

TKR

Blood markers

J Bone Joint Surg Am. 2010;92:2102-9

- Recently published studies have suggested that interleukin-6 may be a more accurate marker for infection than the C-reactive protein level or the ESR
- Interleukin-6 is produced by stimulated monocytes and macrophages, and it induces the production of several acute-phase proteins, including C-reactive protein. [Serum interleukin-6 level in normal =1 pg/mL, and it can increase to 30 to 430 pg/mL for as long as three days following total joint arthroplasty. and rapidly returns to a normal value.
- CRP is produced by the liver in response to inflammation, infection, and neoplasm. Its levels are elevated to their peak values two to three days after surgery and return to normal approximately three weeks after surgery.
- Currently, most experts advocate the use of the blood erythrocyte sedimentation rate and C-reactive protein level as markers for assessing patients with a suspected prosthetic joint infection
- Following uncomplicated joint arthroplasty, the ESR increases, reaching a peak at five to seven days postoperatively, and then slowly decreases to preoperative levels in three to twelve months.

Activity recommendation after TKR

Activity Recommendations Following Total Knee Arthroplasty: 1999 Knee Society Survey

Recommended/Allowed	Allowed With Experience	Not Recommended	No Conclusion
Low-impact aerobics	Road cycling	Racquetball	Fencing
Stationary cycling	Canoeing	Squash	Inline skating
Bowling	Hiking	Rock climbing	Downhill skiing
Golf	Rowing	Soccer	Weight lifting
Dancing	Cross-country skiing	Singles tennis	
Horseback riding	Stationary skiing ^a	Volleyball	
Croquet	Speed walking	Football	
Walking	Tennis	Gymnastics	
Swimming	Weight machines	Lacrosse	
Shooting	Ice skating	Hockey	
Shuffleboard		Basketball	
Horseshoes		Jogging	
		Handball	

^a NordicTrack

Adapted with permission from Healy WL, Iorio R, Lemos MJ: Athletic activity after joint replacement. *Am J Sports Med* 2001;29(3):377-388.

Mont MA, Hungerford. :results in high- and low-activity patients. *Clin Orthop Relat Res* 2007;460:165-173.

- The reasons for such a low return to sport after TKA are varied, but >40% curtail athletic activity as a precaution.
- Despite concerns of both surgeons and patients, no evidence exists correlating increased nonimpact athletic activity with aseptic loosening.
- Mont et al⁵¹ recently compared the outcomes of high-activity versus low-activity patients following TKA.
- At a mean follow-up of 7 years, the outcome score was 96 in low-activity patients and 95 in high activity patients. There was no difference in the failure rate.

TKR: Internal rotation

- An incidence of 8.2% of moderate pain at a minimum of one year after TKR.
- We found that more than half of the painful TKRs in our study group had internal rotational errors in the alignment of TKR components, particularly the tibial implant.
- The incidence of excessive internal rotation of the tibial component was more than double that of excessive internal rotation of the femoral component and the size of internal rotational errors of the tibial component was much greater than that for the femoral component.
- External rotational errors of the femoral component were not detected and quite large values of external rotation of the tibial component were also tolerated in the painfree group.
- From our data, we have estimated an incidence of 4.6% of internal rotational error.
- However, their study focused solely on TKRs with anterior knee pain rather than all painful TKRs
- Rowley JBJS 92-B, No. 9, SEPTEMBER 2010

- In our study we have identified a threshold value of 9° of internal rotation of the tibial component, representing a total of 27° of internal rotation from the tip of the tibial tuberosity, as that required to produce pain, with internal rotation of the tibial component of up to 8° being tolerated in the painfree group.
- It remains unclear why internal rotational errors cause pain after TKR. Internal rotation of the tibial component results in a relative external rotation of the tibia. It has been postulated that the resultant increase in the Q angle places abnormal stresses on the extensor mechanism.
- In attempting to avoid this the surgeon may internally rotate the tibial component to obtain better cover of the cut tibial surface. A preferable option would be to use a smaller tibial component allowing correct rotational alignment without posterolateral overhang.
- MBK: *This might compensate* for some degree of internal rotational error. However,
- further studies have shown no improvement in patellar tracking¹⁹ in mobile-bearing TKRs as compared with fixedbearing implants with a similar degree of tibiofemoral rotation throughout the gait cycle in both designs.
- While image-free navigation has not been found to improve rotational accuracy

