th **Literature Searching**

August (12pm)

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

September (1pm)

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

October (12pm)

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

November (1pm)

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

December (12pm)

Thurs 8th **Information resources**
 Fri 16th **Literature Searching**
 Mon 20th **Critical Appraisal**

New from Up-to-Date

New updates in point-of-care evidence summarising tools Up-To-Date

[Overview of finger, hand, and wrist fractures](#)

Authors: Sandeep Sebastin, MMed, FAMS, Kevin C Chung, MD, MS; Shimpei Ono, MD, PhD

Literature review current through: Aug 2016. | This topic last updated: Nov 23, 2015.

INTRODUCTION — Primary care of hand fractures involves accurate diagnosis, pain control, reduction as indicated, immobilization of the fracture, appropriate referral to a hand surgeon, and appropriate rehabilitation once the fracture is healed.

This topic provides an overview of the initial evaluation, identification, and management of finger, hand, and wrist (carpal) fractures. Detailed discussions of specific injuries are found separately. (See "[Scaphoid fractures](#)" and "[Distal radius fractures in adults](#)" and "[Lunate fractures](#)" and "[Overview of carpal fractures](#)" and "[First \(thumb\) metacarpal fractures](#)" and "[Overview of metacarpal fractures](#)" and "[Proximal phalanx fractures](#)" and "[Distal phalanx fractures](#)" and "[Middle phalanx fractures](#)" and "[Evaluation of the patient with thumb pain](#)".)

[de Quervain tendinopathy](#)

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

Literature review current through: Aug 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](#)".)

[Dupuytren's contracture](#)

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

Literature review current through: Aug 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.

As the process evolves, nodules progress to form longitudinal bands referred to as cords on the palmar fascia, and the finger gradually loses extension, with contractures that draw one or more fingers into flexion at the metacarpophalangeal (MCP) joint ([picture 1](#)), proximal interphalangeal (PIP) joint, or both [[2](#)]. The term Dupuytren disease (DD) is also used for this disorder, as the fingers are not always held in a fixed flexion deformity.

[Extensor tendon injury of the distal interphalangeal joint \(mallet finger\)](#)

Author: Rebecca Bassett, MD

Literature review current through: Aug 2016. | This topic last updated: Sep 11, 2015.

INTRODUCTION — A mallet finger injury is the most common closed tendon injury of the finger. The injury occurs most often in the workplace or during contact or ball-handling sports. It is most common in young to middle-aged males, which may reflect their higher rates of participation in such sports [[1](#)].

The diagnosis and management of mallet finger injuries will be reviewed here. Other finger injuries are discussed elsewhere. (See "[Distal phalanx fractures](#)" and "[Flexor tendon injury of the distal interphalangeal joint \(jersey finger\)](#)".)

New from the Cochrane Library

[Manual therapy and exercise for rotator cuff disease](#)

Authors: Matthew J Page, Sally Green, Brodwen McBain, Stephen J Surace, Jessica Deitch, Nicolette Lyttle, Marshall A Mrocki, Rachelle Buchbinder

First published: 10 June 2016

Abstract

Background: Management of rotator cuff disease often includes manual therapy and exercise, usually delivered together as components of a physical therapy intervention. This review is one of a series of reviews that form an update of the Cochrane review, 'Physiotherapy interventions for shoulder pain'.

Objectives: To synthesise available evidence regarding the benefits and harms of manual therapy and exercise, alone or in combination, for the treatment of people with rotator cuff disease.

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

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: Library@uhbristol.nhs.uk

Altered Neurodynamics upper limb

Title: Reflections on the diagnostic accuracy of the Upper Limb Neurodynamic Test 1.

Citation: Manual therapy, Jun 2016, vol. 23, p. e15., 1532-2769 (June 2016)

Author(s): Vanti, Carla, Bonfiglioli, Roberta, Ruggeri, Martina, Pillastrini, Paolo

Title: Validity of the Upper Limb Neurodynamic Test 1 for the diagnosis of Carpal Tunnel Syndrome. The role of structural differentiation.

Citation: Manual therapy, Apr 2016, vol. 22, p. 190-195

Author(s): Bueno-Gracia, Elena, Tricás-Moreno, José Miguel, Fanlo-Mazas, Pablo, Malo-Urriés, Miguel, Haddad-Garay, María, Estébanez-de-Miguel, Elena, Hidalgo-García, César, Krauss, John R

Abstract: Several studies have analysed the use of the Upper Limb Neurodynamic Test 1 (ULNT1) for diagnosing Carpal Tunnel Syndrome (CTS) obtaining weak diagnostic accuracy, which could be related to the lack of consensus in the selected diagnostic criteria of ULNT1. To determine the concurrent validity of ULNT1 in comparison to Nerve Conduction Studies (NCS) for the diagnosis of CTS, considering the structural differentiation (SD) as an essential part of the diagnosis. Prospective diagnostic test study. Individuals with suspected CTS

referred for NCS were invited to voluntarily participate in the study. Each participant was tested with NCS and ULNT1. ULNT1 result was considered positive when the patient's clinical symptoms were reproduced during the test and symptoms changed during contralateral neck side bending (SD). 58 Participants (17 men, 44 women) with suspected CTS and a total of 95 limbs were examined using the NCS and ULNT1. Sensitivity of the ULNT1 was 57.9%, specificity was 84.2%, and the positive and negative likelihood ratios were 3.67 and 0.50 respectively. Results obtained in the study may indicate the ability of the ULNT1 to generate small shifts from pre-test to post-test probability. However, imprecision in the CIs limits interpretation from the data. 1b. Published by Elsevier Ltd.

Complex Regional Pain Syndrome (CRPS)

Title: Is poststroke complex regional pain syndrome the combination of shoulder pain and soft tissue injury of the wrist?: A prospective observational study: STROBE of ultrasonographic findings in complex regional pain syndrome.

Citation: *Medicine*, Aug 2016, vol. 95, no. 31, p. e4388., 1536-5964 (August 2016)

Author(s): Kim, Yong Wook, Kim, Yoon, Kim, Jong Moon, Hong, Ji Seong, Lim, Hyun Sun, Kim, Hyoung Seop

Abstract: Patients with poststroke complex regional pain syndrome (CRPS) show different symptoms compared to other types of CRPS, as they usually complain of shoulder and wrist pain with the elbow relatively spared. It is thus also known by the term "shoulder-hand syndrome." The aim of this study is to present a possible pathophysiology of poststroke CRPS through ultrasonographic observation of the affected wrist before and after steroid injection at the extensor digitorum communis (EDC) tendon in patients suspected with poststroke CRPS. Prospective evaluation and observation, the STROBE guideline checklist was used. Twenty-three patients diagnosed as poststroke CRPS in accordance to clinical criteria were enrolled. They had a Three Phase Bone Scan (TPBS) done and the cross-sectional area (CSA) of EDC tendon was measured by using ultrasonography. They were then injected with steroid at the EDC tendon. The CSA of EDC tendon, visual analogue scale (VAS), and degree of swelling of the wrist were followed up 1 week after the injection. TPBS was interpreted as normal for 4 patients, suspected CRPS for 10 patients, and CRPS for 9 patients. Ultrasonographic findings of the affected wrist included swelling of the EDC tendon. After the injection of steroid to the wrist, CSA and swelling of the affected wrist compared to that before the treatment was significantly decreased ($P < 0.001$). The VAS score declined significantly after the injection ($P < 0.001$). Our results suggest that the pathophysiology of poststroke CRPS might be the combination of frozen shoulder or rotator cuff tear of shoulder and soft tissue injury of the wrist caused by the hemiplegic nature of patients with stroke.

Title: The immediate effects of soft tissue mobilization versus therapeutic ultrasound for patients with neck and arm pain with evidence of neural mechanosensitivity: a randomized clinical trial.

