route, as repeated failed reductions tend to damage the skin, soft tissues, and joint surface more than a little extra time to reduction.

The hallux IPJ and MTPJ arthrodesis

■ The fusion of the first metatarsophalangeal joint (MTPJ) for hallux rigidus is a tried and proven procedure. There are few procedures that give as reliable pain relief and long-lasting function in any joint. Although there is a plethora of literature surrounding how best to achieve fusion and what position to aim for to achieve the best possible functional outcome, there is little surrounding the effects of a first MTPJ fusion on the surrounding joints. There is plenty of evidence in the foot and ankle, and elsewhere, to suggest that the adjacent joint disease following fusion procedures can be a problem. Slightly surprisingly, despite the frequency of the operation, there are few studies investigating the effects of MTPJ fusion on the adjacent interphalangeal joint (IPJ). This paper from **Durham, North Carolina (USA)** sets out to investigate the outcomes of IPJ arthrodesis following MTPJ fusion.[7] The authors postulate that, due to the more proximal fusion the outcomes of IPJ, fusion may not be as good due to the increase stress across the IPJ in the perioperative period. The authors report a series of 42 patients, all of whom had an IPJ fusion, of whom 17 had had a prior MTPJ fusion and 25 had not. The MTPJ fusion group had on average a 54-month gap between procedures and suffered a 35% nonunion rate (n = 6/17), compared with 8% (n = 2/25) in the isolated IPJ fusion group. This was also reflected in the retrospective assessment of rate of bone healing, with 4.8 times longer required to achieve fusion. It appears, from this straightforward paper with a simple message, that care should be taken in patients requiring an IPJ fusion who have previously undergone MTPJ fusion due to the significantly increased rates of nonunion and delayed union in that group.

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Wrist & Hand

Distal radius fractures with and without ulnar styloid fractures: a meta-analysis X-ref

■ The treatment of pathology of the ulnar side of the wrist presents a slight paradox. We suspect that most general orthopaedic surgeons feel comfortable treating distal radius fractures but, in comparison, relatively few feel as comfortable treating the ulnar side, and less still managing distal radial ulnar joint (DRUJ) pathology. An ulna styloid fracture accompanying a distal radial fracture is not uncommon, and a team from **Amsterdam (The Netherlands)** have performed a thorough meta-analysis examining functional outcomes as measured by the Disabilities of the Arm, Shoulder and Hand (DASH), QuickDASH, or Patient-Rated Wrist Evaluation (PRWE) score following either isolated distal radial fractures, or those with an accompanying (but untreated) ulna styloid fracture.[1] Of the 511 articles that were screened, 12 articles were analyzed. The 12 articles reported results in 1196 patients with an ulna styloid fracture and 1047 patients without. The meta-analysis failed to demonstrate statistically significant differences in the PRWE score, the presence of ulna-sided wrist pain, overall range of movement, or grip strength associated with the presence or absence of an ulnar styloid fracture. There was, however, a statistically significant difference in the observed DASH (and combined QuickDASH) scores of 3.4 points favouring no ulna styloid fracture. This was noted to be well below the mean clinically important difference and therefore not clinically relevant. Furthermore, there was no relevant difference in scores between ulna styloid base and tip fractures. For the above reasons, this meta-analysis is slightly flawed and these problems are readily acknowledged by the authors in the manuscript, as no adjustment was made for the method of treatment of the distal radial fracture. It seems plausible that the subtle differences in outcome, which may be secondary to the ulna styloid fracture, are lost in the noise of the variable outcomes known to happen following a distal radius fracture. Moreover, the meta-analysis excluded articles reporting surgically treated ulna styloid fractures. Could this group have performed more or less favourably? While demonstrating no significant or clinically meaningful difference in functional outcomes depending on presence and level of ulna styloid fracture, the authors were unable to comment on the effect on DRUJ stability as this was not addressed in the included papers. We previously reported on another similar meta-analysis including fewer patients that also reached the same conclusions.[2] What is really required is a means to identify whether there is a group benefitting from surgical intervention to the styloid, without those with frank DRUJ instability. Until this group is identified, our advice is unchanged: leave these fractures alone.

