They were also prescribed diclofenac sodium and asked to record analgesics consumed for up to six weeks postoperatively. Follow-up was complete and there were no complications. All fractures healed. There were 30 patients in each group, most of whom sustained ankle fractures. There was no difference in demographic variables or injury pattern between the two groups. However, the group taking vitamin C reported significantly better pain relief (in terms of visual analogue scale score at one, two, and six weeks), despite having consumed fewer analgesics. This group also reported better functional outcome, assessed via the Foot and Ankle Outcome Score at three months. It is not clear if both groups were identical. Importantly, there is no information on smoking status or alcohol consumption, both of which might be confounding factors. It is also not clear if patients self-medicated with additional analgesics that may not have been recorded. The sample size was small and the follow-up was also short. Adequate pain relief in the postoperative period is essential for successful rehabilitation. The results of this trial would suggest that up to 1 g of vitamin C taken in the early postoperative period following foot and ankle trauma surgery may reduce regular analgesic requirements and may also lead to better functional outcome. The authors are to be congratulated for conducting a randomized controlled trial that appears methodologically sound. Previous studies have indicated that vitamin C may have a role in prevention of chronic regional pain syndrome, especially after distal radial fractures. Taking into account the role of vitamin C in collagen synthesis, it may well be that this vitamin has an adjunctive part to play in rehabilitation following musculoskeletal injuries that warrants further investigation. There is, however, a further consideration here in that this study was conducted in Delhi, where malnutrition is more common than in Europe or North America. It is conceivable that the patients were deficient in vitamin C prior to enrolment in the study, which in itself gives a reason for efficacy that may not be relevant in other populations.

How common is gastrocnemius tightness in an asymptomatic population?

■ Gastrocnemius tightness (GT) has been implicated as part of the underlying pathophysiology in many foot and ankle conditions. However, the measure of GT or the prevalence in the general population is not well known. Authors from **Stanmore (UK)** conducted a population-based observational study to establish some normative criteria for GT.[6] For the purposes of this report, the authors included only healthy adults who were recruited between February 2016 and January 2017. Patients were excluded if they had known foot and ankle pathology, previous surgery, systemic musculoskeletal disorder, knee stiffness, or pregnancy. Although the Silfverskiöld test is widely used in clinical practice to assess for GT, the authors chose to use a lunge test. The purported advantage of the lunge test is that it is a weight-bearing test and therefore is more relevant to clinical practice. Further, the test has a reported high inter- and intrarater reliability. An a priori required sample size was calculated and 400 participants recruited for the study. Ankle foot dorsiflexion was measured, both with the knee extended and 20° flexed, using a digital inclinometer placed around the lateral ankle with the participants lunging against a wall. The authors initially assessed the inter- and intrarater reliability of the test by conducting multiple measurements on the first 20 participants. Having confirmed excellent reliability, the authors conducted the rest of the tests using a single measurement. The difference in ankle foot dorsiflexion between the fully extended and the flexed knee was calculated as the ankle-foot dorsiflexion index (ADI). Mean age of the recruited participants was 40.2 years (SD 13.1). The mean patient height was 1.68 m (SD 0.10) and the mean body mass index (BMI) was 25.4 kg/m² (SD 4.55). Different ethnic groups and occupations were appropriately represented. Ankle foot dorsiflexion varied from 8° to 52°. The distribution of the measured angles in both fully extended and the flexed knee followed a normal distribution. Mean ADI was 6.04° (SD 3.49°). Sex, BMI, and height did not affect ADI. However, mean ADI was found to significantly increase with age, and to decrease with participant-reported level of physical activity. This is certainly a useful large study and the results are of clinical relevance, inferring a wide variation in normal range of ankle foot dorsiflexion. The study also confirms the clinical assumption that both age and physical activity affect the values. However, the finding of reduced ADI with increasing physical activity is somewhat surprising. The authors did not offer a clear answer to this result, and it may well require further validation.