Citation: *The Journal of manual & manipulative therapy*, Jul 2016, vol. 24, no. 3, p. 128-140,

Author(s): Costello, Michael, Puentedura, Emilio 'Louie' J, Cleland, Josh, Ciccone,

Abstract: Randomized clinical trial. To investigate the immediate effects of soft tissue mobilization (STM) versus therapeutic ultrasound (US) in patients with neck and arm pain who demonstrate neural mechanical sensitivity. While experts have suggested that individuals with neck and arm pain associated with neural tissue mechanical sensitivity may benefit from STM, there has been little research to investigate this hypothesis. Twenty-three patients with neck and arm pain and a positive upper limb neurodynamic test (ULNT) were randomly assigned to receive STM or therapeutic US during a single session. Outcome measures were collected immediately before and after treatment, and at 2-4 day follow-up. Primary outcomes were the Global Rating of Change (GROC), range of motion (ROM) during the ULNT, and pain rating during the ULNT. Secondary measures included the Neck Disability Index (NDI), Patient-Specific Functional Scale (PSFS), Numeric Pain Rating Scale (NPRS), and active range of shoulder abduction motion combined with the wrist neutral or wrist extension. A greater proportion of patients in the STM group reported a significant improvement on the GROC immediately after treatment ($P=0.003$, STM = 75%, US = 9%), and at 2-4 day follow-up ($P=0.027$, STM = 58%, US = 9%). Patients who received STM demonstrated greater improvements in ROM during ULNT ($P=0.026$), PSFS ($P=0.007$), and shoulder active ROM combined with wrist extension ($P=0.028$). Improvements in Numeric Pain Rating Scale and pain during the ULNT were observed only in the STM group. There was no difference between groups for the NDI or shoulder abduction ROM with wrist neutral. Patients with neck and arm pain demonstrated greater improvements in ULNT ROM, GROC, and PSFS, and pain following STM than after receiving therapeutic US. Therapy, level 1b.

Title: Successful Treatment of Complex Regional Pain Syndrome with Pseudoaneurysm Excision and Median Nerve Neurolysis.

Citation: World neurosurgery, Aug 2016, vol. 92, p. 582.e5, 1878-8769 (August 2016)

Author(s): Gillick, John L, Cooper, Jared B, Babu, Sateesh, Das, Kaushik, Murali, Raj

Abstract: Complex regional pain syndrome (CRPS), formerly referred to as reflex sympathetic dystrophy, is a pain syndrome characterized by severe pain, altered autonomic and motor function, and trophic changes. CRPS is usually associated with soft tissue injury or trauma. It has also been described as a rare complication of arterial access for angiography secondary to pseudoaneurysm formation. A 73-year-old woman underwent catheterization of the left brachial artery for angiography of the celiac artery. The following day, the patient noticed numbness and severe pain in the median nerve distribution of the left upper extremity. Over the next 6 months, the patient developed CRPS in the left hand with pain and signs of autonomic dysfunction. Further work-up revealed the formation of a left brachial artery pseudoaneurysm with impingement on the median nerve. She underwent excision of the pseudoaneurysm with decompression and neurolysis of the left median nerve. Approximately 6 weeks after surgery, the patient had noticed significant improvement in autonomic symptoms. This case involves a unique presentation of CRPS caused by brachial artery angiography and pseudoaneurysm formation. In addition, the case demonstrates the efficacy of pseudoaneurysm excision and median nerve neurolysis in the treatment of CRPS as a rare complication of arterial angiography. Copyright © 2016 Elsevier Inc. All rights reserved.

De-Quervain's tenosynovitis

Title: Sex differences in the radial grooves in the first extensor compartment

Citation: Skeletal Radiology, July 2016, vol./is. 45/7(955-958), 0364-2348;1432-2161 (01 Jul 2016)

Author(s): Gurses I.A., Turkay R., Inci E., Ors S., Onal Y., Ozel S., Vural M.

Abstract: Objective: De Quervain tenosynovitis affects the first extensor compartment of the wrist and occurs more frequently in females. This high prevalence could not be explained by soft tissue. As the osseous anatomy has been mostly neglected, we aimed to compare the distal radius between the sexes. Materials and methods: We evaluated the presence of a bony ridge on the floor of the first extensor compartment on CT images with multiplanar imaging. Results: We included 244 wrists (72 females, 172 males) in the study. A bony ridge was present in 58 (23.8 %) and absent in 186 (76.2 %) wrists. A ridge was present in 24 (33.3 %) wrists among females and 34 (19.8 %) wrists among males. A groove with a bony ridge was statistically associated with females. Conclusion: We observed two tendon groove morphologies for the first extensor compartment. A groove with a bony ridge occurs more frequently in females. Further research is needed to clarify the relationship between the high frequency of a bony ridge and increased prevalence of de Quervain tenosynovitis in females

Dislocations Fingers (Proximal Interphalangeal Joints)

Title: Return to Play After Hand and Wrist Fractures.

Citation: Clinics in sports medicine, Oct 2016, vol. 35, no. 4, p. 597-608

Author(s): Halim, Andrea, Weiss, Arnold-Peter C

Abstract: Wrist and hand injuries are common among athletes, and can lead to considerable disability. Dislocations and soft tissue injuries are common and require prompt recognition and treatment. Accurate diagnosis and early immobilization are often key to getting players back to their sport early. Some injuries require surgery; operative intervention allows the player to return to their sport more quickly or with less long-term disability. This article discusses the spectrum of injury from distal radius fractures to mallet fingers, and offers some general guidelines for the surgeon in how to counsel and treat athletes with these problems. Copyright © 2016 Elsevier Inc. All rights reserved.

Title: Ultrasonographic characteristics of volar-lateral ligament constrains after proximal interphalangeal joint injuries.

Citation: Journal of plastic surgery and hand surgery, Aug 2016, vol. 50, no. 4, p. 216-221

Author(s): Saito, Susumu, Sawabe, Kazuma, Suzuki, Yoshihisa, Suzuki, Shigehiko

Abstract: Objective To characterise posttraumatic constrains of the volar-lateral ligaments by analysing volar plate (VP) dynamics after proximal interphalangeal (PIP) joint injuries using ultrasonography. Materials and methods From the anatomical and biomechanical perspectives of the VP and its surrounding structures, posttraumatic constrains of the volar-lateral ligament were evaluated by analysing the changes of VP motion. Using ultrasound, VP motion during active flexion of 0-60° was recorded in the central sagittal plane at 12 weeks after injury. VP trajectories visualised by 5-point tracing on the VP were analysed qualitatively to detect differential patterns of the ligament constrains. Quantitatively, correlation between averaged constrain index determined by measuring volar locational values of the 5 points on the VP and limitation in extension at the final follow-up was assessed. Results Eleven patients with PIP joint injuries involving five VP avulsions, three volar intra-articular fractures, or three dorsal fracture-dislocations were included. All patients with VP avulsion revealed a totally-constrained pattern, whereas patients with intra-articular or fracture-dislocation injuries showed distally-constrained pattern or normal. Averaged constrain index was negatively correlated with limitation in extension, indicating positive contribution of volar-lateral ligament constrains to residual flexion contracture. Conclusion Ultrasonographic visualisation of VP motion characterised posttraumatic constrained conditions of the volar-lateral ligaments. Knowledge of the manner of ligament damages might be useful to set treatment strategies for PIP joint injuries.

Title: Complex Dorsal Metacarpophalangeal Dislocation: Long-Term Follow-Up.

Citation: The Journal of hand surgery, Aug 2016, vol. 41, no. 8, p. e229.

Author(s): Rubin, Guy, Orbach, Hagay, Rinott, Micha, Rozen, Nimrod

Abstract: To describe the long-term follow-up results of complex dorsal metacarpophalangeal joint dislocation (MPJD). We hypothesize that there would be no long-term functional deficit in most patients, even with the presence of one of the familiar complications. We describe 5 patients with a median follow-up of 13 (range, 7-36) years and review the literature focusing on follow-up and complications. All patients reported full function of the hand. Compared with the contralateral finger, a mild loss of MPJ flexion was noted in 2 patients. Grip strength was reduced in 2 patients. The mean QuickDASH score was 4.5 (range, 0-20.5). Two patients with osteochondral metacarpal head fractures treated with screw fixation demonstrated secondary osteoarthritis changes on x-ray. The literature indicates that complications in patients with complex dorsal MPJD are related to failure of diagnosis, multiple attempts at closed reduction, concomitant osteochondral fracture, traumatic open reduction, or prolonged immobilization, and may result in joint stiffness, early degenerative arthritis, or osteonecrosis of the metacarpal head, pain, premature epiphysis closure, and metacarpal shortening. The findings from this study suggest that complex dorsal MPJD treated on the day of injury with dorsal or volar open reduction techniques can eventually result in a satisfactory outcome, even with one of the complications mentioned. Prognostic V. Copyright © 2016 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Dupuytren's (fasciectomy).

