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## EXPERT OPINION ON PUBLISHED ARTICLES

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**Reviewer: Dr S Dix-Peek**  
 Department of Orthopaedics  
 Groote Schuur Hospital  
 Tel: (021) 506 5580  
 Email: dixpeek@intekom.co.za

### Mid-term results after ultrasound-monitored treatment of developmental dysplasia of the hips: To what extent can physiological development be expected?

D Dornacher, S Lippacher, H Reichel, M Nelitz  
*Journal of Paediatric Orthopaedics B* 2013;22:30-35

#### Purpose

This study examined the radiological outcome in hips that had been treated conservatively for developmental dysplasia of the hip (DDH).

#### Design

Retrospective review of a cohort, including controls; Level III.

This is a radiological review of infants at a mean age of 31.3 months who had been treated with closed reduction and with ultrasound follow-up. An initial radiological review had earlier been performed at the age of 14.8 months.<sup>1</sup> Of the initial patients, 72 patients were identified who had mild residual dysplasia.

There was no specific treatment between the first and second X-ray. All hips were classified according to Tonnis.<sup>2</sup> Of the 144 hips, at initial evaluation, 40 hips were normal (Tonnis 0); 54 hips Tonnis I; 50 hips Tonnis II. In the follow-up, 62 were normal (Tonnis 0); 56 Tonnis I; and 26 Tonnis II. Within the groups, the dysplastic groups improved, with statistical significance.

Some anomalous outcomes occurred. Most of these have been previously recorded in other studies.

- Nine hips in seven patients which were previously reduced, but mildly dysplastic, became considerably dysplastic, and required osteotomy.
- In six of the 40 normal hips at the first X-ray, six turned out to be abnormal at second X-ray.

This may support the theory of an endogenous factor in DDH, which may drive the late dislocation.<sup>3</sup>

#### Comments

This study suggests that any previously treated DDH as well as the contralateral hip should be monitored radiologically for at least 3 years. Previously normal hips may become dysplastic, possibly pointing to an endogenous aetiology, and mention is made of previously contained hips which dislocate. Dysplastic hips may deteriorate. Finally there is a high rate of improvement of dysplasia at the age of 3 years in this study, cautioning against early operative intervention in purely dysplastic hips.

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**Reviewer: Dr GJ du Preez**  
 Tygerberg Academic hospital  
 Tel: (021) 938 5458

### Inadequate 'three-point' proximal fixation predicts failure of the Gamma nail

SGF Abram, TCB Pollard and AJMD Andrade  
*Bone Joint J* 2013;95-B:825-30

#### Background

Pertrochanteric femur fractures are very common and are a great burden to any health care system. Sliding hips screws (SHS) and cephalo-medullary nails (CMN) are the two common devices used to stabilise these fractures. The use of CMN has increased significantly, despite a lack of evidence to show better results when compared to SHS in the treatment of stable fracture patterns. Although CMN show improved results in the treatment of unstable fracture patterns, they also show an increased rate of failure overall.

An adequate reduction and Tip-Apex-Distance (TAD) less than 25 mm decreases the risk for failure with either SHS or CMN. The entry point of a CMN through the tip/just medial to the tip of the greater trochanter has also been shown to decrease the failure rate compared to entry point lateral to the tip.

#### Study

The authors reviewed 223 cases of pertrochanteric fractures stabilised with a CMN, to identify operative factors that might contribute to the failure of this implant. The implant used in their study was the Gamma nail (Stryker Medical Corp). Eighteen patients received a long nail and the other 43 had short nails. Their hypothesis was that adequate three-point proximal fixation would decrease the risk for failure. Adequate three-point proximal fixation occurs when the TAD is <25 mm; the tip of the nail/end cap is in contact with/extends proximal to the greater trochanter and the lateral end of the lag screw is in contact with/extends lateral to the lateral femoral cortex.

In their series, they identified 16 cases of failure (7.2%). The 16 failures included 12 cases of fixation failure, three cases of implant fracture and one case of implant subsidence. Two cases of deep infection and seven cases of fractures distal to the nail were also identified, but not classified as failure for the purpose of this study. In all seven of the distal fractures, the proximal fracture had united before the fracture occurred.

