



## RESEARCH ARTICLE

### EARLY FUNCTIONAL RECOVERY AFTER TOTAL KNEE ARTHROPLASTY IN OSTEOARTHRITIS PATIENTS: A PROSPECTIVE OBSERVATIONAL STUDY

Dr. Hari Ram Vishnoi, Dr. Rajnish Sharma and Dr. Deepak Singh

Department of Orthopaedics, Bone and Joint Hospital and Research Centre Pvt Ltd, Rajasthan, India

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##### \*Corresponding author:

Dr. Chandra Bhanu Pratap

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#### ABSTRACT

**Background:** Total Knee Arthroplasty (TKA) is one of the most successful surgical procedures for advanced osteoarthritis of the knee. Early postoperative rehabilitation and functional recovery are essential for improving patient satisfaction, mobility, and overall quality of life. Assessment of early recovery parameters helps evaluate effectiveness of surgical intervention and rehabilitation protocols. **Aim:** To evaluate early functional recovery following Total Knee Arthroplasty in patients with osteoarthritis of the knee. **Materials and Methods:** This prospective observational study was conducted in the Department of Orthopaedics at Bone and Joint Hospital & Research Centre Pvt Ltd from January 2026 to March 2026. A total of 60 patients diagnosed with primary osteoarthritis knee undergoing primary TKA were included in the study. Functional recovery was assessed using Visual Analogue Scale (VAS), Knee Society Score (KSS), range of motion (ROM), time to ambulation, stair climbing ability, and duration of hospital stay. Patients were evaluated preoperatively and during postoperative follow-up. **Results:** Among 60 patients, females constituted 63.3% of cases. Mean age was  $64.8 \pm 7.2$  years. Significant improvement was observed in postoperative VAS score, Knee Society Score, and knee flexion range compared to preoperative values ( $p < 0.05$ ). Average time to assisted ambulation was 2.1 days, while average hospital stay was 6.4 days. Most patients achieved satisfactory functional recovery within the early postoperative period. **Conclusion:** Total Knee Arthroplasty provides significant early functional improvement and pain relief in osteoarthritis patients. Early rehabilitation protocols contribute substantially to faster ambulation, improved knee function, and better patient outcomes.

## INTRODUCTION

Osteoarthritis of the knee is a chronic degenerative joint disorder and one of the leading causes of pain and disability among the elderly population worldwide. Progressive cartilage degeneration, joint deformity, pain, stiffness, and limitation of mobility significantly affect quality of life. Total Knee Arthroplasty (TKA) has emerged as the gold standard surgical treatment for end-stage osteoarthritis knee refractory to conservative management. The primary goals of TKA are pain relief, restoration of joint alignment, improved mobility, and enhancement of functional capacity. In recent years, increasing emphasis has been placed on early postoperative rehabilitation and rapid functional recovery following TKA. Early mobilization reduces complications such as deep vein thrombosis, muscle wasting, joint stiffness, and prolonged hospitalization. Assessment of functional recovery parameters including pain scores, knee range of motion, ambulation status, and Knee Society Score provides valuable insight into effectiveness of surgical and rehabilitation protocols.

The present study was undertaken to evaluate early functional recovery following Total Knee Arthroplasty among osteoarthritis patients treated at a tertiary care orthopaedic centre.

#### AIM AND OBJECTIVES

**Aim:** To evaluate early functional recovery after Total Knee Arthroplasty in osteoarthritis patients.

#### Objectives

- To assess postoperative pain relief using VAS score.
- To evaluate functional improvement using Knee Society Score.
- To assess improvement in knee range of motion.
- To determine time required for postoperative ambulation.
- To evaluate duration of hospital stay and early postoperative complications.

## MATERIALS AND METHODS

**Study Design:** Prospective observational study.

**Study Place:** Department of Orthopaedics, Bone and Joint Hospital & Research Centre Pvt Ltd, Rajasthan, India.

**Study Duration:** January 2026 to March 2026.

**Sample Size:** 60 patients.

### Inclusion Criteria

- Patients diagnosed with primary osteoarthritis knee.
- Age above 50 years.
- Patients undergoing primary Total Knee Arthroplasty.
- Patients willing to participate in the study.

### Exclusion Criteria

- Revision TKA.
- Rheumatoid arthritis.
- Post-traumatic arthritis.
- Severe neurological disorders affecting mobility.
- Patients medically unfit for surgery.

## METHODOLOGY

Detailed history, clinical examination, and radiological evaluation were performed for all patients. Standard preoperative investigations were conducted. All patients underwent cemented Total Knee Arthroplasty under standard operative protocol. Postoperative rehabilitation protocol included:

- Quadriceps strengthening exercises.
- Knee mobilization exercises.
- Early assisted ambulation.
- Physiotherapy guidance.