Title: Predictors of Patient Satisfaction with Hand Function after Fasciectomy for Dupuytren's Contracture.

Citation: Plastic and reconstructive surgery, Sep 2016, vol. 138, no. 3, p. 649-655, 1529-4242 (September 2016)

Author(s): Zhou, Chao, Hovius, Steven E R, Slijper, Harm P, Zuidam, Michiel J, Smit, Xander, Feitz, Reinier, Selles, Ruud W

Abstract: This study examined patient satisfaction with hand function after fasciectomy for Dupuytren's contracture and determined which preoperative patient- and disease-specific factors predicted this satisfaction. Demographics and disease-specific factors were assessed from a prospective cohort of 194 patients who completed the Michigan Hand Outcomes Questionnaire preoperatively and underwent limited fasciectomy between 2011 and 2014 at six hand surgery practice sites. To evaluate satisfaction with hand function, patients were asked to complete the Michigan Hand Outcomes Questionnaire during the first year after fasciectomy. After patients were classified into a satisfied and an unsatisfied category using the question that specifically pertains to satisfaction with hand function, the authors applied multivariate logistic regression modeling to identify independent predictors of patient satisfaction. At an average of 10 months (range, 6 to 12 months) after fasciectomy, 84 percent (n = 163) of the patients were satisfied with their hand function. In multivariate analyses adjusting for the degree of postoperative residual contracture ($p < 0.001$) and complications ($p < 0.001$), a higher preoperative Michigan Hand Outcomes Questionnaire hand appearance subscore and male gender predicted a higher likelihood of becoming satisfied after fasciectomy. Other patient- and disease-specific factors did not show evidence for an association with patient satisfaction. The findings of this study suggest that providers should consider assessing concerns about the appearance of the hand in patients with Dupuytren's contracture. They also highlight the importance of complication prevention and full contracture correction from the patient's perspective. Risk, III.

Title: The quantitative role of flexor sheath incision in correcting Dupuytren proximal interphalangeal joint contractures.

Citation: The Journal of hand surgery, European volume, Jul 2016, vol. 41, no. 6, p. 609-613

Author(s): Blazar, P E, Floyd, E W, Earp, B E

Abstract: Controversy exists regarding intra-operative treatment of residual proximal interphalangeal joint contractures after Dupuytren's fasciectomy. We test the hypothesis that a simple release of the digital flexor sheath can correct residual fixed flexion contracture after subtotal fasciectomy. We prospectively enrolled 19 patients (22 digits) with Dupuytren's contracture of the proximal interphalangeal joint. The average pre-operative extension deficit of the proximal interphalangeal joints was 58° (range 30-90). The flexion contracture of the joint was corrected to an average of 28° after fasciectomy. In most digits (20 of 21), subsequent incision of the flexor sheath further corrected the contracture by an average of 23°, resulting in correction to an average flexion contracture of 4.7° (range 0-40). Our results support that contracture of the tendon sheath is a contributor to Dupuytren's contracture of the joint and that sheath release is a simple, low morbidity addition to correct Dupuytren's contractures of the proximal interphalangeal joint. Additional release of the proximal interphalangeal joint after fasciectomy, after release of

the flexor sheath, is not necessary in many patients. IV (Case Series, Therapeutic). © The Author(s) 2015.

Title: Skin involvement in Dupuytren's disease.

Citation: The Journal of hand surgery, European volume, Jul 2016, vol. 41, no. 6, p. 600-608

Author(s): Wade, R, Igali, L, Figus, A

Abstract: Whether the palmar skin has a role in the development, propagation or recurrence of Dupuytren's disease remains unclear. Clinical assessment for skin involvement is difficult and its correlation with histology uncertain. We prospectively biopsied the palmar skin of consecutive patients undergoing single digit fasciectomy (for primary Dupuytren's disease without clinically involved skin) and dermofasciectomy (for clinically involved skin or recurrence) in order to investigate this relationship. We found dermal fibromatosis in 22 of 44 patients (50%) undergoing fasciectomy and 41 of 59 patients (70%) undergoing dermofasciectomy. Dermal fibromatosis appeared to be associated with greater preoperative angular deformity, presence of palmar nodules and occupations involving manual labour. Dermal fibromatosis exists in the absence of clinical features of skin involvement and we hypothesize that the skin may have a greater role in the development and propagation of Dupuytren's disease than previously thought. III. © The Author(s) 2015.

Title: Percutaneous Aponeurotomy and Lipofilling (PALF) versus Limited Fasciectomy in Patients with Primary Dupuytren's Contracture: A Prospective, Randomized, Controlled Trial.

Citation: Plastic and reconstructive surgery, Jun 2016, vol. 137, no. 6, p. 1800-1812, 1529-4242 (June 2016)

Author(s): Kan, Hester J, Selles, Ruud W, van Nieuwenhoven, Christianne A, Zhou, Chao, Khouri, Roger K, Hovius, Steven E R

Abstract: As an alternative to needle aponeurotomy release and limited fasciectomy treatment of Dupuytren's contracture, the authors introduced an extensive percutaneous aponeurotomy and lipofilling (PALF) procedure. In their previous study, the authors reported that contractures significantly improved and most patients returned to normal use of the hand within 2 to 4 weeks. To establish the safety and efficacy of PALF, the authors compared it to the standard limited fasciectomy in a single-blind, multicenter, prospective, randomized, controlled trial. Patients with a primary Dupuytren's contracture were assigned randomly to the limited fasciectomy group or the PALF group. Patients were measured at baseline and at 2 weeks, 3 weeks, 6 months, and 1 year postoperatively. Primary outcome of the trial was contracture correction and convalescence time. Groups were compared using a mixed models approach. Eighty patients were randomized to PALF or limited fasciectomy. In both groups, almost full metacarpophalangeal joint contracture correction was obtained, whereas for the proximal interphalangeal joint, some residual contracture remained. Patients in the PALF group returned significantly earlier to their normal daily activity. At 1 year after surgery, no significant differences in recurrence rate or hand function were present. However, limited fasciectomy seems to have a higher incidence of permanent complications. PALF demonstrates a significantly shorter convalescence, similar operative contracture correction, lower incidence of long-term complications, and no

significant difference regarding 1-year postoperative results compared with limited fasciectomy. It is therefore a valuable, minimally invasive alternative to limited fasciectomy in the treatment of Dupuytren's disease. Therapeutic, II.

Flexor and Tendon Injuries

Title: Spontaneous flexor tendon rupture in systemic lupus erythematosus: A case report.

Citation: Modern rheumatology / the Japan Rheumatism Association, Sep 2016, vol. 26, no. 5, p. 794-797

Author(s): Oda, Ryo, Fujiwara, Hiroyoshi, Tokunaga, Daisaku, Kishida, Aiko, Taniguchi, Daigo, Seno, Takahiro, Kawahito, Yutaka, Kubo, Toshikazu

Abstract: Spontaneous flexor tendon rupture is an unusual complication of systemic lupus erythematosus (SLE) and has not previously been reported. While tendon ruptures in association with SLE have been focused on the previous studies, upper extremity tendon ruptures are infrequently reported in the literature. Here, we present an uncommon case of spontaneous flexor tendon rupture of the ring and little fingers in a patient with SLE and discuss the mechanism of injury and its surgical treatment.

Title: Radial Nerve Tendon Transfers.