Recall and the QuickDASH score

■ Patient-reported outcome measures (PROMs) are commonplace in practice and research. Not only used for measuring disease progression and efficacy of intervention, PROMs are being utilized as adjuncts to clinical decision making. However, there is still much to learn about which PROM is best, how and when that PROM should be measured, and the weight that the PROM should be given in relation to objective clinical measurements. Researchers from **Trondheim (Norway)** have looked specifically at the QuickDASH, the abbreviated version of the Disabilities of Arm, Shoulder and Hand (DASH) questionnaire, which is likely familiar to most *360* readers.[3] While the

specificity of the DASH to the hand (and even the upper limb) can be questioned, its use is widespread in the hand surgery literature. The specific questions asked in this paper was whether patients' own recollection of a preoperative QuickDASH was sufficiently accurate to be used in lieu of a true preoperative score and, if not, whether mathematical manipulation of the recalled score would be a suitable substitute. A total of 133 patients completed a true preoperative questionnaire and subsequently a recalled QuickDASH at a mean postoperative follow-up of 21 months (18 to 25 months). Most of these patients had a diagnosis of either subacromial impingement, carpal tunnel syndrome, thumb-base arthrosis, metalwork requiring removal (in the upper limb), or Dupuytren's disease. Individually recalled and true QuickDASH scores sadly did not correlate in this case. Scatter plots and Bland–Altman plots (where the difference between scores is plotted against the mean score) demonstrated a systematic difference of ten points. This difference improved to three points using a conversion formula developed previously by the same authors. Despite this, the authors suggest that a retrospective recalled QuickDASH is still worthwhile, as subtracting nine from the mean remembered score gave a score within four points of the real score at 95% confidence. This is, however, a mathematical observation and is unlikely to be suitable for individual patient monitoring, and is certainly unsuitable for formal research purposes.

Metacarpal and phalangeal fixation techniques X-ref

■ Dissimilar hand fractures are often clumped together in retrospective clinical reviews that make it into the published literature. As we've noticed at *360* before, this may lead to misplaced and curious conclusions. This distinction is clearly recognized in a very valuable report from a team from **New York, New York (USA)**, who have reviewed their series of surgically managed metacarpal and phalangeal fractures, but separated their results for the two groups.[4] The authors report retrospective results in 102 phalangeal surgeries in 86 patients and 90 metacarpal surgeries in 73 patients – one patient had both a metacarpal and phalangeal fracture. As one may expect, there was a preponderance of male, manual workers in the cohort, with a mean age of 36.7 years. With 13% of the patients being prison inmates, this seems to reflect a fairly typical hand trauma case load. The fifth ray was most commonly injured: the dominant side metacarpal and the non-dominant phalanges. Operative techniques varied but were consistent across the phalanges and metacarpals, with the majority of patients undergoing Kirschner-wire fixation in preference to internal fixation with plates/screws. Regarding both phalangeal and metacarpal fractures, there was no difference in either the total active movement or return-to-work time depending on the fixation technique. Comparing fractures of the phalanx to the metacarpal, patients with phalangeal injuries required a longer time before returning to work and regained a lower range of total active movement. Unfortunately, there are profound limitations in the report, including the retrospective observational nature of the study and the lack of a control group. There is distinction between metacarpal and phalangeal fractures, which is useful, but no consideration for fracture pattern is made, with intra- and extra-articular fractures reported as one group. The aim of the study was to investigate the superiority of rigid fixation compared with Kirschner-wire fixation. The results described here may do little to change our clinical practice but do highlight the shortcomings of a broad hypothesis in heterogenous patient groups. Hopefully, the hand surgery community will recognize this as a serious shortcoming in future research.

Should we remove nail varnish before surgery?

