# ROUNDUP360

## Wrist & Hand

### Toes, feet, hands and transfers...

A stock 'go to option' for digit loss is the toe-to-hand transfer. Whilst the debate continues surrounding replantation, transfer, pollicisation and the various other reconstruction, transplantation or adaptation options one area where there is a gap in knowledge to inform the debate is the functional effects of loss the of a digit on the donor foot. Does it really make no difference to the patients function to lose a toe? Researchers in **Tampere (Finland)** set out to establish what the potential long-term effect is of taking either the great toe or lesser toe(s) for use as a digit. Their retrospective review examined the functional outcomes of 74 patients after an impressive 16 years of post-transfer follow-up . The authors managed a 76% follow-up rate in patients aged between 3 and 60 years (at time of reconstruction). There were only minor concerns raised by patients (no issues with ongoing wound problems or complications reported). The chief complaints raised by patients were cold intolerance and pain during exercise and the functional scores suggest that 83% of patients reported a good outcome from their donor feet. This paper piqued our interest from a number of perspectives, providing a wealth of information for the parents who advocate for the child, information to educate an older patient, and it may even be helpful to the foot and ankle surgeon who might manage the patient in later life![1] In patients in whom a second toe had been taken, the MTP joint was included in 25 patients causing a shortened second metatarsal, but left alone in a further 38 patients. The functional scores suggest that six patients had moderate/major complaints with regards to activities of daily living. Hallux valgus angle was moderate or worse (20° to 40°) in 23 patients although the contralateral control foot had moderate change in 12. There was however no influence on the length of the second metatarsal taken, and the final outcome. Taking a second toe trended to a better functional result, although there were no significant differences between the groups. In general there were high satisfaction rates with the donor site, however the old adage rings true here "You don't get something for nothing!"

### FCR Tendonitis after Trapeziectomy and suspension

Despite evidence to suggest that trapeziectomy alone is a good way of treating patients with base of thumb osteoarthritis (and that in fact it yields similar results to any other method of treatment) for some this is a step too far despite the evidence that additional procedures such as temporary K-wire fixation or FCR sling contributes nothing. In a large multicentre report surgeons from **Kuala Lumpar (Malaysia)** and **Perth (Australia)** report a surprisingly high incidence of flexor carpi radialis tendonitis after trapeziectomy and abductor pollicis longus suspension plasty in a cohort of patients treated for basal joint arthritis. In their series of 81 patients the authors report around a 25% flexor carpi radialis tendonitis rate as a result of slinging a slip of APL around its insertion to help 'stabilise' the first metacarpal. Of those 20 patients reporting symptoms, there were 12 wrists that underwent further surgery (with an FCR tenotomy in 11) for ongoing symptoms.[1] Puzzlingly the authors of this paper comment that 'Currently, the senior author still regards trapeziectomy and APL suspensionplasty as appropriate surgery for basal joint arthritis and continues to explore possible measures to reduce the incidence of FCR tendonitis'. Whilst the authors of this study are to be congratulated on a thorough database and the ability to audit outcome, in the face of good quality evidence should the author not consider a trial of trapezectomy alone as a possible measure? There are excellent studies previously reported demonstrating that trapeziectomy alone is sufficient in the treatment of base of thumb OA.