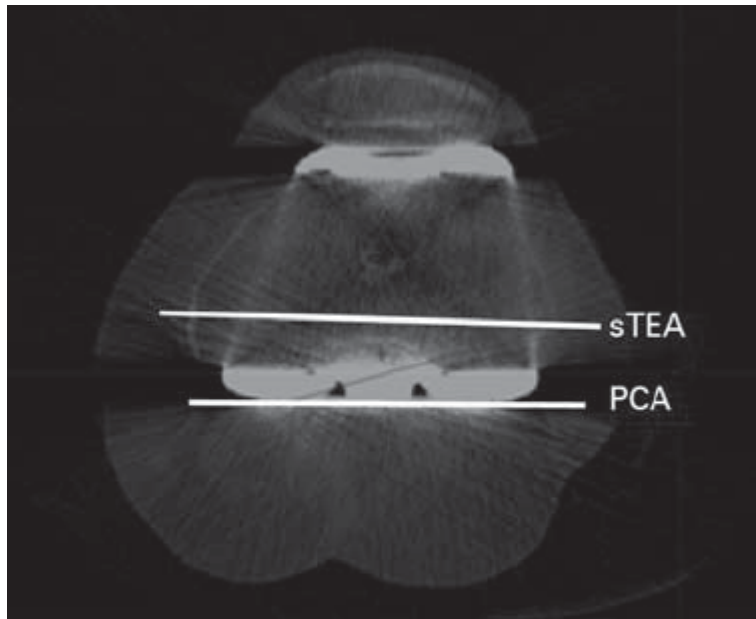


Fig. 1

CT scan showing that rotation of the femoral component was calculated from the angle formed between the posterior condylar axis (PCA) and the surgical transepicondylar axis (sTEA).

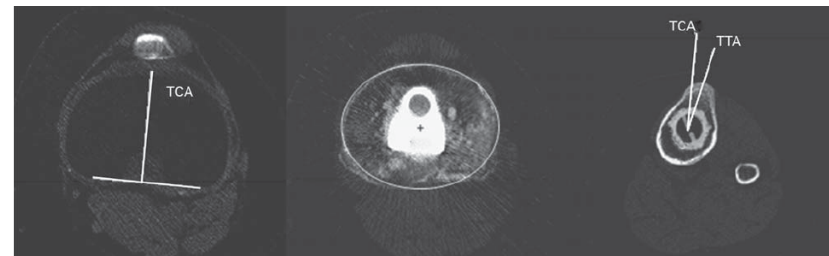


Fig. 2

CT scans showing that rotation of the tibial component was calculated from the angle formed by the tibial tuberosity axis (TTA) and the tibial condylar axis (TCA).

Unexplained pain:

JBJS B:VOL. 91-B, No. 2, FEBRUARY 2009

- A review based on the England and Wales National Joint Registry reported that at more than one year after TKR, **18.2%** of patients were not satisfied with the outcome, usually because of pain.⁸⁵ It is not clear as to how many of these patients had an explanation for their pain.[*J Bone Joint Surg [Br]* 2007;89-B:893-900.]
- Brander[*Clin Orthop* 2003;416:27-36.] in a prospective study of 116 patients found that 13.1% had unexplained pain one year after surgery. However, after conservative treatment, nearly all of these patients were satisfied at 5 years.
- The results of revision operations in these patients are at best unpredictable and should therefore be viewed
- with caution.

Stiffness after revision TKR

J Arthroplasty 25 : 6 2010

- 32 knees (4.0%) presented with stiffness that we defined as a range of motion less than 90°.

Risk factors were found to be

1. poor preoperative range of motion, stiffness as primary indication for revision,
- 2. younger age,
 - 3. shorter interval between index primary and revision TKA, presence of well-fixed components at the time of revision
 - 4. The possibility of occult infection leading to failure in some of these patients becomes more plausible when considering the finding of a higher incidence of persistent wound drainage and related problems
 - 5. the stiffness may have arisen, not from the actions of the treating physician or patient but because the patients had a genetic predisposition for a more aggressive fibroblast proliferation and tissue metaplasia at the site of tissue injury

Nicholls and Dorr [22] defined stiffness as an ROM less than 45° or a flexion contracture of at least 25°

Whereas others have used ROM less than 70° as the measure of stiffness.

On the basis of biomechanical studies, patients require 65° of flexion for efficient walking, 85° to ascend stairs, minimum of 90° to descend stairs, and 95° to sit comfortably in a chair.

With functional abilities directly related to knee ROM, threshold is ROM of 90°, our study defined stiffness as a ROM less than 90°.

UKA failure

Orthopaedic JANUARY 2010 | Volume 33



- Reasons for early failure of unicompartmental TKA include
 1. implant design
 2. patient selection: as market pressure stretches the indications to younger, more active, more obese patients, a negative effect on results may ensue.
 3. surgical technique.
- Major surgical errors were noted (32.5%): led to failure within 3 years. If a surgeon is only doing a unicompartmental operation on rare occasions, it stands to reason that one may not be as proficient with this technique
- Major surgical errors were noted in 12 of the 26 revised unicompartmental TKAs in this group.
- Scott²³ reported that only 19 of 29 revisions of unicompartmental TKAs to TKAs had good to excellent results (66%).
- These concerns are echoed by the Australian registry,¹⁷ which noted that revision of unicompartmental TKA held a risk of re-revision 3.5 times greater than primary TKA (11.2% vs 2.5%).

Painful TKR

J Bone Joint Surg [Br]

2009;91-B:143-50

Management of a painful neuroma

- Conservative therapy for at least six months may be helped by resection of the neuroma.
- A positive preoperative response to local anaesthetic blocks or patches is crucial
- The most common surgical method is selective denervation of the nerve.
- A satisfaction rate of up to 86% has been reported.
- Patients should be warned of a high incidence of minor potential complications which can occur in up to 40% as well as of hypersensitivity that can result from collateral sprouting from the normal adjacent nerve.