

# EXPERT OPINION ON PUBLISHED ARTICLES

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## Patient-reported activity level after total knee arthroplasty

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*Journal of Arthroplasty* 2008;23(3):401-7

Three questions:

1. What do you tell your patients regarding the expected level of activity after a total knee arthroplasty, be it occupation-related or recreational activity?
2. On what do you base your opinion?
3. Do your patients adhere to your recommendations?

With a total knee arthroplasty (TKA), we concentrate on improving function and providing pain relief. We can discuss these expectations with our patients in detail and back up the information with clinical data. The literature on patients' actual level of activity after a total knee arthroplasty is, however, sparse. In this article, physicians of the Mayo Clinic report on a comprehensive survey they conducted to determine exactly what the activity level of the patient is after a TKA.

The goal of the study was to determine the functional and athletic activities patients are able to perform after modern TKA and examine the factors that influence the attainment of defined activity levels.

### Study

They report on 1 630 patients at a mean of 57.7 years' follow-up. They used the Knee Society Rating Score, UCLA activity rating scale,<sup>1</sup> 1999 Knee Society Consensus recommendations for activity after TKA and lastly a 10-point visual analogue scale to allow self-assessment of activity compared to peers.<sup>2</sup> The 1999 Knee Society Consensus guidelines consist of 39 different sporting activities that are divided into four different categories, the first

being sport activities that are recommended or allowed, the second activities allowed only experienced athletes, the third group of activities are not recommended at all and the fourth group contains four sport activities with inconclusive recommendations.

### Results and discussion

The strength of this article lies in the following three points:

- the high response rate of 74% on the survey
- a rather large patient cohort
- the relatively unselected nature of the study group.

The weaknesses of the article are also three-fold:

- It does not include patients revised.
- The follow-up period is only 2 to 10 years.
- It contains no consideration of medical co-morbidities.

The higher levels of activities were obtained in the following group: age below 70 years, male gender, BMI <30 kg/m<sup>2</sup>, a unilateral arthroplasty with no other major lower limb-joint involvement.

It is interesting to note that 38% of patients older than 70 years are still involved in what is called heavy manual labour. Sixteen per cent (16%) of the patients surveyed were involved in heavy manual labour or sports not recommended by their knee surgeon.

There is a sub-group of TKA patients participating in activities that involve relatively high knee-joint loads. It is unknown whether the current generation of knee-arthroplasty implants will withstand such loads in the long run. The results can be used as a benchmark for patient activity after primary knee arthroplasty.

### References

1. Amstutz. *JBJS* 1984. Point 66a: 228.
2. Zahiri. *J Arth* 1998. Point 13:890.

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## Prolonged clinical benefit from joint distraction in the treatment of ankle osteoarthritis

Ploegmakers JJ, van Roermund PM, van Melkebeek J, Lammens J, Bijlsma JW, Lafeber FP, Marijnissen AC. Rheumatology & Clinical Immunology, University Medical Center Utrecht, The Netherlands. *Osteoarthritis Cartilage* 2005 Jul;13(7):582-8

Osteoarthritic ankles remain a common problem in orthopaedics. The majority of cases we see are the result of previous trauma (fractures or ligamentous instabilities) or of infection. We know that apart from the non-union rate of up to 20%, patients are fairly reluctant to undergo this type of surgery despite the relatively good functional outcomes of patients following an ankle arthrodesis. It is also true that other surgical options are fairly limited, especially in the younger patient, as well as in previous infection. In this article the authors describe a long-term outcome of a fairly controversial technique namely that of ankle joint distraction in the management of ankle arthritis. They describe the outcomes of 22 patients who underwent Ilizarov ankle joint distraction a minimum of 7 years before. The authors report that more than 70% of the patients derived significant clinical benefit from the technique. The technique entails applying a distractive force across the ankle joint using an Ilizarov fixator and then maintaining the distraction force for a period of time. Although the exact

mechanism of action is unknown it looks like the distraction force does allow a type of fibrocartilage to reform in the joint and certainly the radiographs show an improved joint space post-surgery in these cases. It is also my experience that the majority of patients are very happy with this technique and that they actually regain painless movement in a more functional arc of ankle motion after the technique. The study certainly shows promising longer term results. Unanswered questions remain relating to the mechanism of action of this technique, the timing, rate and extent of distraction needed, as well as whether joint movement should be allowed in the fixator.