### Motion sparing surgery for SLAC/SNAC wrists under the spotlight

Whilst wrist fusion is the most reliable option for patients with almost any end-stage degenerative condition of the wrist, it is effective at controlling pain but hardly motion sparing. Two alternate and competing strategies for dealing with proximal carpal row degeneration (commonly cause by either SLAC or SNAC wrists) aiming to preserve motion are the proximal row carpectomy (PRC) and 4-corner fusion (4CF). Whilst both of these strategies have their proponents and both aim to provide stability and pain relief, there is little to inform the hand surgeon as to the complications, outcomes and specifically expected eventual kinematics for these two dramatically different approaches to a relatively common problem. In a joint collaboration between **Leicester (UK)** and researchers in **The Netherlands**, surgeons succinctly summarise these two frequently-used motion sparing surgical options. In their cohort of 46 patients with complete follow-up (24 4CT and 22 PRC), it should be remembered that although this is a comparative cohort study with all 4CT procedures being performed in the UK and all PRC procedures in The Netherlands there is also a significant mismatch in that the two groups are from different countries and complications and outcome reporting is known to vary between different ethnic and geographical groups. Perhaps the most interesting portion of this paper is the kinematic evaluation in which the operated wrist was compared with the contralateral side. There was a greater range of motion seen after PRC which also translated into improved grip strength and Michigan Hand scores (90% after a PRC and 75% after 4CF *versus* contralateral hand). There are few similarly detailed kinematic studies in the literature, the authors found that the 4CF causes stiffer and more

flexed/radial deviated wrist positioning, whilst the PRC circumducts concentrically compared to the non-surgical wrist.[3] If the findings of improved outcomes following PRC continue to be seen in longer term follow-up and are not compromised by continuing degenerative change, then this may prove to be a 'no brainer' choice.

### Instability following distal radius fractures

**x-ref Trauma**

The prediction of instability following distal radius fractures is a tricky and complex topic that continues to fascinate orthopaedic surgeons. Although position has only been loosely linked to functional outcomes (and there is some evidence that surprisingly large malreductions can be accepted without compromising outcomes), the fascination with predicting secondary slippage following sustaining a distal radius fracture continues unabated. Researchers from **Derby** and **Truro (UK)** present a fairly small series of 87 consecutive distal radius fractures. They reasoned that the requirement for secondary surgery following closed reduction was often based around subsequent slip and that if prognostic factors could be identified to reduce the risk of secondary slip then manipulations could be optimised and follow-up plans streamlined.[4] In a very simple audit of just 87 consecutive distal radial fractures the authors make the bold claim to have identified factors responsible for predicting eventual instability. Whilst the slightly bold claims made in this paper may not be quite supported by the data (or volume of it) presented, the authors did look at a range of previously identified potential predictors of late slippage including patient and fracture factors. They report that in their series at least the most significant predictor of instability was the failure to anatomically restore the volar cortex during manipulation. Other less impressive, but still significant factors were increasing age of the patient and a concomitant fracture of the ulna styloid. Whilst far from groundbreaking, this paper does cast the spotlight on the volar cortex which has been the focus of more recent interest than the traditional 'dorsal instability'. Whilst there is nothing earth-shattering here, this paper does make a timely reminder that a focus on quality of reduction can reduce the requirement for operative intervention.

### Bilateral wrist arthrodesis a good idea?

The old adage tells us it is possible to have "too much of a good thing" and whilst one wrist arthrodesis is undoubtedly a successful treatment for many patients, the perceived wisdom is that the stiffness associated with fusion makes bilateral wrist arthrodesis a less attractive option – with the added disability of both wrists being stiff. There is varying advice in the literature about fusion positions, with many authors being proponents of different levels of flexion to allow for maximal function to the patient. There is not a great deal of hard evidence to support decision-making, especially regarding longer-term outcomes. In the latest of what seems to be an inexhaustible series of rare conditions followed up for a long time, surgeons in **Rochester (USA)** have reported their results following a review of 13 patients who underwent bilateral wrist arthrodesis at a mean follow-up of 14 years. Their series included a contemporary review including PROMS (PRWE score, Michigan hand score and DASH scores) along with reporting complications and subsequent revision operations. Their 13 patients underwent 26 wrist arthrodesis; around half had undergone previous surgery and the majority (n=11/13) had diagnoses of inflammatory arthropathy. Interestingly the majority of second wrists were fused a year after the index fusion, and in the majority of cases the second wrist was fused in the same position as the index wrist although positions ranged from 5° of flexion to 30° of extension. In all cases there were significant improvements in outcome measures and pain scores following surgery, with 12 patients reporting satisfaction with the surgery. Amazingly nine patients returned to work, although there were seven additional operations (five revisions and two plate removals).[5] This is an important report of outcomes following bilateral wrist arthrodesis. Although traditionally these are not associated with excellent outcomes there are few better options for patients with severe disease in both wrists.