Citation: Hand clinics, Aug 2016, vol. 32, no. 3, p. 323-338

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

Abstract: Radial nerve palsy typically occurs as a result of trauma or iatrogenic injury and leads to the loss of wrist extension, finger extension, thumb extension, and a reduction in grip strength. In the absence of nerve recovery, reconstruction of motor function involves tendon transfer surgery. The most common donor tendons include the pronator teres, wrist flexors, and finger flexors. The type of tendon transfer is classified based on the donor for the extensor digitorum communis. Good outcomes have been reported for most methods of radial nerve tendon transfers as is typical for positional tendon transfers not requiring significant power. Copyright © 2016 Elsevier Inc. All rights reserved.

Title: High Median Nerve Injuries

Citation: Hand Clinics, August 2016, vol./is. 32/3(339-348)

Author(s): Isaacs J., Ugwu-Oju O.

Abstract: The median nerve serves a crucial role in extrinsic and intrinsic motor and sensory function to the radial half of the hand. High median nerve injuries, defined as injuries proximal to the anterior interosseous nerve origin, therefore typically result in significant functional loss prompting aggressive surgical management. Even with appropriate recognition and contemporary nerve reconstruction, however, motor and sensory recovery may be inadequate. With isolated persistent high median nerve palsies, a variety of

available tendon transfers can improve key motor functions and salvage acceptable use of the hand.

Title: Horrible bosses: Patterns of MRI findings at the carpal boss and the extensor carpi radialis brevis tendon insertion in patients with activity related dorsal hand pain

Citation: Skeletal Radiology, August 2016, vol./is. 45/8(1171-1172), 1432-2161 (August 2016)

Author(s): Zoga A., Nevalainen M., Sharma P., Roedl J., Morrison W.

Abstract: Purpose: The carpal boss is a well-documented osseous protuberance at the base of the 2nd and 3rd metacarpals commonly associated with dorsal hand pain, and sometimes related to an unfused or partially fused os styloideum. Anecdotally, we observed a set of patients with pain related to overuse or forced extension trauma and osseous or soft tissue edema in the region of a carpal boss, os styloideum and the extensor carpi radialis brevis (ECRB) tendon insertion. We sought to describe patterns of MRI findings involving injury to the carpal boss or os styloideum and the (ECRB) tendon insertion in individuals with overuse related or posttraumatic dorsal hand pain. Secondarily, we hoped to classify anatomic variations at the ECRB insertion and degrees and location of os styloideum fusion. Materials and Methods: A PACS database search generated 84 MRI wrist or hand studies in 79 subjects with "carpal boss" or "os styloideum" in the report. AllMRs were retrospectively reviewed by an SSR member and a musculoskeletal research fellow. Bone marrow edema (BME) at a fused carpal boss or at an os styloideum or at the 2nd or 3rd metacarpal base were recorded, along with the extent and location os styloideum coalition to either metacarpal, the capitate or the trapezoid. The anatomic insertion site of the ECRB was recorded as 3rdmetacarpal, os styloideum, as were ECRB tenosynovitis and tearing. Patterns of MRI findings were correlated with clinical history and physical examination. Results: The mean subject age was 38 years, and 63 % were males. 11/84 (13 %) were skeletally immature at the distal radius. Fused carpal bossing was present in 21 % (18/84), partial coalitions in 35 % (29/84), and unfused osstyloidea in 44 % (37/84). Regional BME was observed in 64 % (54/84), including 20/37 (54 %) unfused os styloidea and 13/29 (45 %) with a partial coalition. The ECRB inserted primarily on a stable carpal boss at the 3rd metacarpal base in 35 % (29/84), an os styloideum in 20 % (17/84), and shared an attachment with both the metacarpal base and an os styloideum in 45 % (38/84). ECRB tenosynovitis was present in 38 % (32/84). 23 patients reported a distinct dorsal wrist trauma and 25 reported an extensor tendon overuse activity including 12 hockey players. Of the 48 patients with documented activity related dorsal wrist pain, 36 (75 %) had BME within a partially fused or unfused os styloideum that served as at least a part of the insertion site for the ECRB ($p = 0.023$). Conclusion: The painful carpal boss is a well-documented phenomenon, but the spectrum of associated MRI findings has not been described. Both the degree of coalition between an os styloideum and the 3rd metacarpal or carpus and the insertion site of the ECRB are variable. We describe a new MRI injury pattern including BME at an ECRB insertion on an os styloideum with or without a partial coalition to the carpus or metacarpals in a series of patients with localized dorsal hand pain related to overuse or forced extension trauma.

Title: Risk factors of hand climbing-related injuries.

Citation: Scandinavian journal of medicine & science in sports, Jul 2016, vol. 26, no. 7, p. 739-744

Author(s): Lion, A, van der Zwaard, B C, Remillieux, S, Perrin, P P, Buatois, S

Abstract: This study aimed to investigate the protective mechanisms or risk factors that can be related to the occurrence of hand climbing-related injuries (CRIH). CRIH (tendon, pulley, muscle, and joint injuries) were retrospectively screened in 528 adult climbers. The questionnaire contained anthropometric items (e.g., body mass index - BMI), as well as items regarding climbing and basic training activities (warm-up, cool-down and session durations, number of session per week, hydration, practice level, climbing surface, and duration of the cardiovascular training). Higher skilled climbers and climbers with BMI above 21 kg/m² were more likely to have experienced CRIH ($P < 0.01$). Climbers with BMI above 20 kg/m² were more likely to have tendon injuries while those with a BMI above 21 kg/m² were more likely to have pulley injuries ($P < 0.01$). Skilled climbers, who climb more difficult routes, may use smaller grip size and a reduced number of fingers. Higher BMI will require a higher force to climb. Both high level and elevated BMI may increase the demands to the hands and fingers leading to CRIH. These risk factors are difficult to address as we cannot recommend the climbers to climb easier routes and decrease their BMI below 20 kg/m². © 2015 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.

Title: Relative motion between the flexor digitorum superficialis tendon and paratenon in zone V increases with wrist flexion angle

Citation: Journal of Orthopaedic Research, July 2016, vol./is. 34/7(1248-1255)

Author(s): Kociolek A.M., Keir P.J.

Abstract: Carpal tunnel syndrome is characterized by non-inflammatory fibrosis of the subsynovial connective tissue (SSCT), a paratenon-like structure inside the carpal tunnel. This pathology suggests repetitive and/or excessive shear forces are involved in injury development. We assessed relative motion between the flexor digitorum superficialis (FDS) tendon and adjacent paratenon in Zone V using colour Doppler imaging as 16 healthy participants completed three long finger movements (metacarpophalangeal joint flexion, proximal and distal interphalangeal joint flexion, full finger flexion) in three wrist postures (30degree extension, 0degree, 30degree flexion). While the type of finger movement did not affect tendon-paratenon relative motion, we found a significant main effect of wrist posture ($p < 0.001$). Relative displacement between the FDS tendon and paratenon (as a percentage of tendon displacement) increased from 27.2% (95%CI = 24.8-29.5%) in 30degree wrist extension to 39.9% (95%CI = 37.3-42.4%) in 30degree wrist flexion. Optical motion capture confirmed that wrist posture did not affect metacarpophalangeal joint range of motion ($p = 0.265$) or proximal interphalangeal joint range of motion ($p = 0.582$). These results indicate that relative motion increased due to paratenon strain when the wrist was flexed. While our findings agree with previous cadaveric research in wrist flexion, we found that relative displacement decreased in 30degree wrist extension (compared to 0degree). These results differ from cadaveric research, possibly due to challenges maintaining anatomic fidelity of the viscoelastic paratenon tissue in vitro. Overall, our study suggests a greater susceptibility to shear injury during repetitive finger movements,

particularly when the wrist is flexed. © 2015 Orthopaedic Research Society. Published by Wiley Periodicals, Inc. J Orthop Res 34:1248-1255, 2016.

Title: Transtriquetral perihamate fracture-dislocation: case report.