### Related articles

- Distraction arthroplasty. (*Foot Ankle Clin* 2007 Mar;12(1):29-39)
- Joint distraction in treatment of osteoarthritis: a two-year follow-up of the ankle. (*Osteoarthritis Cartilage* 1999)
- Clinical benefit of joint distraction in the treatment of severe osteoarthritis of the ankle: proof of concept in an open prospective study and in a randomized controlled study. (*Arthritis Rheum* 2002)
- Can Ilizarov joint distraction delay the need for an arthrodesis of the ankle? A preliminary report. (*J Bone Joint Surg Br* 1995)
- Clinical benefit of joint distraction in the treatment of ankle osteoarthritis. (*Foot Ankle Clin* 2003)
- Joint distraction as an alternative for the treatment of osteoarthritis. (*Foot Ankle Clin* 2002)

## Single-stage distraction correction for neglected dorsal fracture dislocations of the proximal interphalangeal joint: a report of eight cases

Houshian S, Ghani A, Chikkamuniyappa C, Sakka SA. *J Hand Surg Eur* 2008 Jun;33(3):345-9

The chronically dislocated PIPJ is a fairly common entity with relatively poor outcomes with standard treatment methods like open reduction. A few reports in the literature have focused on reducing these chronic dislocations with the use of small external fixators. The majority of the described techniques describe a gradual distraction and reduction of the joint by adjustment of the external fixators post-surgery. This has led to reasonably mobile and pain-free joints in these case series. In this particular article, the authors describe a technique where the fixator is used to acutely reduce and distract the affected joint, as opposed to a gradual distraction. Their relatively small case series does report reasonable results with movement of approximately 80 degrees in the affected joints post-surgery. The technique is fairly straightforward and should fall into the skill set of the average orthopaedic surgeon. This may be a very useful and relatively simple technique to use in these difficult cases. It would, however be nice to see a comparative trial between joint distraction and traditional techniques.

### Related articles

- Use of dynamic distraction external fixation for unstable fracture-dislocations of the proximal interphalangeal joint. (*J Hand Surg [Am]* 2008)
- Dynamic intradigital external fixation for proximal interphalangeal joint fracture dislocations. (*J Hand Surg [Am]* 2005)
- Distraction correction of chronic flexion contractures of PIP joint: comparison between two distraction rates. (*J Hand Surg [Am]* 2007)
- Distraction method for chronic dorsal fracture dislocation of the proximal interphalangeal joint. (*Hand Clin* 1994)

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## The value of arthroplasty registers

**J**oint replacement is one of the most successful surgical procedures in terms of both function repair and pain relief. In addition, it is a cost-effective way of improving quality-adjusted years of life.

Surgeons in South Africa are faced with an ever-increasing choice of implants. To ensure success, surgeons should use implants and modes of fixation that have been documented over years and have stood the test of time. Even low failure rates result in large numbers of patients needing re-operations that lead to increased morbidity, mortality and cost.

Arthroplasty Registers are important tools in guiding surgeons to select durable implants. The European Arthroplasty Register (EAR) is an initiative to combine all the data available in various Joint Registries. Its objective is to support quality control and the development of artificial joint implants.

Currently, the EAR has eleven national and international registries on its data base and is available on the Internet at [www.efort.org](http://www.efort.org). It has links to all the other registries.

Comparing the most commonly used primary conventional replacement systems reported on in the various registries, the Australian Registry appears to reflect our local trends

the best. The same companies that are active in South Africa are represented in Australia too. Valuable information regarding the outcomes of systems used in South Africa is available in the Australian Registry ([www.aoa.org.au](http://www.aoa.org.au)).

It is interesting to note that most of the prostheses used in South Africa are manufactured in countries that have no registry, for example France, the USA, the UK and Germany.

The cement that is most often used at present, Palacos, for example, is not available in South Africa. Many companies jumped at this opportunity to promote their individual products but the Scandinavian Joint Registries all warn against the use of bone cements with no proven track records.

Once again, the responsible surgeon has to be very careful when choosing an alternative. Prostheses that are copies of so-called "old" designs are used on a large scale because of their low price. This tendency has catastrophic results (Norwegian Registry).

As orthopaedic surgeons, we are well aware of catastrophes caused by the use of implants and modes of fixation without proven long-term results. It is our duty to support the South African initiative to create our own joint registry. Every surgeon involved in joint arthroplasty also has to study the information of the above-mentioned registries carefully to select the correct system for each patient.

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## Surgical strategies: delayed diagnosis or neglected Achilles' tendon ruptures

Bryan D Den Hartog, MD, Rapid City, SD  
*Foot & Ankle International* April 2008;29(4):456

**T**his is a very good review article. For practical purposes a delay of four weeks should be looked upon as delayed and six weeks is definitely seriously delayed.