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Wrist & Hand

The outcome of bone graft surgery for nonunion of fractures of the scaphoid X-ref

■ Collaborative research has significant benefits, particularly when considering the results of less common pathologies. Therefore, we at *360* were interested to see this work from authors representing the British Society for Surgery of the Hand (BSSH) scaphoid nonunion group in **Nottingham (UK)**, who have compiled a large series of scaphoid nonunions in a multicentre service review.[1] Trainee representatives from 19 centres across the UK were tasked to contribute retrospective data on at least 30 scaphoid nonunions from their units. Eligible cases were defined as adults who presented with a scaphoid nonunion not associated with a perilunate dislocation, and in whom treatment was surgical for their nonunion, with greater than 12 weeks' postoperative radiological follow-up available. Overall, 806 cases were collated and submitted; however, 344 were excluded for failing to meet the above criteria, or for having incomplete data concerning the fracture pattern or type of surgery performed. This left 462 cases of scaphoid fracture

nonunion, which form the basis of this report. The cohort consisted of 119 proximal pole, 316 waist, and 27 distal cases. The primary reported outcome was union status, as determined by the treating surgeon and documented in the medical records. The trainee contributor also reviewed the most recently available radiology imaging of any modality and determined their opinion of union status. Statuses were classified as united, persistent nonunion, or uncertain. There were persistent nonunions in 22% of cases overall, in 27% of proximal pole injuries, and in 21% of waist injuries. Union status was considered uncertain in a further 7% of proximal pole injuries and 10% of waist injuries. Union was usually determined by plain radiographs, which were employed in 60% of cases. Risk factors for persistent nonunion were considered and modelled accordingly. Smoking at the time of surgery nearly doubled the odds of a persistent nonunion, regardless of the age of the patient, time between fracture and nonunion surgery, and method of fixation. Delays between fracture and nonunion surgery were also associated with a greater risk of persistent nonunion, with a delay of between one and two years associated with 40% higher odds, and a delay of greater than two years associated with a 140% odds increase. Vascularized bone grafting did not appear to increase the likelihood of union in smokers, proximal pole injuries, or injuries being treated after one year. Refreshingly, the authors are careful in their interpretation and, in order to mitigate the poor scientific principle of trawling multiple variables looking for 'significant' results, their predetermined significance level was reduced from $p < 0.05$ to $p < 0.003$. At this level, none of the findings were significant, and large multicentre prospective studies are therefore proposed to clarify the effect of graft vascularity and harvest site on union rates. However, both smoking and delay to nonunion surgery have previously been identified as important variables. It makes intuitive sense that both of these factors should be minimized, while future published studies should explicitly measure and state these values.