*The use of CMN has increased significantly, despite a lack of evidence to show better results when compared to SHS in the treatment of stable fracture patterns*

## Results

The failure rate was <1% (1/243) when adequate three-point fixation was achieved. The odds ratio of failure went up to 20.1 when one fixation point was missed. The three points of fixation were also individually analysed, with TAD >25 mm and inadequate lateral fixation in isolation shown to be risk factors for failure. The investigators also identified a trend towards failure with higher grade fractures and inadequate reduction.

Limitations in their study included the fact that their patients were not followed to union, but discharged once ambulant and pain free. Patients with complications were then referred from their primary care facilities for further management. Due to their population demographics, the authors were confident that the risk of a missed failure was very low.

This study confirms previous work that shows a higher failure rate with TAD >25 mm and inadequate reduction. They have further shown that lack of contact with the lateral cortex is a similar predictor of failure to TAD.

As the use of CMN for pertrochanteric fractures increases, failure rates will continue to be unacceptably high unless we improve our surgical technique. The authors have given us another technical point to consider when managing these common injuries. Lateral cortical fixation is easily achievable by utilising a lag screw of adequate length. With most of the CMN available at present, some form of compression can be applied once the screw has been inserted. If the surgeon wants to utilise this function, a shorter screw than measured has to be used. The difference in lengths then has to be made up by the compression, otherwise then screw will not be in contact with the lateral cortex, or the tip not placed sufficiently close to the apex. My suggestion is to rather overestimate the length lag screw required and leave it slightly proud on the cortex.

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**Reviewer: Dr PT Kumbirai**  
Department of Orthopaedics  
Medunsa  
Tel: (012) 521 4005/4049

## Comparison of fixed and mobile-bearing total knee arthroplasty at a mean follow-up of 116 months

A Bistolfi, G Massazza, Gwo-Chin Lee *et al*  
*Journal of Bone and Joint Surgery Am* 2013;**95**:e83 (1–7)

### Study design

This is a prospective study of two sequential groups of patients who underwent a total knee replacement. They were divided into two groups:

1. FB group: 100 consecutive knees in 75 patients who had a fixed-bearing (FB) total knee replacement
2. MB group: 100 consecutive knees in 88 patients who had a mobile-bearing (MB) total knee replacement

The two groups' results were then analysed after a mean period of 116 months for:

- Clinical outcome using the HSS (Hospital for Special Surgery) knee score and the BOA (British Orthopaedic Association) patient's satisfaction outcome scoring system
- Cumulative survivorship with revision or loosening as the endpoint

Both knee implants were of a posterior cruciate substituting design and surgery was performed by/under supervision of one surgeon. Reasonable efforts were made to eliminate bias.

## Results

There was no difference in the clinical, radiographic and survivorship results at a mean follow-up of 116 months between the fixed-bearing (FB) and mobile-bearing (MB) total knee arthroplasty groups using these implants.

### Benefit of article

Mobile bearing knee designs were designed after the fixed bearing knee designs with the theoretical advantage of the following:

- Improved knee kinematics hence theoretically better function
- Theoretically reduced polyethylene wear hence longer survivorship

The major disadvantages of mobile bearing knees were:

- Higher cost
- Reported problems of joint stiffness
- Failure due to instability

Previous papers had also shown that there is no short-term (3 to 5 years) difference in these two knee designs. This article is one of the few which has further demonstrated that there is no difference even at medium-term follow-up, i.e. up to ten years.

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**Reviewer: Prof NS Motsitsi**  
Department of Orthopaedic Surgery  
Kalafong Hospital  
Tel: 012 373 1011  
Email: silas.motsitsi@up.ac.za

## The incidence and consequences of early wound infection after internal fixation for trauma in HIV-positive patients

J Bates, N Mkandawire and WJ Harrison  
*J Bone Joint Surg Br* 2012;**94-B**:1265–70

### Summary of the paper

This prospective study was done over a four-year period, in two institutions. The objective was to investigate whether there is a difference in infection rate between HIV-positive and HIV-negative patients following internal fixation. The ASEPSIS score was used to assess infection.

Their conclusion was that clean implant surgery in HIV-positive patients is safe, with no need for additional prophylaxis.

### Critical appraisal

The study investigates an important question that is clinically relevant. There is currently no definitive answer to this question.

1. **Type of study:** The authors state that the study is 'a prospective single-blind study'. The accurate description is that the study is a prospective **case-based case-control study**. This places the study and its level of evidence in the proper context. The person who evaluated the outcome was blinded: he/she did not know the HIV-status of the patients. It is always desirable that the evaluator of the outcome of interest is blinded to avoid bias.