The problems associated with diagnosis are well illustrated. The cause of the delay appears that this condition, which should be a clinical diagnosis, is missed by a large number of doctors specifically in casualty units.

Late problems are caused by the following:

- skin contracture
- an irreducible gap in the tendon.

If there is a skin contracture this may cause tension in the skin leading to skin breakdown. This should be addressed before the repair by a tissue expander or plastic surgeon.

There are a number of strategies available for bridging the gap, namely:

- primary repair if the tendon can be advanced far enough
- augmentation either by free fascia grafts or fascia advancements
- local tendon transfer specifically flexor hallucis longus, which is the author's preferred route
- synthetic or allografts of a variety of substances, including man-made substances.

The technique for flexor hallucis longus substitution is shown and the concept was actually borrowed from the treatment of Achilles tendinosus. The results are good.

The surgical treatment is carefully explained with good illustrations, and a turn-down fascia flap is also illustrated for the very difficult cases.

It is interesting that at nearly the same time a similar article was published in *JBJS* June 2008;90-A(6):1348.

## Current concepts review – management of chronic ruptures of the Achilles tendon

Maffulli and Ajis, UK  
JBJS June 2008;90-A(6):1348

This article again indicates that about a fifth of Achilles tendon ruptures are missed. It goes into possible diagnostic modalities that can be used. The authors then discuss reconstruction with V-Y advancement, turn-down flaps and peroneus brevis or flexor digitorum longus or flexor hallucis longus substitutions. The descriptions of the procedures are clear and concise.

It also addresses the problem of a rupture, which has healed but with significant lengthening and is then treated by shortening with a Z-excision.

The treatment of a chronic ruptured Achilles tendon can be difficult and frustrating.

Both these articles give a very good review of the current status and reflect the current best practices in foot and ankle surgery with regard to this specific problem.

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## Forearm fractures in children

Two papers on forearm fractures in children are reviewed:

### Delayed healing of forearm shaft fractures in children after intramedullary nailing

Schmittenbecher PP, et al  
*J Pediatr Orthop* 2008;28:303-6

### Comparison of intramedullary nailing to plating for both-bone forearm fractures in older children

Reinhardt KR, et al  
*J Pediatr Orthop* 2008;28:403-9

The surgical treatment of forearm fractures, involving both bones in older children, is still controversial. They can be treated with intramedullary nails or open reduction and plate fixation. The advantages of IM fixation over plating include small incisions, shorter anaesthetic, limited soft tissue dissection, rapid union and good recovery of movement.

Schmittenbecher et al studied 532 children with forearm fractures treated with elastic stable intramedullary nailing (ESIN) over 5 years. Ten children (1.9%) aged 8-16 years, showed delayed healing (>90 days). The mean age for delayed healing was 12.3 years. The majority (70%) occurred in the ulnar midshaft and the remainder in the radius (30%).

They concluded that the midshaft of the ulna in patients near adolescence seems to be a primary region for delayed healing. The risk of delayed healing was higher

in older patients, open fractures or open reduction, which induces a local periosteal destruction leading to reduced blood supply and delayed callus formation. Thirty per cent of their patients with delayed union had open fractures and 60% had open reduction. It is proposed that a relative watershed zone in the intra-osseous blood supply to the ulna in the midshaft diaphyseal region gets disrupted by periosteal stripping. The periosteum should be protected in the treatment of midshaft fractures of the forearm.

Reinhardt et al studied 31 children aged 10-16 years with forearm fractures and compared radiographic and functional outcomes of intramedullary nailing (19 patients) to plating of forearm fractures (12 patients). Duration of surgery and tourniquet use were significantly shorter in the nailing group. No differences were found between the groups for fracture union (3-6 months). Reference in the study was made to the importance of restoration of the radial bow and its measurement in terms of its magnitude and location as a percentage of the radial length. Although plating more correctly restores the anatomical bow of the radius leading to improved rotation at follow-up, radial bow magnitude was similar in the two groups and restored to normal in both. Although radial bow location in the nailing group was significantly different from the reported normal, there was no difference in loss of forearm rotation between the groups. Complications of nailing were ulna non-union (1), compartment syndrome (1) and refractures (2) and in the plating group non-union radius (1), ulna (1), broken plate (1) and refractures (2).

They concluded that nailing of unstable forearm fractures is an effective method of fixation in older children when compared to plating.