The epidemiology of scaphoid fractures in Sweden: a nationwide registry study

X-ref

■ Reported yearly incidence for scaphoid fractures varies between 12 per 100,000 person-years and 121 per 100,000 person-years. The second large study of the scaphoid in this *360* edition, researchers from **Stockholm (Sweden)** have used the Swedish National Patient Register to determine the true incidence of scaphoid fractures in Sweden, and to estimate the risk of nonunion.[2] They utilized the Swedish National Patient Register. This is a large database that, since 1987, has taken advantage of compulsory inpatient recording and, as of 2001, outpatient recording. The register collects data from both the private and public sectors. Between 2005 and 2015, the database was interrogated for all diagnoses of scaphoid fracture with nonunions or late symptoms after a fracture was excluded. Additionally, any patient who had a recorded diagnosis of nonunion in the three months immediately following an acute fracture diagnosis were excluded due to a presumed incorrect initial diagnosis. Annual mid-year population data were used to determine the incidence rates, which were calculated as the number of reported first-time fractures divided by the total number of person-years of data. With all big data, coding accuracy can be an issue, and so the team validates the diagnoses by conducting a detailed review of a random sample of 300 patients. Case notes were retrieved where uncertainty was present concerning the diagnosis. Overall, 34,377 patients had a recorded scaphoid fracture between 2006 and 2015, a raw incidence rate of 36 per 100,000 person-years. During the validation of the 300 random cases, the diagnosis was unable to be confirmed in 41%. Applying this adjustment to the total population gives an overall incidence of 22 per 100,000 person-years. There were more fractures in men (69%), who had a lower median age of 24 years compared to 43 years in women. Fractures were most common in the 15 to 19 years age group in men and the ten to 14 years age group in women, with a peak incidence noted at 15 years in both men and women. During the study period, the overall incidence fell slightly, primarily due to a fall in incidence in the young adult male cohort. However, there was an increase in incidence in women aged 40 to 59 years during the same period. The reported rate of nonunions at five to nine years after diagnosis was 2%, with men having a greater risk at 3% (vs 1%). Nonunion was most common in males aged 20 to 24 years and diagnosed after a median delay of 432 days. The authors recognize the 41% false positive diagnostic rate and, unfortunately, while their methodology corrects for this, this inaccuracy remains a potential confounder and limitation to the study. However, this study gives us as good an estimate of the incidence of fractures and nonunion as is likely to be currently achieved. While nonunion is likely to be higher than quoted here (as some will not have been diagnosed at the time of analysis), this data will add to our knowledge about scaphoid fractures, should facilitate further research, and gives us a good idea of the population level problem.

Positive experience and outcomes in trapeziometacarpal osteoarthritis

■ We are all familiar with the scenario where patients who have seemingly done well post-surgery report poorer results, but those with surgeon-assessed poorer outcomes are delighted with their result. This is a phenomenon that is inadequately understood and upon which, as surgeons, we probably place too little emphasis. Therefore, here at *360*, we were interested to see this work from researchers in **Rotterdam (The Netherlands)**, who sought to determine whether patient experience had a demonstrable association with functional outcome following trapeziectomy and Ligament Reconstruction with Tendon Interposition (LRTI).[3] The study team used the Michigan Hand Questionnaire (MHQ) to determine patient-reported outcome before and at 12 months post-surgery, and also assessed patient experience. The patient experience was assessed using a patient-reported experience measure (PREM), consisting of 25 items covering domains of facilities quality, physician communication and competence, perioperative care, postoperative care, treatment information, and general information. PREM scores were collected at three months postoperatively. Clinical outcome was assessed using tip pinch and key pinch strength preoperatively, and at 12 months postoperatively. The study relies on a cohort of patients presenting between February 2011 and April 2017. There were 504 patients that underwent surgery for base-of-thumb osteoarthritis, and so were potentially eligible for the study. Of these, 233 were excluded for having a notable technique variation or undergoing other procedures at the same sitting. Linear regression analysis was used to determine the relationship between the PREMs at three months and the clinical and patient-reported outcomes at 12 months. There was minimal variation seen due to geographical location of the surgery or surgeon. At 12 months, however, there were clinically and statistically significant improvements in the MHQ total score, as well as all the subscale scores, which cover general function, activities of daily living, pain, satisfaction, and work, except for the aesthetics subscale. Linear regression demonstrated a positive association between patient experience and the MHQ at 12 months. The PREM subscales accounted for 8.4% of the variance observed in the MHQ total. Interestingly, the MHQ improved by 8.1 points for every point that the PREM measure improved on its ten-point scale. There were no clinically important associations between the PREM and hand strength. Although tip pinch strength improved with statistical significance, this did not reach clinical

importance. At face value, this study seems to tell us that patients who have a positive experience in the hospital, with good parking, communication from staff, a good information brochure and website, and a reassuring perioperative experience appear to achieve better outcomes following trapeziectomy and LRTI. Conversely, it may just be that patients with a good functional outcome feel they have had a more positive experience. These findings are in line with results in other fields such as knee or hip arthroplasty, where a positive patient experience is mirrored in patient-reported outcome. The same authors found a similar effect in Dupuytren's disease. What is not yet fully understood is whether patients reporting a positive experience are somehow different to those with a more negative experience, whether the PREM used measures experience at all or if it is simply a surrogate marker for outcome, and whether the MHQ measures hand function alone or also measures an element of experience.