### Sodium Hyaluronate improves hand recovery following flexor tendon repair

In some areas of surgery the perioperative care is as important as the decision-making and surgery; in others far more important. An area in which rehabilitation protocols are absolutely key to success is that of flexor tendon repair. There have been some forays into the potential for therapeutic benefit of a variety of treatments to reduce adhesion formation following tendon repair. Researchers in **Uppsala (Sweden)** have recently reported the results of their ambitious study aimed at establishing the benefits (or potentially otherwise) of PXL01 administered in in carrier sodium hyaluronate as part of a randomised placebo controlled trial. The study team enrolled 138 patients, all with flexor tendon injuries undergoing operative repair. The study team randomised the patients to either lactoferrin peptide (PXL01) or placebo with outcomes assessed primarily by total active fingertip motion and secondarily including sensory function, tenolysis rate and grip strength. Outcomes were assessed up to 12 months following surgery.[6] This randomised controlled trial showed some remarkable differences between the two groups. The most marked differences were seen at 6 months where the difference in composite active motion in favour of the PXL01 group was impressive (60° vs 41°). There was also unsurprisingly an improved tip to crease difference and a lower tenolysis rate (30% vs 12%) in the PXL01 group. The investigators did not note a particularly higher rate of complications or adverse events in either group and here at *360* we would completely agree with the authors conclusion that "PXL01 in sodium hyaluronate improves hand recovery after flexor tendon repair surgery".

### Ultrasound treatments for de Quervain's

In a small rash of randomised controlled trials in Hand surgery all reported this month a study team based in **Genova (Italy)** report their randomised controlled trial of 75 patients with de Quervain's randomised to three different ultrasound guided treatments. Following recruitment into the study patients were randomised to ultrasound guided injection of either a single injection of methylprednisolone, an injection of methylprednisolone plus a second injection of saline at day 15 or initial methyl prednisolone plus injection of hyaluronic acid at day 15. Outcomes were assessed using a combination of the VAS score and quickDASH. The authors report a positive outcome for this study, although there are no differences in the primary outcome measures there did appear to be a more sustained improvement in the quickDASH for the hyaluronic acid group with sustained improvements to six months. That said, we do have some methodological concerns over the design of this paper. Powering studies for three

way analysis usually results in large sample sizes, especially with dual primary outcome measures, making it extremely unlikely that this study actually reached statistical power.[7] Although an interesting observation and promising early results, we cannot help wondering if the authors have over interpreted their results somewhat, and if indeed this should be considered a pilot study.

### Strategies for treating metacarpal neck fractures

**x-ref Trauma**

■ The metacarpal neck fracture is a common injury in the hand, frequently as a boxer's injury or sustained as part of high-energy trauma. Whilst these injuries are painful and can, if treated conservatively, result in long-term disability, the flip side to the coin is that stiffness, scar tissue and tendon tethering associated with open reduction can result in poor outcomes from scarring.[8] The other option, often practiced on the Continent, is the use of bouquet pinning with a number of Kirschner wires inserted usually in an antegrade manner through a single drill hole. The bouquet method may overcome both problems of scarring and loss of reduction. A team in **Oslo (Norway)** set out to test the two interventions of bouquet pinning and conservative treatment in a cohort of 85 patients, all with metacarpal neck fractures with >30° angulation. A range of outcome measures were assessed at a year including QuickDASH, pain and satisfaction rates. In short the authors could not find any differences in functional outcomes at final follow-up. It appears that for the time being at least conservative treatment rules supreme in these fractures.

## REFERENCES


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