*Is there a difference in infection rate between HIV-positive and HIV-negative patients following internal fixation?*

2. **Cases:** Cases and controls were selected the same way: all patients who presented to the two institutions over a specified period. They were selected on the basis of whether they are **HIV-positive (cases) or HIV-negative (controls)**. Cases represented patients who were newly diagnosed and those with long-standing diseases (when one looks at the CD4 count). Some of the patients were on ARVs and others were started on treatment during the study. Cases were a very heterogeneous group.
3. **Controls:** Controls are usually selected to be similar to cases in terms of age, sex, social class, etc. It is not stated in this study how the controls were matched with the cases. The controls were tested once for HIV. This may lead to misclassification. CD4 was not tested in the controls.

There are a number of methodological issues in the study: this is usually the big concern with case-control studies. The way cases and controls are selected usually enables case-control studies to answer one question. One needs to scrutinise for evidence of multiple testing or data-dredging and one must be careful in interpreting such tests. The influence of CD4 count on infection rate in patients (cases and controls) was not part of the study objective; cases and controls were not selected on this basis.

Ian K Crombie states: 'Case-control studies are often exploratory, casting a wide net to see what can be caught.' Certainly this paper explores the subject of infection following internal fixation of fractures in HIV-positive patients. More work is needed.

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**Reviewer: Dr I Robertson**

Department of Orthopaedic Surgery  
Tygerberg Hospital  
Tel: (021) 938 5458  
Email: ianr@sun.ac.za

## Closed treatment of overriding distal radial fractures without reduction in children

SN Crawford, MD; LSK Lee, MD; BH Izuka, MD, Hawaii

*J Bone Joint Surg Am*, 2012 Feb 01;94(3):246–52.  
doi: 10.2106/JBJS.K.00163

The trend in modern orthopaedic surgery has been overwhelmingly towards increased surgical intervention. In this article Byron Izuka makes an appealing case for conservative management in the under-10-year-old child with closed overriding distal radial fractures. The idealistic method of end-on-end reduction is often doomed to slip if is not stabilised with some method, usually percutaneous pins. Because of the superior remodelling in this age group, neither end-on-end reduction nor any form of fixation is necessary, according to the authors.

Closed radial fractures represent 45% of fractures seen in children. Loss of reduction will occur commonly. (If not internally fixed, up to 91%, in some series, will lose reduction.) Although sedation is often sufficient to achieve reduction, general anaesthetic is often resorted to. This increases the risk and cost of this intervention. The stimulus to this study was the author's conviction that exact restoration of length was unnecessary and all that need be corrected was the alignment of the bone.

In this prospective study, the authors studied 54 children with displaced (overriding) closed distal radial fractures. Open and multiple fractures, and bone diseases, were excluded, and patient age was limited to less than 10 years. Associated ulna fractures were included if they occurred.

In their outpatient department, short arm fibreglass casts were applied, with the angulation being gently corrected. No attempt was made to correct shortening. Neither sedation nor analgesia was used for this procedure. Fluoroscopy before and after casting was used to assess progress. Follow-up was done at one week, two weeks and six weeks. At least one cast change was found to be necessary in this period. The cast was removed once there were radiological and clinical signs of fracture healing.

The final follow-up included measuring the angulation achieved as well as measuring the loss of radial length initially and after the last visit. Range of motion of the wrist was recorded. The study included a cost analysis of this method of treatment. This was compared to the costs estimated to have been accumulated should the patient have required conscious sedation or general anaesthesia. Either of these would have been necessary had the child been treated by full reduction, with or without pin fixation.

### Results

The final follow-up visit was at one year. By this time three patients were unavailable, leaving 51 children to be studied. The average age was 6.9 years. Most cases involved both forearm bones; only six patients had an isolated radial fracture. Twenty-nine of the associated ulnar fractures were incomplete, greenstick types.

After cast application there was an average of 5 mm radial shortening. The authors did not measure final shortening, as the fractures had remodelled, making the fracture fragment poorly identifiable. A dinner fork deformity was commonly visible initially. This had disappeared by the time of cast removal. Range of movement was full by the last follow-up and the wrist was pain free.

Cost savings over conscious sedation were 4.7 times this method of management. The general anaesthesia scenario was 6.2 times more expensive.

### Discussion

The authors postulate that the anatomical reduction of displaced radial fractures in the under-10 year age group is unnecessary. Children of this age have remarkable remodelling capacity. Angulation does need correction. The authors were able to correct this to less than 10 degrees in this series by gentle manipulation.