Site-specific patient-reported outcome measures (PROMs) under the spotlight

X-ref

■ When we are choosing a patient-reported outcome measures (PROMs) questionnaire for use in our research or audit work, our choice will undoubtedly be influenced by a number of factors. We at *360* wish to use an established and widely utilized score so that we can compare our work with that of others. However, often the oldest scores fail to benefit from our current level of understanding regarding how such tools should be developed, what they should measure, and how they should be validated. Coupled with an often inconsistent development process and failure to base the scores on item response theory, this has led to a hotchpotch of clinical scores in widespread use in the trauma and orthopaedic literature. This team from **Oxford (UK)** has conducted a rather interesting systematic review of both the development process and published baseline psychometric properties of a variety of hand PROM scores in current use, including: the Disabilities of the Arm Shoulder and Hand (DASH); QuickDASH (qDASH); Michigan Hand Questionnaire (MHQ); Patient Evaluation Measure (PEM); Upper Extremity Functional Index (UEFI), and Duruoz Hand Index (DHI).[4] The review was performed with reference to Consensus-Based Standards for the Selection of Health Measurement Instruments (COSMIN) guidance, which represents the gold standard for systematic reviews of outcome measures. A number of databases were searched and data extraction was performed by two authors. They assessed the content validity, internal consistency, criterion validity, construct validity, reproducibility, responsiveness, floor and ceiling effects, and interpretability of the outcome measures examined. The authors give a nice description of each of these properties of PROMs. Overall, from an initial pool of 943 articles, 54 were included, with the DASH and qDASH most commonly reported. Interestingly, only the MHQ sought to gain information from patients during its item development; this would now be considered a crucial component of PROM development. The DASH, UEFI, and MHQ scores also created items based on a review of pre-existing upper limb PROMs and the PEM based upon expert opinion. There was considerable variability in the robustness of the methodology, as well as the reporting of the development and validation of the PROMs. The review identified incomplete evidence to support the psychometric properties of the UEFI, PEM, and DHI for use in hand surgery practice and research. There was a greater amount of published data evaluating the psychometric properties of the DASH, qDASH, and MHQ; however, shortcomings and evidence gaps in these tools remain. Notably, the DASH and qDASH perform poorly with regards to content validity (i.e. the appropriateness to the targeted patient group based on comprehensiveness and relevance). The MHQ has indeterminate evidence supporting content validity and gaps in evidence concerning structural validity (i.e. how well the tool measures the relevant underlying construct), as well as cross-cultural validity. Overall, the authors were unable to identify a PROM that meets contemporary standards for PROM development, and thus the use of one tool over another remains a compromise, considering these factors. Although this paper may be in a field that is unfamiliar to readers of *360*, it is important that any clinician using PROMs, either in their clinical practice or research, understands the implications of these shortcomings, and that the readers of any paper understand the implications of the outcome measures selected to report their scores.

Effect of forearm warming compared to hand warming for cold intolerance following upper limb trauma