Citation: Revista brasileira de ortopedia, Jul 2016, vol. 51, no. 4, p. 471-474

Author(s): Moraes, Frederico Barra de, Ferreira, Rodrigo Cunha, Geraldino, Stéphanie Zago, Farias, Renato Silva, Silva, Ricardo Pereira da, Kuwae, Mário Yoshihide

Abstract: The wrist is a region that is very vulnerable to injuries of the extremities. Among these injuries, fractures of the pyramidal bone (or triquetrum) in association with dislocation of the hamate and carpal instability are uncommon. They are generally correlated with high-energy trauma and may be associated with neurovascular deficits, muscle-tendon disorders, skin lesions or injuries to other carpal bones. Thus, in this report, one of these rare cases of transtriquetral perihamate fracture-dislocation with carpal instability is presented, diagnosed by means of radiography on the right wrist of the patient who presented pain, edema and limitation of flexion-extension of the carpus after trauma to the region. The stages of attending to the case are described, from the initial consultation to the surgical treatment and physiotherapy, which culminated in restoration of the strength and range of motion of the wrist.

Mallet Finger/Thumb Deformity

Title: Design of a soft robotic glove for hand rehabilitation of stroke patients with clenched fist deformity using inflatable plastic actuators

Citation: Journal of Medical Devices, Transactions of the ASME, December 2016, vol./is. 10/4(no pagination)

Author(s): Yap H.K., Lim J.H., Goh J.C.H., Yeow C.-H.

Abstract: In this paper, we present a soft robotic glove designed to augment hand rehabilitation for stroke patients with clenched fist deformity. The robotic glove provides active finger extension for hand rehabilitative training, through its embedded inflatable actuators that are fabricated by heat bonding of flexible plastic sheets. Upon pressurization, the actuators inflate, stiffen, and extend the fingers. The actuators were embedded in the finger pockets of a glove. In this work, the device was evaluated in terms of its extension torque generated on the metacarpophalangeal (MCP) joint of a dummy finger model and a healthy subject. A stroke patient with finger spasticity was recruited to demonstrate the feasibility of the device to assist in finger extension. Preliminary results showed that the device was able to generate significant extension torques to provide assistance in finger extension for both healthy and stroke participants.

Title: Bony mallet finger injuries: assessment of stability with extension stress testing.

Citation: The Journal of hand surgery, European volume, Sep 2016, vol. 41, no. 7, p. 696-700

Author(s): Giddins, G E

Abstract: Bony mallet injuries with a large dorsal fracture fragment may sublux giving a poor outcome. The hypothesis that was tested was that subluxation could be predicted by extension stress lateral radiographs. It was anticipated that the main distal fracture fragment would glide and be stable or pivot and be unstable. There were 32 bony mallet injuries with dorsal fracture fragments of $>1/3$ in 31 patients. There were three patterns shown on lateral extension stress radiographs: gliding, pivoting, and tilting - a combination of the former two. Defining stability as congruence or subluxation ≤ 1 mm at final radiographs and instability as subluxation >1 mm, there was a very strong association with pivoting and subluxation, and gliding and congruence ($p < 0.001$). Tilting gave mixed results. There was significant difference in the size of the fracture fragment in stable (mean 49%) and unstable injuries (54%) ($p = 0.044$). Extension stress testing has a sensitivity of 89% and a specificity of 100%. Extension stress testing highlights that instability is not just a function of fracture fragment size and is a more reliable method of predicting subluxation than any previously described. V. © The Author(s) 2016.

Title: Jam Injuries of the Finger: Diagnosis and Management of Injuries to the Interphalangeal Joints Across Multiple Sports and Levels of Experience.

Citation: Sports health, Sep 2016, vol. 8, no. 5, p. 469-478

Author(s): Carruthers, Katherine H, Skie, Martin, Jain, Margaret

Abstract: Jam injuries of the finger are frequently encountered in general orthopaedic and sports medicine practice. The finger joints in particular are very susceptible to traumatic injury, but in the absence of severe deformity, digital trauma is often downplayed in the hopes of a more rapid return to game play. Articles published from 1966 to 2015 were reviewed to capture historical and current views on the presentation, diagnosis, and treatment of jam injuries in athletes. Clinical review. Level 5. Although jam injuries are frequently grouped together, they represent a host of injuries that can be challenging to differentiate. A thorough knowledge of finger joint anatomy and injury mechanism is critical to perform an appropriate examination, establish an accurate diagnosis, and identify a treatment plan for each patient. Every member of the athletic care team must be aware of the spectrum of digital injuries, including the basic signs present on examination, which may indicate the need for more formal workup. Additionally, preventing injury through athlete education is paramount to athletic care. © 2016 The Author(s).

Title: Development of kinematic graphs of median nerve during active finger motion: Implications of smartphone use

Citation: PLoS ONE, July 2016, vol./is. 11/7(no pagination)

Author(s): Woo H.-C., White P., Ng H.-K., Lai C.W.K.

Abstract: Background: Certain hand activities cause deformation and displacement of the median nerve at the carpal tunnel due to the gliding motion of tendons surrounding it. As smartphone usage escalates, this raises the public's concern whether hand activities while using smartphones can lead to median nerve problems. Objective: The aims of this study were to 1) develop kinematic graphs and 2) investigate the associated deformation and

rotational information of median nerve in the carpal tunnel during hand activities. Methods: Dominant wrists of 30 young adults were examined with ultrasonography by placing a transducer transversely on their wrist crease. Ultrasound video clips were recorded when the subject performing 1) thumb opposition with the wrist in neutral position, 2) thumb opposition with the wrist in ulnar deviation and 3) pinch grip with the wrist in neutral position. Six still images that were separated by 0.2-second intervals were then captured from the ultrasound video for the determination of 1) cross-sectional area (CSA), 2) flattening ratio (FR), 3) rotational displacement (RD) and 4) translational displacement (TD) of median nerve in the carpal tunnel, and these collected information of deformation, rotational and displacement of median nerve were compared between 1) two successive time points during a single hand activity and 2) different hand motions at the same time point. Finally, kinematic graphs were constructed to demonstrate the mobility of median nerve during different hand activities. Results: Performing different hand activities during this study led to a gradual reduction in CSA of the median nerve, with thumb opposition together with the wrist in ulnar deviation causing the greatest extent of deformation of the median nerve. Thumb opposition with the wrist in ulnar deviation also led to the largest extent of TD when compared to the other two hand activities of this study. Kinematic graphs showed that the motion pathways of median nerve during different hand activities were complex. Conclusion: We observed that the median nerve in the carpal tunnel was rotated, deformed and displaced during the hand activities that people may be performed when using a smartphone, suggesting an increased risk of carpal tunnel syndrome (CTS). In addition, the kinematic graphs of median nerve developed in the present study provide new clues for further studies on the pathophysiology of CTS, and alerting smartphone users to establish proper postural habits when using handheld electronic devices.

Title: The challenge of the mallet orthosis: A simple solution.

Citation: Journal of hand therapy : official journal of the American Society of Hand Therapists, Jul 2016, vol. 29, no. 3, p. 348-351

Author(s): Harte, Daniel

Abstract: This author provides instruction regarding an alternative, simple, and custom-made orthotic device to manage the mallet finger that may stay in place more securely while also allowing for proximal interphalangeal joint flexion during the healing of the terminal tendon. - KristinValdes, OTD, OT, CHT, Practice Forum Editor, Journal of Hand Therapy. Copyright © 2016 Hanley & Belfus. Published by Elsevier Inc. All rights reserved.

Title: Mallet finger injuries-A new method to maintain distal interphalangeal joint extension.

Citation: Journal of hand therapy : official journal of the American Society of Hand Therapists, Jul 2016, vol. 29, no. 3, p. 352-355

Author(s): Mak, Lonita, Aitkens, Lorna D, Novak, Christine B

Abstract: Ensuring that distal interphalangeal joint extension is maintained is an important but challenging part of the treatment process. These authors describe a simple approach to ensuring distal interphalangeal joint extension for these patients. - VictoriaPriganc, PhD,

Trapeziectomy (Osteoarthritis thumb)

Title: Prevention of Thumb Web Space Contracture With Multiplanar External Fixation.