The biggest obstacle is getting this method accepted by parents and other hospital staff. Up to 80% of length growth of radius and ulna resides in the distal growth plates. The age when these injuries commonly occur is favourable to near or complete remodelling. Regional blocks and general anaesthesia have several risks. Even with the less risky conscious sedation method, adverse events (including cardiac arrhythmias and death) occur in 2.3 to 17% of cases.

### Reviewer's commentary

One patient defaulted from this study because the parents felt they would rather have their child have an anatomical reduction. Pleasing peers and parents is probably the overriding reason most South African orthopaedic surgeons would probably opt for anatomical reduction of overlapped childhood distal radial fractures. The author's tactic of showing the parents before and after X-rays of similar injuries treated by this method seems to be a persuasive tool to overcome parental objections. Be aware of this important study next time you subject a child with these fractures to possibly risky overtreatment. The authors have done a good job of researching this conservative and, arguably controversial, approach to the overlapped distal radius fracture in younger children.

*The authors postulate that the anatomical reduction of displaced radial fractures in the under-10 year age group is unnecessary*

**Reviewer: Dr Stephen Roche**

Division of Orthopaedics, University of Cape Town  
Shoulder and Elbow Unit, Groote Schuur Hospital  
Adult Reconstructive Service, Groote Schuur Hospital  
Tel: 021 404 5108

## A retrospective cohort study of displaced radial head fractures: Is 2 mm of articular displacement an indication for surgery?

MJ Furey, DM Sheps, NJ White, KA Hildebrand  
*Journal of Shoulder and Elbow Surgery*  
May 2013;22(5):636–41

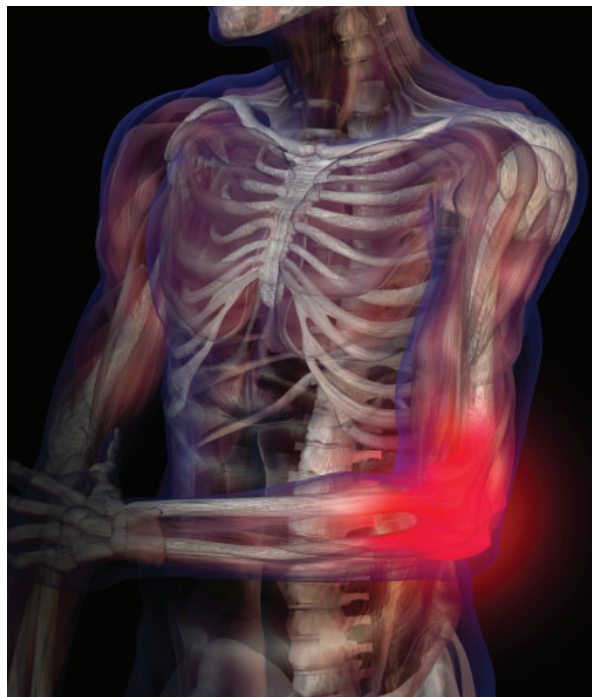
This study highlights the problem of untested classifications that have been accepted by mainstream orthopaedics over time with respect to determining treatment of fractures or injuries, and predicting outcomes. It deals specifically with radial head fractures, but I believe there are many other such classifications that could be substituted for the radial head fractures, such as the AC joint dislocations.

They highlight the lack of literature to support the treatment decision-making, and then go on to supply evidence that the 2 mm cut-off used to recommend surgery is not as clear as suggested by case series of surgically treated fractures.

They retrospectively reviewed a database from their region in Canada of conservatively treated Mason II radial head fractures. There were 36 patients with a mean follow-up of 4.4 years. They were assessed using the Patient-Rated Evaluation and Disabilities of the Arm Shoulder and Hand questionnaire. Range of motion and X-ray were assessed.

Their conclusions were that fracture displacement of 2 or 3 mm did not make a difference in outcomes and that physiotherapy did not alter outcomes.

There are many limitations to the study: Small numbers and follow-up, retrospective nature, use of X-rays and not CT scans and more importantly that these patients or their physicians may have preselected out the other patients who underwent surgery.



The strengths are that it highlights the deficiencies in the literature and that we can treat some radial head fractures with displacement of greater than 2 mm. This is important as we have seen several patients over the years treated with surgery with what we believe are worse outcomes than if they had been left alone. We have been accepting greater displacements than the 2 mm recommended in the group of patients who have depressed impacted fractures, as long as they have no block to pronation/supination. We believe the associated elbow injuries very often dictate the management rather than the displacement.