■ Here at *360*, we would assume that, as the colder months come, the best way to keep our hands warm would be to wear gloves, and that this principle would hold true for the problem of cold intolerance, defined as an abnormal response of pain, numbness, stiffness, weakness, and colour changes in response to cold temperatures. While these symptoms can occur spontaneously, they are particularly common following hand trauma and can last for many years – or can even be permanent. Previous studies have looked at the effects of warming the hands versus warming the torso, which has benefits in preserving hand dexterity. Fingerless gloves permit the fingertips to be exposed, thus improving dexterity, but expose the most distal and thus most susceptible region of the finger to the cold temperatures. Authors from **Toronto (Canada)** have looked at the effect of hand versus forearm warming instead.[5] Nine adult patients who were at least three months following hand trauma, and reported pain with cold exposure, were age- and sex-matched to nine control participants. Patients with previous diagnoses of Raynaud's phenomenon, peripheral vascular disease, carpal tunnel syndrome, peripheral neuropathy, or upper motor neurone lesion were excluded, as were patients who were unable to complete questionnaires. The Cold Intolerance Symptom Scale (CISS) was used to evaluate cold intolerance and the level of symptoms and function with cold exposure (higher scores indicate a greater degree of cold intolerance). From a functional perspective, the Disabilities of the Arm Shoulder and Hand (DASH) was used to assess overall function, the McGill Pain Questionnaire Short Form was used to assess pain intensity, and the Thermal Sensation Scale was used to indicate self-reported comfort on a scale from very cold to very hot. Skin temperature was measured continuously throughout, using direct contact for thermistor tips on the torso and six sites on the bilateral upper limbs, including the extensor surface of the forearm, dorsum of

the hand, and the dorsum of the middle phalanx of the index, middle, ring, and little fingers. Testing was performed in a cold environment chamber with participants wearing a standard winter jacket. Three testing conditions were used: forearm warming, hand warming, or bare hand conditions. The forearm was warmed using a battery-operated warming sleeve under the winter jacket. Fingerless gloves were used to warm the hands. Each session comprised 20 minutes baseline and recovery at 22°C, and 20 minutes of cold exposure at 1°C. With cold exposure and bare hands, the overall mean skin temperature changed significantly from a baseline of 31.8°C down to 15.2°C. In hand trauma patients, the minimum temperature was lower in the injured digits when compared to the contralateral hand's uninjured digits. Both warming interventions had a significant effect on skin temperatures. Glove warming increased the lowest temperature recorded during cold exposure and increased the maximum temperature recorded following rewarming in both the hand trauma and control subjects. Forearm warmers significantly increased the baseline temperatures in all subjects but had no effect on the lowest temperature recorded during cold exposure. Hand trauma patients reported higher pain levels with cold exposure and worse DASH and CISS scores. Overall, forearm warming did have a beneficial effect in improving cold intolerance symptoms, but the evidence here does support our initial assumption that wearing gloves keeps hands the warmest.

Ulnar shortening and distal forearm loading

■ Ulnocarpal abutment occurs when the ulnar head impacts against the ulnar side of the lunate, which can lead to attrition and perforation of the triangular fibrocartilage complex (TFCC), lunotriquetral ligament dysfunction, and ulnar-sided wrist pain. It is most commonly associated with ulnar positive variance and current treatments include ulna shortening osteotomy, wafer resection of the ulnar head, or distal ulnar excision. The goal of these procedures is to reduce the mechanical contact area and load transmitted across the distal ulnar; the perception is that reduction of ulnar positive variance to the level of the distal radius will improve symptoms through 'offloading' of the joint. However, the morphology of the distal radioulnar joint is not straightforward, and shows appreciable variation between patients. This morphological variation can cause problems for an ulna shortening osteotomy and, while static tests suggest that 2.5 mm of ulna shortening is sufficient to offload the distal ulnocarpal joint by 14%, a shortening of this magnitude will cause problems in the joint for some patients. Authors from **London (Canada)** have performed a cadaveric study looking at the dynamic nature of ulna shortening to study this further.[6] A complex jig was constructed around nine fresh frozen right cadaveric forearm specimens to allow dynamic measurement of forces across the wrist. Each specimen had undergone CT scanning to confirm the absence of established distal radioulnar joint arthritis. Load cells capable of measuring force transmission, along with length change mechanisms, were implanted into both the radius and ulna shafts proximal to the distal radioulnar joint. The physiological behaviour of the wrist extensors, wrist flexors, pronator teres, and biceps were mimicked by dynamic traction through a physiological line pull centred on the medial and lateral epicondyles of the humerus. The specimens were mounted within a motion simulator (capable of applying load through these muscle groups) to reproduce normal wrist and forearm ranges of movement. Native ulnar variance was measured at 0.1 mm (SD 1.7) before testing. A significant decrease in distal ulnar loads with progressive ulna shortening was noted in simulated flexion, ulnar deviation, dart-throwing motion, and pronation. In flexion, 1 mm of shortening corresponded to a 42% decrease in distal ulnar loads compared with native length. The decrease during dart-throwing motion was 86%, and the decrease during pronation was 71%. A shortening of 2 mm was required to provide 50% reduction in load transmission in ulnar deviation. At 2 mm and 3 mm of shortening, respectively, there was a decrease in overall ulnar load to 5% and 0% during flexion, 9% and 4% during ulnar deviation, 0% and 0% during dart throwing, and 0% and 0% during pronation. The benefit of this study is its dynamic nature; it would suggest that 2 mm of shortening was sufficient to avoid compression of the distal ulnar during dart-throwing motion and pronation. With dart-throwing motion being the more functional movement encountered in the wrist, this would seem to be the most important value to target. It is unclear exactly how a pathological ulnar variance would impact these findings but, presumably, this will form the basis of further work. For now, 2 mm of shortening seems to be the target value, above which tensile, rather than compressive, loads were observed in the distal ulna. Shortening in excess of this is probably not required and may even be counterproductive.