Citation: Techniques in hand & upper extremity surgery, Sep 2016, vol. 20, no. 3, p. 91-95

Author(s): Harper, Carl M, Iorio, Matthew L

Abstract: Thumb web space contracture following hand trauma can be disabling with numerous reconstructive procedures existing to correct the resultant deformity. Following marked soft tissue injury to the hand we utilized the Stryker Hoffmann II Micro External Fixator System to link the first and second metacarpals by a multiplanar system using 1.6 or 2.0 mm self-drilling half-pins and 3 mm carbon fiber connecting rods. This facilitated placement of the thumb in maximal palmar abduction as well as allowed adjustment of thumb position throughout the postoperative period. This technique was performed on 5 patients. Two patients were treated with a first web space external fixator for table saw injuries to the radial aspect of the hand. An additional 2 patients were treated with a first web space external fixator following metacarpophalangeal joint capsular release in the setting of thermal burns. A fifth patient underwent second ray amputation, trapeziectomy and trapezoidectomy for squamous cell carcinoma with subsequent stabilization with the external fixator. The external fixator was left in place until soft tissues were healed (average 5.5 wk). The patients were allowed to mobilize their hand in as much as the external fixator allowed, and no device-associated complications were noted. Thumb web space was preserved with passive and supple thumb circumduction and web space abduction/adduction in all patients at an average follow-up of 5 months. The average Quick Dash Score was 35 ± 5 and the average Modern Activity Subjective Survey of 2007 was 30 ± 8 .

Title: Trapeziometacarpal Arthrodesis or Trapeziectomy with Ligament Reconstruction in Primary Trapeziometacarpal Osteoarthritis: A 5-Year Follow-Up.

Citation: The Journal of hand surgery, Sep 2016, vol. 41, no. 9, p. 910-916

Author(s): Spekreijse, Kim R, Selles, Ruud W, Kedilioglu, Muhammed A, Slijper, Harm P, Feitz, Reinier, Hovius, Steven E, Vermeulen, Guus M

Abstract: To compare the long-term outcomes of trapeziectomy with ligament reconstruction and tendon interposition (LRTI) with trapeziometacarpal arthrodesis for osteoarthritis (OA) of the basal thumb joint. Patients were evaluated for pain, daily functioning, strength, and complications after a mean follow-up of 5.3 years. Generalized estimating equations statistics were used to compare repeated measurements over time in both groups. After 5 years, patients who had trapeziectomy with LRTI had significantly better pain reduction and function than the arthrodesis group. Pain and function in the LRTI group continued to improve compared with the results 1 year after surgery, whereas the arthrodesis group did not change. Grip and pinch strength were higher than 1 year after surgery but were not different between groups. In the arthrodesis group, 1 patient was

reoperated for nonunion between 1 year and a mean of 5 years after surgery, resulting in a total of 18% nonunion. Another patient underwent reoperation for hardware-related pain. One patient from each group required reoperation because of pain due to scaphotrapeziotrapezoid OA. Trapeziectomy with LRTI leads to better pain reduction and functional outcome after between 1 and 5 years compared with trapeziometacarpal arthrodesis in women over 40 years old with OA stages II to III. Therapeutic IV. Copyright © 2016 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Painful thumb carpometacarpal joint osteoarthritis: Results of a novel treatment approach.

Citation: Journal of plastic, reconstructive & aesthetic surgery : JPRAS, Jul 2016, vol. 69, no. 7, p. 972-976

Author(s): Ehrl, Denis, Erne, Holger C, Broer, P Niclas, Metz, Christian, Falter, Erwin

Abstract: Pain reduction as well as preservation and improvement in range of motion remain the main aims in the treatment of thumb carpometacarpal (CMC) osteoarthritis (OA). We performed a retrospective outcome analysis of patients with symptomatic stage II-III thumb CMC joint arthritis treated with denervation, joint lavage and capsular imbrication. 73 patients with stage II to III OA of the thumb CMC-joint underwent the described technique. A total of 42 patients complied with follow-up assessment and were included in this study. Mean follow-up was 41.2 (range 12-81) months. Mean operative time was 28.4 (± 6.5) minutes. The follow-up assessments showed a significant decrease in pain (preoperative Numerical Rating Scale (NRS): 7.5 - postoperative NRS: 1.1) ($p < 0.0001$) and a significant improvement in function of the thumb (preoperative DASH-Score: 46.8; Cooney-Wrist-Score: 35.4; Krimmer-Wrist-Score: 38.3 - postoperative DASH-Score: 18.1; Cooney-Wrist-Score: 73.7; Krimmer-Wrist-Score: 80.0) ($p < 0.0001$). The findings of our study indicate that the presented treatment approach could be a good alternative to more invasive surgical options in patients with stage II-III CMC OA of the thumb, without impairing more invasive surgical options like trapeziectomy or arthroplasty for the future. Copyright © 2016 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

Title: The "Pillow" Technique for Thumb Carpometacarpal Joint Arthritis: Cohort Study With 10- to 15-Year Follow-Up.

Citation: The Journal of hand surgery, Jul 2016, vol. 41, no. 7, p. 775-781

Author(s): Givissis, Panagiotis, Sachinis, Nikolaos Platon, Akritopoulos, Panagiotis, Stavridis, Stavros I, Christodoulou, Anastasios

Abstract: Arthritis of the carpometacarpal joint of the thumb is common, and there are many studies regarding its treatment. We investigated the long-term outcome of interposition arthroplasty with a fascia lata allograft (pillow technique), without ligament reconstruction, to treat thumb carpometacarpal arthritis. The technique consisted of complete trapeziectomy, use of alloplastic tensor fascia lata, and K-wire immobilization for 5 weeks. The outcomes of 31 thumbs in 24 female patients were measured at a mean follow-up of 12.5 years (range, 10-15 years). Grip strength, key pinch, pulp-to-pulp pinch, tripod

pinch, and range of motion were all improved. The Disabilities of the Arm, Shoulder, and Hand median score, which was only measured postoperatively, was an average of 5 (range, 0-52.6). No extrusion of the graft material was noted, and no revisions were performed. Our results indicate that a fascia lata allograft can be used as an interposition material in thumb carpometacarpal arthroplasty. This technique provides pain relief and satisfactory function at an average of 12.5 years after surgery. Therapeutic IV. Copyright © 2016 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Trigger finger/thumb

Title: Impact of Corticosteroid Injection Site on the Treatment Success Rate of Trigger Finger: A Prospective Study Comparing Ultrasound-Guided True Intra-Sheath and True Extra-Sheath Injections.

Citation: Ultrasound in medicine & biology, Sep 2016, vol. 42, no. 9, p. 2203-2208

Author(s): Shinomiya, Rikuo, Sunagawa, Toru, Nakashima, Yuko, Yoshizuka, Masaaki, Adachi, Nobuo

Abstract: The aim of this study was to investigate whether differences in corticosteroid injection site influence the therapeutic effect on trigger finger and thickness of local structures such as the A1 pulley and flexor tendons. Previously untreated trigger fingers were randomly assigned to receive either a true intra-sheath (group I) or an extra-sheath (group E) injection under ultrasonographic guidance. Symptom remission and recurrence rates and recurrence timing did not significantly differ between the groups. Ultrasonography revealed mean (standard deviation) pre-injection A1 pulley thicknesses of 1.1 (0.3) and 1.1 (0.2) mm in groups I and E, respectively. One month after injection, these decreased to 0.7 (0.2) and 0.8 (0.2) mm, respectively ($p < 0.05$). Furthermore, mean (standard) pre-injection flexor digitorum tendon thickness was 4.1 (0.4) and 4.0 (0.5) mm in groups I and E, respectively, and, 1 mo after injection, decreased to 3.9 (0.3) and 3.8 (0.5) mm, respectively ($p < 0.05$). However, the difference at each time point between the two groups was not statistically significant. True intra-sheath injection offers no apparent advantage over extra-sheath injection for treating trigger fingers because both have the same effect on local structures. Copyright © 2016 World Federation for Ultrasound in Medicine & Biology. Published by Elsevier Inc. All rights reserved.