It once again calls us to collaborate and to have the strength of character to do properly controlled randomised studies on our patients, so that we can provide reliable, scientifically based advice to our patients regarding the management of the fractures.

**Reviewer: Dr AGL Rocher**

Inkosi Albert Luthuli Central Hospital  
UKZN Nelson Mandela School of Medicine  
KwaZulu-Natal

## Single-stage surgery combining nerve and tendon transfers for bilateral upper limb reconstruction in a tetraplegic patient: Case report

JA Bertelli, MD, PhD; MF Ghizoni, MD, MSc  
*J Hand Surg* 2013;38A:1366–69

Treatment of nerve injuries is not a mainline orthopaedic topic and what most orthopaedic surgeons know about it is what was useful to pass the College exam. Nerve injuries are very useful in the exams, because examiners can evaluate the candidates' anatomical knowledge. After successfully diagnosing the brachial plexus or ulnar nerve injury, the discussion might go as far as some basic tendon transfers or the Oberlin's procedure.

Nerve transfers are much more than just the Oberlin's procedure. People such as Susan McKinnon are doing groundbreaking work which can be seen on her YouTube movies or Webpage. It is a very specialised area though and special skills, such as working with 9/0 nylon, are required.

*Orthopaedic surgeons who are inclined to treat nerve and spine injuries will find the work done by these authors exciting*

Despite this, the article is important for general orthopaedic surgeons. Traumatic nerve injuries are usually referred to us and we have to at least know the options. Orthopaedic surgeons who are inclined to treat nerve and spine injuries will find the work done by these authors exciting. We are far from getting the same functional results as our arthroplasty colleagues, but as the saying goes: 'For those who have nothing, a little can mean a lot.'

I feel that restoring one or two simple arm functions for people with such dismal injuries can be a massive psychological achievement for patients and doctors in the face of otherwise dismal injuries. This was a case report of a 39-year-old male and surgery was only done 18 months post spinal injury. By transferring bilateral axillary branches to radial triceps branches and supinator branch to posterior interosseous, they managed to restore finger extension and elbow extension, bilaterally. This was combined with tendon transfers to improve arm function.

**Reviewer: Dr M Ter Haar**  
Arthroplasty Unit  
Inkosi Albert Luthuli Hospital  
University of KwaZulu-Natal  
Durban

## Subcapital fractures: A changing paradigm

JJ Callaghan, SS Liu, GJ Haidukewych  
*Bone & Joint Journal, African Edition, May 2013;190-92*

The treatment of subcapital neck of femur fractures is a problem we have to deal with on a fairly regular basis. The correct treatment of these fractures is not always that simple and is complicated by several controversies.

This article emphasises the fact that there is a change from a diagnosis-related approach (non-displaced versus displaced fractures), to a patient-related approach, taking into consideration the patient's age, functional demands and individual risk profile.

The treatment of non-displaced fractures is still the same regardless the age. Closed reduction and internal fixation is still the benchmark. With displaced neck of femur fractures, younger patients (younger than 50 or 60 years) are still mainly treated with urgent, accurate reduction and internal fixation with correct placement of metal ware to ensure good lasting fixation.

The main shift has taken place in the displaced neck of femur fractures of the elderly. Several studies have now shown that the treatment of displaced femoral neck fractures with arthroplasty is by far superior to that of internal fixation. There is a much lower failure rate as well as a higher functional outcome with arthroplasty compared to that of internal fixation. In terms of the type of arthroplasty the distinction must be made between those who are cognitively intact versus those who are cognitively dysfunctional. For the cognitively intact group, total hip arthroplasty proves the best results. For the cognitively dysfunctional group hemiarthroplasty or total hip arthroplasty with a big head is the best option. In the latter group hip stability is of utmost importance, hence the recommendation.

The article mentions but does not discuss the surgical approach for these patients. Several studies have shown the difference between the anterolateral approach versus the posterior approach for these fractures with a significantly lower dislocation rate in the anterolateral approach.

The article has a clear and simple algorithm which is very useful in the decision-making and treatment of subcapital neck of femur fractures.