■ "Please do not wear nail varnish" is likely quoted on many information leaflets distributed to patients undergoing surgery, and in many patients, the routine preoperative preparation includes removal of nail varnish. This is for two reasons: a concern about sterility on the operative hand, and to allow accurate pulse oximetry on the nonoperative hand. Looking at the former concern, a study from **Gosford (Australia)** has sought to rationalize this advice.[5] While accepting that nail varnish may have an adverse effect on pulse oximetry readings (for interest: black, blue, green, and red colours have a larger effect, but overall this is probably of minimal clinical importance), the authors sought to investigate whether nail polish contributed to variation in microbial counts following normal preoperative skin preparation. They recruited 43 renal dialysis patients (selected for regular hospital attendance and ease of follow-up) and randomly had a clear nail varnish applied to either their dominant or non-dominant hand. Each patient acted as their own control. Seven days later, both hands were surgically 'prepped' using a bag immersion technique with 10% povidone-iodine for two minutes and air dried for three minutes. Microbiology slides were obtained from the nail plate and the hyponychium of both prepared index fingers before being incubated and subsequently read by a microbiologist blinded to the intervention. Positive microbial growth was identified in ten of the 40 patients: seven varnished nail plates and six with no varnish. Positive microbial growth was more common from the hyponychium, being identified in 32 of the 40 patients, but again there was no difference between varnished nails (18) and those with no varnish (23). Two participants were swabbed immediately pre-prepping as controls, and these demonstrated significant reduction in colony counts following the prep. Coagulase-negative staphylococcus and bacillus species were the common bacteria identified and no resistant organisms were cultured. It seems, from this elegant study, that nail technicians may lose out, as hand surgery patients may not need to remove their nail varnish prior to surgery.

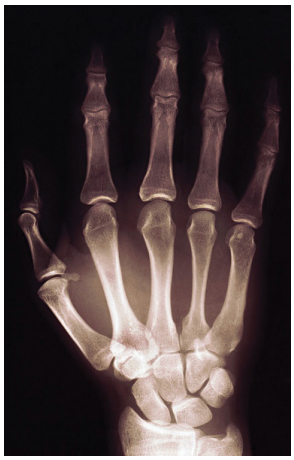
Ultrasound-guided or blind De Quervain's injections: a prospective randomized trial

■ A seemingly simple but well-executed trial from **Seoul (South Korea)** has set out to examine the role of ultrasound guidance when injecting the first extensor compartment for De Quervain's disease compared with injection relying on palpation alone. In this trial, a highly experienced hand specialist performed injections in 154 patients, and patients were randomized to either the ultrasound or blind technique. Other than this, the injections were performed identically. Outcomes assessed were pain and Disabilities of the Arm, Shoulder and Hand (DASH) scores, treatment failure (ongoing symptoms or surgical intervention), and complications. Follow-up assessment was performed at 12 and 24 weeks and was blinded to treatment technique. Overall, there was a statistically significant difference in DASH score of 7 points at 12 weeks' follow-up, well below the accepted minimum clinically important difference. Otherwise, there were no differences in pain score at 12 or 24 weeks, nor in DASH at 24 weeks. There were six failures in the ultrasound group compared with nine in the blind technique group. The only significant difference between the two groups was a higher rate of skin discolouration/fat atrophy in the blind technique group (11/77) compared with the ultrasound group (3/77). This raises an interesting question about injection technique. The paper states that the injection was performed by directing the needle over the palpated abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons and

infiltrating around them sequentially. By placing the injectate deep into the tendons, this complication could possibly be reduced; perhaps this is an avenue for future study. Importantly, steroid injection for DeQuervain's disease is usually effective at 24 weeks and there was no other benefit to performing the injection under ultrasound guidance identified. In this study, the clinicians had the facility and expertise to perform guided injections themselves, but this is not likely to be a widespread option in many parts of the world. Clinicians should not need to be asking if there is a need for referral to radiology for guided injections, given the expense and marginal gains.[6]

Return to work after carpal tunnel release: a national snapshot

With informed consent never far from surgical headlines, surgeons now must strive more than ever to provide precise details on treatment and rehabilitation. Part of that discussion will often focus particularly on hand interventions and on the ability to return to work. Researchers from **Southampton (UK)** have undertaken a national survey of the opinions of surgeons and therapists about return-to-work advice following carpal tunnel decompression surgery.[7] One would imagine that, for one of the most common hand surgery procedures performed, responses would be similar even if no definite consensus was reached. Members of the British Society for Surgery of the Hand, the British Association of Hand Therapists, the Association of Surgeons in Primary Care, and the Reconstructive Surgical Trials Network were surveyed with over 300 responses. The majority of surgeons were consultants, with only eight performing surgery in primary care. Most decompressed the carpal tunnel using a mini-open approach. Most therapists were senior or clinical specialist grades. Working activities were divided into desk-based duties (e.g. keyboard, mouse), repetitive