Title: Risk stratification for the recurrence of trigger thumb after surgical release in the paediatric patient.

Citation: European journal of orthopaedic surgery & traumatology : orthopédie traumatologie, Aug 2016, vol. 26, no. 6, p. 587-590

Author(s): Edwards, D S, Richards, R H

Abstract: Trigger thumb, or stenosing tenovaginitis, is a relatively uncommon condition affecting the flexor pollicis longus tendon of children. The condition is characterized by the formation of a nodule within the tendon and thickening of the tendon sheath as it passes through the flexor pulley of the thumb at the level of the metacarpo-phalangeal joint. The

optimum age for surgical intervention continues to be discussed. The aim of this study is to establish the temporal relationship and surgical variables to determine factors that may contribute to recurrence of the condition. A retrospective analysis of the entire surgical logbook and patient notes of a stand-alone consultant paediatric orthopaedic practice was scrutinized. 94 patients, 107 thumbs, over a 13-year period were operated on for trigger thumb. The recurrence rate was found to be 5.61 %. The average age of patients at primary release who went on to recurrence was 2.8 years, which is significantly younger than those that did not recur ($p = 0.044$). Sensitivity analysis revealed that the primary procedure at an age of less than 2.5 years confers a higher risk of recurrence. The data presented here advocate surgical release of trigger thumb after 2½ years of age, a senior surgeon as lead operator and a transverse skin incision at the level of the nodule or a more extensive "zig-zag" one to clearly see the structures to be released. We recommend that the surgeon ensures the stenosing pulley and sheath are released in their entirety.

Title: US-guided Percutaneous Release of the Trigger Finger by Using a 21-gauge Needle: A Prospective Study of 60 Cases.

Citation: Radiology, Aug 2016, vol. 280, no. 2, p. 493-499

Author(s): Lapègue, Franck, André, Aymeric, Meyrignac, Olivier, Pasquier-Bernachot, Etienne, Dupré, Pierre, Brun, Céline, Bakouche, Sarah, Chiavassa-Gandois, Hélène, Sans, Nicolas, Faruch, Marie

Abstract: Purpose To evaluate the efficacy of ultrasonographically (US)-guided percutaneous treatment of the trigger finger by releasing the A1 pulley with a 21-gauge needle. Materials and Methods This two-part study was approved by the ethics committee, and written consent was obtained from all patients. The first part consisted of 10 procedures on cadaver digits followed by dissection to analyze the effectiveness of the A1 pulley release and detect any collateral damage to the A2 pulley, interdigital nerves, or underlying flexor tendons. The second part was performed during an 18-month period starting in March 2013. It was a prospective clinical study of 60 procedures performed in 48 patients. Outcomes were evaluated through a clinical examination at day 0 and during a 6-month follow-up visit, where the trigger digit was evaluated clinically and the Quick Disabilities of the Arm, Shoulder and Hand outcome measure, or QuickDASH, and patient satisfaction questionnaires were administered. Results No complications were found during the cadaver study. However, the release was considered "partial" in all fingers. In the clinical study, the trigger finger was completely resolved in 81.7% (49 of 60) of cases immediately after the procedure. Moderate trigger finger persisted in 10 cases, and one thumb pulley could not be released. A US-guided corticosteroid injection was subsequently performed in these 11 cases. At 6-month follow-up, only two cases still had moderate trigger finger and there were no late complications. The mean QuickDASH questionnaire score was 4; all patients said they were satisfied. Conclusion US-guided treatment of the trigger finger by using a 21-gauge needle is feasible in current practice, with minimal complications. (©) RSNA, 2016 Online supplemental material is available for this article.

Title: Evaluation of Percutaneous First Annular Pulley Release: Efficacy and Complications in a Perfused Cadaveric Study.

Citation: The Journal of hand surgery, Jul 2016, vol. 41, no. 7, p. e165.

Author(s): Hoang, Don, Lin, Ann C, Essilfie, Anthony, Minneti, Michael, Kuschner, Stuart, Carey, Joseph, Ghiassi, Alidad

Abstract: Trigger finger is the most common entrapment tendinopathy, with a lifetime risk of 2% to 3%. Open surgical release of the flexor tendon sheath is a commonly performed procedure associated with a high rate of success. Despite reported success rates of over 94%, percutaneous trigger finger release (PTFR) remains a controversial procedure because of the risk of iatrogenic digital neurovascular injury. This study aimed to evaluate the safety and efficacy of traditional percutaneous and ultrasound (US)-guided first annular (A1) pulley releases performed on a perfused cadaveric model. First annular pulley releases were performed percutaneously using an 18-gauge needle in 155 digits (124 fingers and 31 thumbs) of un-embalmed cadavers with restored perfusion. A total of 45 digits were completed with US guidance and 110 digits were completed without it. Each digit was dissected and assessed regarding the amount of release as well as neurovascular, flexor tendon, and A2 pulley injury. Overall, 114 A1 pulleys were completely released (74%). There were 38 partial releases (24%) and 3 complete misses (2%). No significant flexor tendon injury was seen. Longitudinal scoring of the flexor tendon was found in 35 fingers (23%). There were no lacerations to digital nerves and one ulnar digital artery was partially lacerated (1%) in a middle finger with a partial flexion contracture that prevented appropriate hyperextension. The ultrasound-assisted and blind PTFR techniques had similar complete pulley release and injury rates. Both traditional and US-assisted percutaneous release of the A1 pulley can be performed for all fingers. Perfusion of cadaver digits enhances surgical simulation and evaluation of PTFR beyond those of previous cadaveric studies. The addition of vascular flow to the digits during percutaneous release allows for Doppler flow assessment of the neurovascular bundle and evaluation of vascular injury. Our cadaveric data align with those of published clinical investigations for percutaneous A1 pulley release. Copyright © 2016 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

Title: Musculoskeletal disorders of the hand in type 2 diabetes mellitus: prevalence and its associated factors.

Citation: International journal of rheumatic diseases, Jul 2016, vol. 19, no. 7, p. 730-735

Author(s): Mustafa, Khader N, Khader, Yousef S, Bsoul, Amal K, Ajlouni, Kamel

Abstract: To assess the prevalence of musculoskeletal disorders of the hand among adult patients with type 2 diabetes mellitus (T2DM) and their relation to disease duration, glycemic control and microvascular complications. A cross-sectional study was conducted at the National Center for Diabetes, Endocrinology and Genetics in Amman, Jordan. One thousand patients with T2DM were included in this study (mean age 57.8 ± 9.5 years, 52.2% females and 47.8% males). Hand disorders were seen in 69.5% of patients, limited joint mobility (LJM) was the most prevalent (63.1%) condition followed by Dupuytren's contracture (DC) (18.6%). Trigger finger, thick skin and carpal tunnel syndrome (CTS) were found in 7.2%, 6.2% and 5.5% of patients, respectively. One disorder was seen in 45.4% of patients, two in 18.2%, three in 4.9%, four in 0.9%, while only 0.1% of patients had all disorders. Female gender, age over 60 years and long duration of diabetes were associated

with hand abnormalities. Hypertension was significantly associated with DC while retinopathy was associated with increased odds of thick skin, DC and CTS with P-values 0.037, < 0.005 and 0.002, respectively. Hand disorders are very common in T2DM. Female gender, old age, duration of diabetes, retinopathy and hypertension were significantly associated with hand disorders in T2DM. © 2015 Asia Pacific League of Associations for Rheumatology and Wiley Publishing Asia Pty Ltd.

Title: Prevalence of rheumatic regional pain syndromes in Latin-American indigenous groups: a census study based on COPCORD methodology and syndrome-specific diagnostic criteria.