**Reviewer: Dr Michael Solomons**  
Department of Orthopaedic Surgery  
University of Cape Town  
Tel: (012) 506 5670  
Email: docsol@absamail.co.za

*Present a review of three papers pertinent to the world of distal radius fractures and the management thereof. ORIF distal radius fracture through the volar approach is now the most commonly performed orthopaedic procedure worldwide.*

## Radiological criteria for acceptable reduction of extra-articular distal radial fractures are not predictive for patient-reported functional outcome

A Benthohami, TS Bijlma, JC Goslings,  
P de Reuver, L Kaufmann, NWL Schep  
*J Hand Surg Eur June 2013;38(5):524-29*

In a previous edition of Expert Opinion, Prof Mennen reviewed a paper that showed poor correlation between radiological outcome and clinical outcome. This paper reiterates that position.

The authors report on a retrospective study of all extra-articular fractures (A2 and A3) treated non-operatively. All fractures were initially manipulated. Those that were not operated on were included (n=257). The 6-week X-ray was assessed as acceptable or not acceptable (>15 degrees dorsal tilt, <15 degrees radial inclination and more than 5 mm radial shortening).

Correlation was performed to see if there was any relationship between poor radiological outcome and the quick DASH. Seventy-eight per cent of patients had an adequate alignment and a good functional outcome. Fifty-four patients had an inadequate alignment, but their functional outcome did not differ from the previous group. The choice of extra-articular fractures only removes the difficulty in comparing inhomogeneous groups as reported in other studies (Knirk and Jupiter).

*One of the rare but serious risks associated with volar plating is flexor tendon rupture.*

## Volar plate position and flexor tendon rupture following distal radius fracture fixation

A Kitay, MD; M Swanstrom, MD; JJ Schreiber, MD;  
MG Carlson, MD; JT Nguyen, MPH; AJ Weiland, MD;  
A Daluiski, MD  
*Journal of Hand Surgery (American) June 2013;38(6):1091-96*

The X-rays of eight patients who presented with flexor tendon rupture were compared with a matched series of 17 controls without tendon rupture. On the lateral view two radiological features were looked for. A line parallel to the volar cortex that touches the volar lip is termed the 'critical line'. The distance from the plate to the critical line is one measurement. The other is the distance from plate to volar lip / rim. The closer to the volar lip and/or extending beyond the lip is a worrying feature. The distance from the plate to the critical line is also important.

Plate prominence projecting greater than 2 mm volar to the critical line had a sensitivity of 0.88, a specificity of 0.82, and positive and negative predictive values of 0.70 and 0.93, respectively, for tendon ruptures. Plate position distal to 3 mm from the volar rim had a sensitivity of 0.88, a specificity of 0.94, and positive and negative predictive values of 0.88 and 0.94, respectively, for tendon ruptures.

This paper suggests that surgeons do all in their power to optimise the plate position to avoid tendon ruptures and suggests that if the plate protrudes 2 mm volar to the critical line and within 3 mm of the rim, then consider removing the plate electively at 6 months (no ruptures occurred within 6 months).

*If a patient develops a symptomatic radial malunion with ulnar positive variance and ulnar-sided wrist pain, what is the best option? Deal with the problem at source or simply shorten the ulna.*

## Isolated ulnar shortening osteotomy for the treatment of extra-articular distal radius malunion

RC Srinivasan, MD; D Jain, BA; MJ Richard, MD; FJ Leversedge, MD; SK Mithani, MD; DS Ruch, MD  
*Journal of Hand Surgery June 2013;38(6):1106–10*

Distal radius osteotomy to correct symptomatic malunion is a big undertaking. Following osteotomy, plating and bone graft, many complications are described. If the main site of symptoms is ulnar then a simpler ulnar shortening procedure is appealing. The authors review their cases and try to identify the upper limit of angular and longitudinal deformity that can be treated with this technique.

*This paper recommends that deformity greater than 20° dorsal tilt should not be managed by USO (DRUJ will likely be incongruous – personal opinion of reviewer)*

Eighteen cases were identified retrospectively. ROM, grip strength, VAS for pain and QuickDASH were assessed. Mean time from the injury to the index osteotomy was 49 weeks. The mean duration of follow-up was 34 months.

The average amount of intra-operative ulnar shortening was 5.6 mm (range 5–10 mm). Average ulnar variance changed significantly, from 3.5 mm positive variance pre-operatively to 2.4 mm negative variance post-operatively. Mean time to radiographic union was 92 days (range 58–317 d).