1-2 KiWi: a randomized controlled trial X-ref

■ Although fifth metacarpal neck fractures are usually managed nonoperatively, a variety of techniques have been utilized when surgical treatment is indicated. However, none of these surgical techniques are demonstrably superior. When employing the antegrade intramedullary Kirschner wire technique, the use of three wires was initially suggested. Over time, because of the advantage of minimizing complications, advice has shifted towards two wires between 0.8 mm and 1.2 mm. More recently, it has been suggested that a single wire above 1.6 mm in diameter may be used as an intramedullary splint; this technique is quicker and simpler, and may be employed by less experienced surgeons. What is unclear is its efficacy with respect to maintaining an adequate reduction and restoring hand function. This group led from **Berlin (Germany)** investigated the clinical and radiological outcomes with a multicentre, parallel group, randomized controlled, noninferiority trial at 12 tertiary trauma centres in Germany.[7] The fixation method was either a single 1.6 mm intramedullary wire or dual 1.2 mm wires in an antegrade manner, and the wires were cut and buried beneath the skin. The primary outcome measure was the Disabilities of the Arm, Shoulder and Hand (DASH) score at six months postoperatively, with secondary outcomes of EuroQol five-dimension questionnaire, pain visual analogue scale, and radiological angulation. The noninferiority threshold was predetermined at one-third of the minimal clinically important difference for the DASH score. Overall, during the course of this study, 290 patients were randomized, with 151 completing the six months follow-up: 83 in the single wire group and 68 in the dual wire group. This was a significant loss to follow-up, with contemporary randomized trials often reporting 90% to 95% follow-up; however, this perhaps not unexpected in this difficult patient group. Outcomes were assessed and reported here using a modified intention-to-treat analysis. Mean DASH scores at six months were 3.8 and 4.4 in the single and dual wire groups, respectively. Multiple imputation methods were used to estimate mean DASH scores at 6.3 and 7.0; even then, upper confidence limits remained below the noninferiority margin of 3.0 points on the DASH scale. No statistically significant differences were observed in secondary outcome measures. Interestingly, duration of surgery was not significantly shorter with either of the two techniques. In all, 11 patients assigned to single wires crossed over intraoperatively to dual wires due to inability to achieve construct stability, and three patients crossed in the opposite direction due to inability to place two wires in a narrow canal. Notwithstanding the fact that intraoperative flexibility seems to be required, a single larger intramedullary wire did not appear to be inferior to the slightly more complex technique. This finding

must be interpreted within the limitations of this study, which are clearly moderate given the loss to follow-up rate.