light manual duties (e.g. driving, delivery) and heavy manual duties (e.g. construction). Surprisingly, the recommendations varied considerably: 0 to 42 days for light duties, 1 to 56 days for repetitive light manual duties, and 1 to 90 days for heavy manual duties. Interestingly, clinicians who treated more than 70 patients in the previous 12 months recommended a more rapid return to work activities of all types. A proportion of surgeons and therapists related return-to-work activity to the status of the wound, limiting activities and weight-bearing until the wound had fully healed. Suggested return to driving varied from the day of surgery to six weeks postoperatively. It is difficult to draw firm conclusions from this survey, but current practice seems to recommend a speedier return to activity than is found in sources such as the various professional bodies patient guides. Certainly, a consensus regarding return-to-work recommendations should be sought, and it seems likely that, for some, this will vary considerably compared with their current recommendations.

Recurrence of Dupuytren's contracture after needle fasciotomy and collagenase injection: a two-centre randomized controlled trial

Minimally invasive treatment for Dupuytren's disease is essentially a choice between needle fasciotomy, collagenase injection, and segmental fasciectomy. Needle fasciotomy and collagenase can both be performed in the clinic setting, and consequently are more directly comparable. Following on from their previous randomized control trial, a team from across **Sweden** have examined the three-year recurrence of Dupuytren's contracture in their previously randomized cohorts of patients undergoing either needle fasciotomy or collagenase injection.[8] The original inclusion criteria had been a total extension deficit of between 30° and 135° with less than 60° at the proximal interphalangeal joint. Their original conclusion was that at three months and one year the outcomes of needle fasciotomy and collagenase injection were the same in this group of patients with primarily metacarpophalangeal joint involvement. From the original of 96 rays in 93 patients, the team were able to collect recurrence data on 40 rays treated with needle fasciotomy and 36 rays treated with collagenase at three years following treatment. Recurrence was defined as any finger undergoing further treatment or showing an increase in the total passive extension deficit of more than 30° since the three-month examination in the original study. Although the sample size is relatively small and would not have hit the power for the original study, there was no demonstrable difference in recurrence rates between the two treatments at the three years of follow-up reported here (17/40 in the needle fasciotomy group and 12/36 in the collagenase group). Nor was there a difference in patient-reported outcome as measured by both the Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH) score and the Unité Rhumatologique des Affections de la Main (URAM), a Dupuytren's specific measure. Comparing the original study and this report, the needle fasciotomy group had undergone an increased rate of additional treatment (usually surgery) in 11/45 of the original cohort *versus* 4/35 of the collagenase cohort; however, this was not statistically significant. For the metacarpophalangeal joint, at least, it seems that the treatments remain comparable in initial effect, recurrence, and patient-reported outcome up to three years.

Five-year results after collagenase treatment of Dupuytren's disease

All treatments for Dupuytren's disease have an inherent risk of recurrence and, following on from the previous study that looked at the three-year results of a randomized trial, we were delighted to see this report concerning five-year outcomes of collagenase treatments. Following the increase in popularity of clostridium histolyticum treatment, concerns have been raised about this risk, as well as the failure of cost utility analysis to demonstrate cost-effectiveness in public-funded systems. Furthermore, there is also the issue of the potential for variable effectiveness for disease affecting different joints. This group from **Odense (Denmark)** conducted a joint-specific study examining the treatment of the metacarpophalangeal joints (MCPJs) and the proximal interphalangeal joints (PIPJs) with a five-year follow-up.[9] Their study reported 107 patients, all of whom were consecutively treated, with no requirement for revision intervention or an extension deficit of less than 20° being defined as a success. On day one, all patients were treated with injection. On day two, patients had manipulation under local anaesthesia. Patients also had extension splinting at night for four months, and the long-term follow-up was at one, three, and five years. Patients were censured from five-year analysis if they had treatment for recurrence at this stage. Overall, the five-year estimate of no follow-up treatment was 79% for metacarpophalangeal and 49% for proximal interphalangeal joints; therefore, there was a significantly greater risk of recurrence requiring treatment in the latter group. For those patients who did not undergo reintervention before

five years, the mean relapse was 5° of extension for MCPJs and 35° for PIPJs. This is consistent with previous studies, and it seems clear that either patients should be counselled of this risk, or other techniques should be considered. We are pleased to see these two studies in this issue of *360* and look forward to seeing more high-level evidence, particularly randomized controlled trials, which will help to determine the place of collagenase treatment with respect to efficacy, recurrence, and complication rates when compared with the other more limited or extensive treatments for Dupuytren's. Certainly, from this particular study, the long-term recurrence rate is high for PIPJ disease.