Average flexion–extension arc improved significantly from 79° pre-operatively to 105° post-operatively. Average pronation–supination arc improved significantly from 121° pre-operatively to 162° post-operatively. Average VAS pain scores, QuickDASH scores, and grips strength as a percentage of the contralateral side all improved significantly.

This paper recommends that deformity greater than 20° dorsal tilt should not be managed by USO (DRUJ will likely be incongruous – personal opinion of reviewer). Of the 18 patients, six were less than 1 year from injury to USO, and it is possible that they may have had improvement without surgical intervention.



**Reviewer: Dr AL Vlok**

Department of Orthopaedic Surgery  
University of Pretoria  
Kalafong Hospital

## Age at hip or knee joint replacement surgery predicts likelihood of revision surgery

C Wainwright, JC Theis, N Garneti, M Melloh  
*J Bone Joint Surgery Br 2011;93-B:1411–15*

### Introduction

The New Zealand Joint Registry has shown that there has been a 100% increase in the number of primary knee replacements and a 50% increase in the number of hip replacements done over the nine-year period from 2000 to 2008. As this trend continues there is going to be an ever-increasing demand on a health system where resources are already limited. In order to determine the scale of this increasing burden the survival rates of both patients and implants need to be identified.

The argument is that patients who are at a higher risk of dying before undergoing revision surgery probably do not need to be followed up, thereby lessening the burden and costs of the involved orthopaedic department. It was therefore necessary to know whether age at the time of primary surgery or associated co-morbidities could be used as a predictor of survival.

### Study

This is a retrospective study that includes all patients who have had a primary total hip or knee replacement done between 1989 and 2007. The cohort totalled 4 668 patients who had had a primary joint replacement done during this period. In this study they recorded the following; the mortality rate, revision rate, age of the patient at the time of the initial surgery, gender of the patient, associated co-morbidities at the time of the surgery, and the seniority of the surgeon doing the procedure. The International Classification of Diseases based Injury Severity Score (ICISS) was used as the scoring system for the associated co-morbidities. This scoring system could be used to predict the risk of a patient dying associated with each co-morbidity.

### Findings

- The average age of both total hip and knee replacements was 69 years and this remained unchanged over the 18-year period of the study.
- There was no statistical difference in patient survivorship rates between total hip and total knee replacements. Gender also had no impact on survivorship rates.
- With regard to implant survivorship there is a significant difference between the likelihood of surviving in older and younger patients. A patient of 48 years of age is twice more likely to require a revision of his joint replacement than to die. A 77-year-old patient has a greater than 90% chance of dying than requiring a revision procedure.

*Do patients who are at a higher risk of dying before undergoing revision surgery need to be followed up?*

< 50 years old at the time of primary surgery:	These patients are twice more likely to require revision surgery than to die.
Around 58 years of age at time of primary surgery:	There is a 50% chance that the patient will require a revision of the joint replacement.
>62 years of age at the time of the primary surgery:	The patient will in all probability outlive the prosthesis.

- The survivorship rate of the implant was not affected by the seniority of the surgeon be it a consultant or a registrar under supervision.
- Although patients with higher ICISS scores tended to have an increased risk of mortality it should be noted that 37% of the patients with ICISS score above the 90th percentile survived 18 years.

Twenty-five per cent of the patients died within 10 years of the initial surgery; the associated co-morbidities of these patients were either incomplete or unknown.

#### Comment

Although there are some limitations with this study, particularly with regard to the retrospective method of defining the co-morbidities at the time of the initial surgery, there are some important facts that are to be noted for surgeons doing arthroplasty or medico-legal reports.

- There is a significant difference in revision rates when the primary surgery is done in patients less than 62 years of age and there is a strong case to be made for postponing replacement surgery until the patient is 62 years old, if at all possible.
- When taking consent from a patient for a total hip or knee replacement it is required that they are accurately informed about the anticipated outcomes of the intended procedure and the possibility of the procedure having to be repeated. The above mentioned statistics connected to the age at which the initial surgery is done can be used to define the anticipated outcome more clearly.
- The often unfounded speculation in medico-legal reports about when a patient will require a joint replacement and the possibility of a revision can now be addressed more accurately with this data.
- The reason for the revisions and the type of co-morbidities documented is not discussed in the article.
- Finally according to the authors it is the age at the time of surgery and not the higher co-morbidity scores, gender of the patients or the seniority of the surgeon that affects the revision and death rates associated with primary joint replacements.