Citation: Clinical rheumatology, Jul 2016, vol. 35 Suppl 1, p. 63-70

Author(s): Alvarez-Nemegyei, José, Peláez-Ballestas, Ingris, Goñi, Mario, Julián-Santiago, Flor, García-García, Conrado, Quintana, Rosana, Silvestre, Adriana M R, García-Olivera, Imelda, Mathern, Nora A, Loyola-Sanchez, Adalberto, Conti, Silvana, Sanabria, Alvaro J, Pons-Estel, Bernardo A

Abstract: This study assessed the overall and specific prevalence of the main rheumatic regional pain syndromes (RRPS) in four Latin-American indigenous groups. A Community Oriented Program for Control of Rheumatic Diseases (COPCORD) methodology-based census study was performed in 4240 adults (participation rate: 78.88 %) in four indigenous groups: Chontal (Oaxaca, Mexico, n = 124), Mixteco (Oaxaca, Mexico; n = 937), Maya-Yucateco (Yucatán, Mexico; n = 1523), and Qom (Rosario, Argentina; n = 1656). Subjects with musculoskeletal pain were identified using a cross-cultural, validated COPCORD questionnaire administered by bilingual personnel, and reviewed by general practitioners or rheumatologists using standardized case definitions for the 12 most frequent RRPS. The overall prevalence of RRPS was confirmed in 239 cases (5.64 %, 95 % CI: 4.98-6.37). The prevalence in each group was Chontal n = 19 (15.32 %, 95 % CI: 10.03-22.69); Maya-Yucateco n = 165 (10.83 %, 95 % CI: 9.37-12.49); Qom n = 48 (2.90 %, 95 % CI: 2.19-3.82); and Mixteco n = 7 (0.75 %, 95 % CI: 0.36-1.53). In the whole sample, the syndrome-specific prevalence was rotator cuff tendinopathy: 1.98 % (95 % CI: 1.60-2.45); lateral epicondylalgia: 0.83 % (95 % CI: 0.59-1.15); medial epicondylalgia: 0.73 % (95 % CI: 0.52-1.04); biceps tendinopathy: 0.71 % (95 % CI: 0.50-1.01); anserine syndrome: 0.64 % (95 % CI: 0.44-0.92); inferior heel pain: 0.61 % (95 % CI: 0.42-0.90); trochanteric syndrome: 0.49 % (95 % CI: 0.25-0.64); de Quervain's tendinopathy: 0.45 % (95 % CI: 0.29-0.70); trigger finger: 0.42 % (95 % CI: 0.27-0.67); carpal tunnel syndrome: 0.28 % (95 % CI: 0.16-0.49); Achilles tendinopathy (insertional): 0.12 % (95 % CI: 0.05-0.28); and Achilles tendinopathy (non-insertional): 0.07 % (95 % CI: 0.02-0.21). Leaving aside the comparison between Maya-Yucateco and Chontal groups (p = 0.18), we found significant differences (p < 0.001) in overall RRPS prevalence between the remaining pairs of indigenous groups. Syndrome-specific prevalences were also different between groups. Our findings support the hypothesis that overall RRPS prevalence and syndrome-specific prevalences are modulated by population-specific factors.

Title: Percutaneous Trigger Finger Release: A Cost-effectiveness Analysis.

Citation: The Journal of the American Academy of Orthopaedic Surgeons, Jul 2016, vol. 24, no. 7, p. 475-482

Author(s): Gancarczyk, Stephanie M, Jang, Eugene S, Swart, Eric P, Makhni, Eric C, Kadiyala, Rajendra Kumar

Abstract: Percutaneous trigger finger releases (TFRs) performed in the office setting are becoming more prevalent. This study compares the costs of in-hospital open TFRs, open TFRs performed in ambulatory surgical centers (ASCs), and in-office percutaneous releases. An expected-value decision-analysis model was constructed from the payer perspective to estimate total costs of the three competing treatment strategies for TFR. Model parameters were estimated based on the best available literature and were tested using multiway sensitivity analysis. Percutaneous TFR performed in the office and then, if needed, revised open TFR performed in the ASC, was the most cost-effective strategy, with an attributed cost of \$603. The cost associated with an initial open TFR performed in the ASC was approximately 7% higher. Initial open TFR performed in the hospital was the least cost-effective, with an attributed cost nearly twice that of primary percutaneous TFR. An initial attempt at percutaneous TFR is more cost-effective than an open TFR. Currently, only about 5% of TFRs are performed in the office; therefore, a substantial opportunity exists for cost savings in the future. Decision model level II.

Title: Correlation between sonographic and in vivo measurement of A1 pulleys in trigger fingers

Citation: Ultrasound in Medicine and Biology, July 2016, vol./is. 42/7(1482-1490)

Author(s): Spirig A., Juon B., Banz Y., Rieben R., Vogelin E.

Abstract: The thickness of 210 A1 pulleys of 21 male and female healthy volunteers in two different age groups (20-35 y and 50-70 y) were measured by ultrasound. In a second group, the thickness of 15 diseased A1 pulleys and 15 A1 pulleys of the corresponding other hand of 10 patients with the clinical diagnosis of trigger finger were measured by ultrasound. During open trigger finger release, a strip of A1 pulley was excised and immediately measured using an electronic caliper. The average pulley thickness of healthy volunteers was 0.43-0.47 mm, compared to 0.77-0.79 mm in patients with trigger finger. Based on the receiver operating characteristic (ROC) curve, a diagnostic cut-off value of the pulley thickness at 0.62 mm was defined in order to differ a trigger finger from a healthy finger (sensitivity and specificity of 85%). The correlation between sonographic and effective intra-operative measurements of pulley thickness was linear and very strong (Pearson coefficient 0.86-0.90). In order to distinguish between healthy and diseased A1 pulleys, 0.62 mm is a simple value to use, which can be applied regardless of age, sex, body mass index (BMI) and height in adults.

Ulnar Collateral ligament Sprain

Title: CHRONIC UCL INJURY: A MULTIMODAL APPROACH TO CORRECTING ALTERED MECHANICS AND IMPROVING HEALING IN A COLLEGE ATHLETE- A CASE REPORT.

Citation: International journal of sports physical therapy, Aug 2016, vol. 11, no. 4, p. 614-626

Author(s): Patrick, Rachel, McGinty, Josh, Lucado, Ann, Collier, Beth

Abstract: Ulnar collateral ligament (UCL) tears and associated Tommy Johns surgical intervention from excessive and poor quality pitching has increased immensely-with more college and professional pitchers undergoing the surgery in 2014 alone than in the 1990s as a whole.(1) Faulty mechanics developed at young ages are often well-engrained by the late adolescent years and the minimal healing ability of the largely avascular UCL often leads to delayed safe return to sport.(2). The purpose of this case study was to describe an innovative, multimodal approach to conservative management of a chronic UCL injury in a college-aged baseball pitcher. This innovative approach utilizes both contractile and non-contractile dry needling to enhance soft tissue healing combined with standard conservative treatment to decrease pain and improve sport performance as measured by the Disabilities of Arm, Shoulder and Hand (DASH), Numeric Pain Report Scale (NPRS), and return to sport. Retrospective Case Report. A collegiate athlete presented to an outpatient orthopedic physical therapy clinic for treatment of UCL sprain approximately six weeks post-injury and platelet-rich plasma injection. Diagnostic testing revealed chronic ligamentous microtrauma. Impairments at evaluation included proximal stabilizing strength deficits, myofascial trigger points throughout the dominant upper extremity, improper pitching form, and inability to pitch in game conditions due to severe pain. Interventions included addressing strength deficits throughout the body, dry needling, and sport-specific biomechanical training with pitching form analysis and correction. Conventional DASH and Sport-Specific scale on the DASH and the numeric pain rating scale improved beyond both the minimally clinically important difference and minimal detectable change over the 12 week treatment(3,4) At 24-week follow up, conventional DASH scores decreased from 34.20% disability to 3.33% disability while sport-specific DASH scores decreased from 100% disability to 31.25% disability. Although initially unable to compete due to high pain levels, the subject is currently completing his pitching role full-time with 1/10 max pain. The approach used in this case study provides an innovative approach to conservative UCL partial tear treatment. Dry needling of both contractile and non-contractile tissue in combination with retraining of faulty mechanics may encourage chronically injured ligamentous tissue healing and encourage safe return to sport. Level 4.

Wrist and Finger fractures (distal radius/scaphoid)

No current new evidence

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