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Shoulder & Elbow

***X-ref** For other Roundups in this issue that cross-reference with Shoulder & Elbow see: Hip & Pelvis Roundup 7; Research Roundup 2.*

High rate of recurrent instability following arthroscopic revision anterior shoulder stabilization: is it worth it? X-ref

A few years ago, revision arthroscopic shoulder stabilization was a rare thing, with surgeons in general preferring open approaches such as the Latarjet procedure. In recent years, however, the arthroscopic option has gained popularity. With recurrence rates reported in the literature ranging from 6% to 28%, there is certainly plenty of opportunity for surgeons to apply their revision surgical option of choice. A randomized trial of 196 patients comparing open with arthroscopic stabilization for recurrent traumatic instability previously found no difference in patient-reported outcomes, but a lower rate of recurrence with open repair. In this retrospective case series from **Pittsburgh, Pennsylvania (USA)**, the authors report on the rate and risk factors for recurrent instability in 92 patients who underwent arthroscopic revision anterior stabilization following failure of an index arthroscopic or open stabilization.[1] The final study cohort included 65 patients with a minimum of two years follow-up. The primary outcome measure reported in this study was incidence of recurrent anterior instability defined by symptomatic instability, subluxation, or dislocation. Details of the revision procedure used are clearly set out in the paper. The mean patient age was 26 years, mean time from the index procedure to revision was six months, and the mean follow-up was 4.7 years. Ligamentous laxity was noted in 23% of the study cohort, and there were 27 patients (42%) deemed as failures of the revision surgery at a mean of 2.3 years. Further trauma was the precipitant in 44% of these cases. On multivariate analysis, the authors determined independent predictors of failure were an off-track lesion (odds ratio (OR) 9), age under 22 years (OR 5.4, failure rate 59%) and ligamentous laxity (OR 7.8). The authors report that in the cohort of patients without any of these risk factors, the failure rate was just 19%. There are obvious limitations associated with a retrospective study design that are well acknowledged in the paper, including loss to follow-up and the lack of standardized protocols. Nevertheless, this study highlights a higher rate of recurrent instability following arthroscopic revision anterior shoulder stabilization than has previously been reported. This may be related to the heterogenous patient group included within this study and, as the authors correctly point out, patient selection is clearly essential when considering this procedure for recurrent instability of the shoulder.

Platelet-rich plasma fibrin matrix for rotator cuff repair: no good evidence X-ref

The use of platelet-rich plasma (PRP) fibrin matrix (FM) for rotator cuff repair has been advocated by some as a good option to improve the clinical outcomes following surgery. However, a recent meta-analysis concluded that, despite evidence that PRP use in rotator cuff repairs may lead to superior healing rates and functional outcomes, this was not the case for platelet-rich fibrin, with the only observable difference being a significantly longer surgical time. In this small, prospective, single-blind, randomized controlled trial from **Minneapolis, Minnesota (USA)**, the authors randomized 76 patients undergoing arthroscopic rotator cuff repair to either autologous PRP in FM (n = 32) or a standard double row repair (n = 44). Inclusion criteria were patients between 40 and 80 years of age with a symptomatic full-thickness tear limited to the supraspinatus and infraspinatus tendon.[2] Confusingly, the authors report that the study was powered to both the Simple Shoulder Test (SST) and the Western Ontario Rotator Cuff (WORC) Index. Using these parameters, the study required 62 patients per arm. However, later in the study, the primary outcome measure is defined as the change in the WORC Index from baseline to the two-year review. Secondary outcomes included the visual analogue scale, strength testing, and MRI. The groups were well matched at baseline and all patients were blinded to the treatment they received. Of the original 76 patients recruited, only 56 (74%) completed follow-up over a two-year period. The authors report that the WORC Index was not significantly different at any timepoint