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# Total Knee Replacement (TKR)

## Guidelines (V0003TKR2023)

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المظلة هيلثكير مانجمنت  
ALMADALLAH  
HEALTHCARE MANAGEMENT

**Knee Arthroplasty** is an orthopedic surgical procedure, during which the articular surface of the knee joint is replaced, remodeled, or realigned.

**Knee Replacement** is a form of arthroplasty which includes the surgical placement of the knee joint with a prosthesis.

Primary goal of procedure is to improve pain and physiological knee function.

There are 3 separate articulations and compartments: medial femorotibial, lateral femorotibial, and patellofemoral.

three types of arthritis: osteoarthritis, rheumatoid arthritis, and posttraumatic arthritis.

Overweight and professional sport practice are major risk factors for osteoarthritis of the knee due to microfractures

### Indication for total knee replacement:

1. Patient with advanced joint disease:
2. Pain due to progressive osteoarthritis, rheumatoid arthritis, avascular necrosis, or post-traumatic arthritis of the knee joint.
3. Limited range of movement crepitus and effusion on examination.
4. Documented radiologic evidence of advanced osteo arthritis in the form of (reduced joint space, meniscal tear, degeneration and osteophytes)
5. Failed conservative management between 12-24 weeks, (in severe bone to bone articulation no indication of conservative medical management).

### Other indication includes:

- Failure of previous osteotomy with constant pain
- Distal femur and proximal tibia malunion.
- Malignancy of the distal femur, proximal tibia, of adjacent tissue.
- Failed previous uni-compartmental knee replacement with pain.

**Prepared by :**

Dr. Ahmed Eldarawi

**Reviewed by :**

Dr. Ahmed Eldarawi

**Approved by :**

Dr. Islam Zakaria

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# Total Knee Replacement (TKR)

In cases of avascular necrosis (**minimum of 12 weeks** of non-surgical medical management first)

for individuals with symptomatic osteoarthritis in at least 2 of the 3 compartments of the knee who have failed conservative treatment TKR is indicated

partial knee arthroplasty (PKA) is an excellent treatment option for individuals with symptomatic osteoarthritis localized to 1 compartment of the knee and who have failed conservative treatment.

Knee Pain only without radiological evidence of osteoarthritis is not indication for TKR and patient should be investigated further for other causes and possibilities of knee pain.

## Symptoms:

Includes knee pain, increasing with activity, in progressive course over time and decrease patient daily life activity.

Evaluation must include radiological study: with evidence of joint space narrowing due to loss of meniscal function, subchondral cysts and sclerosis, radiologically evident osteophytes

Conservative management to be fulfilled prior to proceeding to surgery:

- Non-steroidal anti-inflammatory medication
- Weight loss
- Activity modification, with muscle strengthening exercises
- Bracing (assistive device)
- Person to person Physical therapy (virtual not accepted)
- Viscosupplementation
- Intra-articular steroid injection

Conservative medical management should be for at least 12-24 weeks to be considered failed.

## Contraindication:

### Absolute

- Active or latent (less than 1 year) knee sepsis
- Presence of active infection elsewhere in body precipitate forging body infection.
- Vascular insufficiency and/or osseous abnormality which will affect implant stability.
- Extensor mechanism dysfunction
- Medically unstable patient

### Relative (ASA Report to be requested and clearance)

- Neuropathic joint
- Poor overlying skin condition
- Morbid obesity

- Noncompliance due to major psychiatric disorder, alcohol, or drug abuse (As general exclusion of any major surgery )
- Insufficient bone stock for reconstruction
- Poor patient motivation or unrealistic expectation
- Severe peripheral vascular disease

## Average length of stay 3-5 days

There was not significant difference in outcome between ceramic and metal femoral component over a 5-year follow-up period.

In general, the instrumentation will consist of:

Intramedullary femoral guide to help establish the distal femoral alignment

- Distal femoral cutting guide
- Femoral sizing guide
- 4-in-1 femoral cutting guide
- Extramedullary or intramedullary tibial guide
- Proximal tibial cutting guide
- Patella sizing guide
- Femoral component trial
- Tibial baseplate trial
- Patellar button trial
- Trial plastic bearing

## ICD-10 code

M17.0 / M17.9 osteoarthritis of knee [ with radiographic evidence]

## CPT CODES

- 27445 (arthroplasty knee, hinge prosthesis.
- 27440 (arthroplasty, knee, tibial plateau)
- 27446 (noncompartmental Knee Replacement)

## Experimental or investigational requests to be denied:

1. Any bicompartamental (single, staged) for all indication.
2. Custom instrumentation.
3. Prophylactic radiation therapy following arthroplasty
4. Computer assisted musculoskeletal surgical navigation (MAKOplasty)

# Total Knee Replacement (TKR)

## References:

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## Revision:

Loosening of one or more of the prosthetic components confirmed radiologically, conditioned that it is not septic.

Fractured, worn, dislocated component, malalignment.

Fractured patella.

Confirmed peri-prosthetic infection.

Instability of the TKA, extensor mechanism instability

Tibial and/or femoral peri-prosthetic fracture or progressive bone loss (with radiologic evidence).

knee pain, not responding to 6 months medical nonsurgical treatment, with unknown etiology.

**Table: Kellgren-Lawrence Classification System for Osteoarthritis**

Grade	Description
Grade 0 (none)	Definite absence of x-ray changes of osteoarthritis.
Grade 1 (doubtful)	Doubtful narrowing of the joint space with possible osteophytic lipping.
Grade 2 (minimal)	Definite osteophyte formation and possible joint space narrowing.
Grade 3 (moderate)	Moderate multiple osteophytes formation, definite narrowing of joint space, some sclerosis, and possible deformity of bone ends.
Grade 4 (severe)	Large osteophytes formation, severe narrowing of joint space with marked sclerosis and definite deformity of bone ends.

Source: Kohn, Sassoon, Fernando (2016) and Knipe et al. (2020)

### Note:

- Grade 4 as sole indication for TKR
- Grade 3 with failed conservative management or supportive justification
- Patient age not to be considered as restriction at anytime