**Patients were evaluated preoperatively and postoperatively using**

- Visual Analogue Scale (VAS)
- Knee Society Score (KSS)
- Range of Motion (ROM)
- Ambulation status
- Stair climbing ability

**STATISTICAL ANALYSIS:** Data were analysed using SPSS software version 25. Quantitative data were expressed as mean  $\pm$  standard deviation. Paired t-test was used to compare preoperative and postoperative variables. P-value  $<0.05$  was considered statistically significant.

## RESULTS

**Table 1. Age Distribution of Patients**

Age Group (Years)	Number	Percentage
51–60	18	30%
61–70	28	46.7%
>70	14	23.3%

**Table 2. Gender Distribution**

Gender	Number	Percentage
Male	22	36.7%
Female	38	63.3%

**Table 3. Comparison of Preoperative and Postoperative VAS Score**

Parameter	Preoperative	Postoperative
Mean VAS Score	8.1 $\pm$ 0.9	2.4 $\pm$ 0.8

Statistically significant improvement observed ( $p < 0.05$ ).

**Table 4. Knee Society Score Improvement**

Parameter	Preoperative	Postoperative
Mean KSS	42.5 $\pm$ 8.4	84.6 $\pm$ 6.2

Significant functional improvement observed postoperatively.

**Table 5. Postoperative Recovery Parameters**

Parameter	Mean Value
Time to Assisted Ambulation	2.1 days
Mean Hospital Stay	6.4 days
Mean Knee Flexion at Discharge	96°

## DISCUSSION

Total Knee Arthroplasty remains one of the most effective interventions for advanced osteoarthritis knee. In the present study, significant improvement was observed in pain relief, functional recovery, and knee mobility during the early postoperative period. Females constituted the majority of study participants, which is consistent with higher prevalence of osteoarthritis among elderly women.

Mean postoperative VAS scores showed marked reduction compared to preoperative levels, indicating effective pain control and successful surgical outcome. Knee Society Score improved significantly following surgery, reflecting enhanced mobility and functional independence. Early ambulation achieved within an average of 2.1 days contributed to faster recovery and reduced duration of hospitalization. The findings of this study are comparable with previously published national and international studies demonstrating benefits of early rehabilitation following TKA.

Early physiotherapy and mobilization protocols play an essential role in improving patient satisfaction and postoperative recovery.

## CONCLUSION

Total Knee Arthroplasty provides excellent early functional recovery and substantial pain relief in patients with osteoarthritis knee. Early rehabilitation and physiotherapy contribute significantly to improved mobility, enhanced functional outcome, and reduced hospital stay. Routine implementation of structured postoperative rehabilitation protocols is recommended to optimize patient recovery after TKA.

### LIMITATIONS

- Single-centre study.
- Small sample size.
- Short-term follow-up period.

## RECOMMENDATIONS

Further multicentric studies with larger sample size and long-term follow-up are recommended to assess sustained functional outcomes after Total Knee Arthroplasty.

**ETHICAL CLEARANCE:** Institutional ethical committee approval was obtained prior to commencement of the study.

**FUNDING:** No external funding received.

**CONFLICT OF INTEREST:** None declared.

## REFERENCES

- Insall JN, Dorr LD, Scott RD, Scott WN. Rationale of the Knee Society clinical rating system. *Clin Orthop Relat Res.* 1989;248:13-14.
- Sharma L. Osteoarthritis of the knee. *N Engl J Med.* 2021;384:51-59.
- Carr AJ, Robertsson O, Graves S, et al. Knee replacement. *Lancet.* 2012;379(9823):1331-1340.
- Losina E, Walensky RP, Kessler CL, et al. Cost-effectiveness of total knee arthroplasty. *Arch Intern Med.* 2009;169(12):1113-1121.
- Bourne RB, Chesworth BM, Davis AM, et al. Patient satisfaction after total knee arthroplasty. *Clin Orthop Relat Res.* 2010;468(1):57-63.
- Gandhi R, Razak F, Davey JR, Mahomed NN. Metaanalysis of patient dissatisfaction following total knee arthroplasty. *Clin Orthop Relat Res.* 2008;466(11):2614-2618.
- Papalia R, Vasta S, Albo E, et al. The role of physical activity and rehabilitation following knee arthroplasty. *J Biol Regul Homeost Agents.* 2013;27(4):95-98.
- Jones CA, Voaklander DC, Johnston DW, Suarez-Almazor ME. Health related quality of life outcomes after total hip and knee arthroplasties. *Arthritis Rheum.* 2000;43(7):1472-1480.