Decompression for recurrent carpal tunnel syndrome provides significant functional improvement and patient satisfaction

The efficacy of carpal tunnel decompression in appropriate selected cases is well established and documented within the literature. However, recurrent carpal tunnel syndrome symptoms can result from a variety of anatomical causes not limited purely to recurrent circumferential fibrosis around the median nerve. The outcome of revision surgery is therefore less certain and relatively poorly documented, especially with reference to quality-of-life outcome measures and patient-reported outcome measures. While only a relatively small single-centre study, this work from **Edinburgh (UK)** is very well designed to address these issues and achieve a high level of confidence in the findings.[8] For the purposes of the study, the Quick version of the Disabilities of the Arm, Shoulder and Hand Score (QuickDASH), patient satisfaction, and EuroQol five-dimension questionnaire were collected both preoperatively and at least six months postoperatively from revision open carpal tunnel decompression patients over a five year period until 2018. In all, there were 14 patients who underwent the procedure, with one excluded due to lack of preoperative data. The median time to revision was 13 years (range 4 to 35) following primary surgery, and the mean patient age was 57 years. No patient had an outstanding medicolegal claim. Surgical technique and postoperative rehabilitation were consistent for all patients, with a tourniquet utilized, the previous wounds reopened, and the scarred retinaculum divided under direct vision. Incision was extended proximally as required to confirm complete release, which was visually verified. The mean free and postoperative QuickDASH was 55 and 29, respectively, demonstrating both statistical and clinically significant improvement. There was a mean improvement in the EQ-5D-5L of 0.11, which did not reach statistical significance, and 13 patients stated satisfaction after the procedure. There were no reported complications and no cases of incomplete initial division of the flexor retinaculum. Overall, open revision carpal tunnel decompression can result in improvements in both functional outcome and health-related quality of life that are clinically significant. Obviously, this is a paper with relatively small numbers of participants gathered from a single centre, and the results must be tempered by these facts. However, here at *360*, we admire the sound methodology that demonstrates the value of this procedure.

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Shoulder & Elbow

Recovery after proximal humerus fractures: are psychological and social factors most important?

Psychosocial factors are known to influence both surgeon- and patient-reported outcomes for conditions of the upper limb, and there is even evidence that they may be the most important factor in some conditions. A recent systematic review previously discussed here at *360* emphasized the association of these factors with disability and upper limb injuries. Prospective randomized clinical trials have reported the positive effects of preoperative priming on patient-reported outcome scores. An international collaborative study, primarily based in **Oxford (UK)**, was designed to evaluate the psychological and social aspects most closely linked to recovery following a proximal humerus fracture.[1] The authors enrolled 177 patients (128 women, mean age 66 years (18 to 95)) presenting with an isolated fracture of the proximal humerus and asked them to complete a range of patient-reported outcome measures (PROMs) within a week of injury. Outcome scores measured included the Patient-Reported Outcome Measurement Information System Upper Extremity physical function computer adaptive test (PROMIS UE). Scores were recorded again between two to four weeks following injury and, finally, between six to nine months following injury. Following bivariate and multivariate regression analysis, the fear of movement on the Tampa Scale for Kinesiophobia-11 (as measured within the first week of injury) and self-efficacy (at two to four weeks following injury) were the strongest predictors of the PROMIS UE scores at six to nine months. The authors conclude that, following a fracture of the proximal humerus, the key modifiable factors include overcoming the fear of movement or further injury within the first week following fracture, as well as improved self-efficacy within the first month through resilience and effective coping strategies. This study highlights the importance of routinely assessing and managing the psychosocial aspects of injury. As we at *360* have discussed before, it also poses the question of how we adapt current PROMs to consider the obvious influence of psychosocial status.

Steroid injections should be at least two weeks prior to arthroscopic shoulder surgery

Recently, several papers have documented the risks associated with preoperative injections in patients undergoing arthroscopic rotator cuff repair. A previous big data study discussed here at *360* reported that patients who received an injection in the month prior to arthroscopic rotator cuff repair did have a significantly higher surgical site