

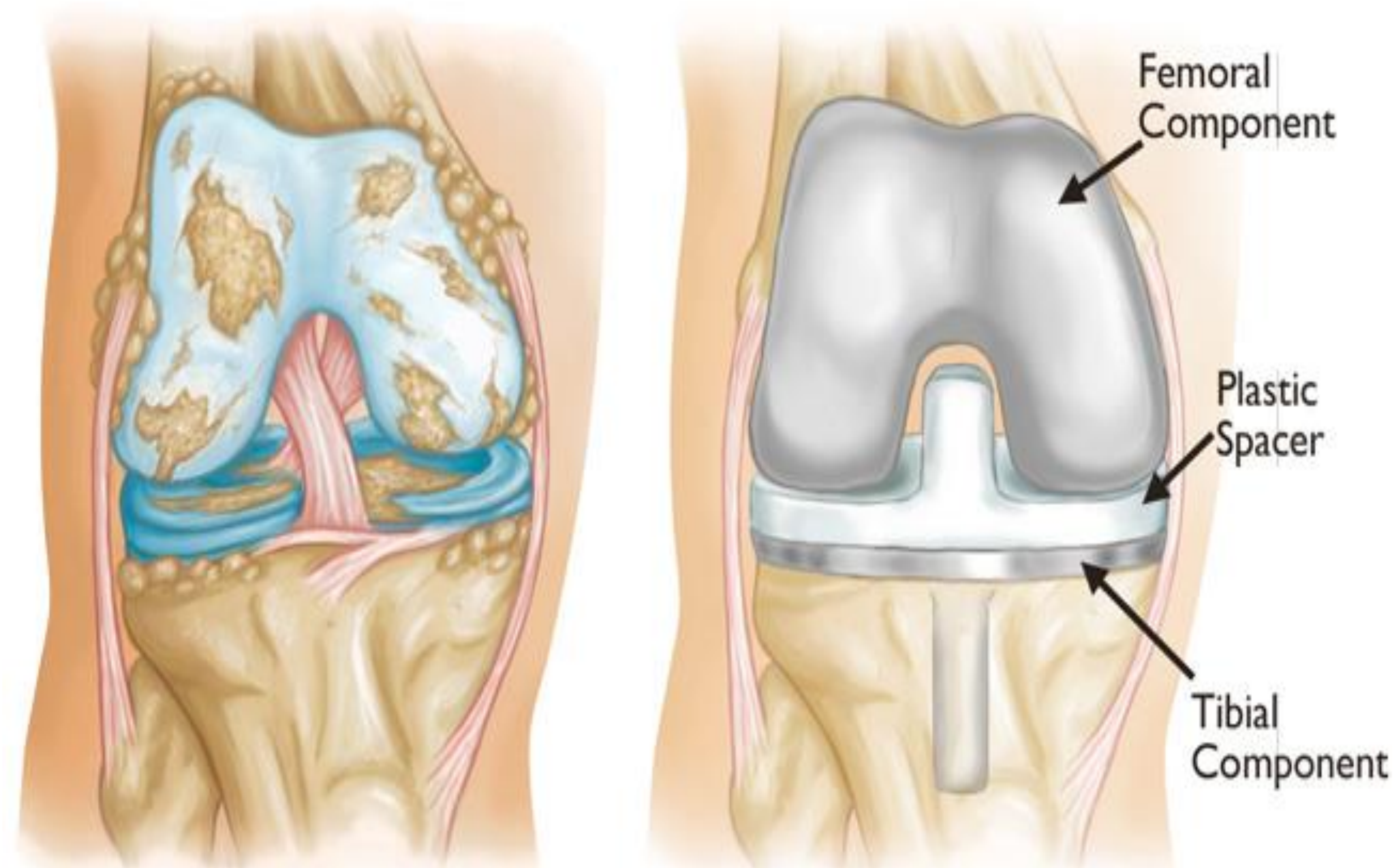
The Use of Therapeutic Exercises and Manual Stretching for a Patient Following a Total Knee Arthroplasty (TKA) Revision: A Case Report

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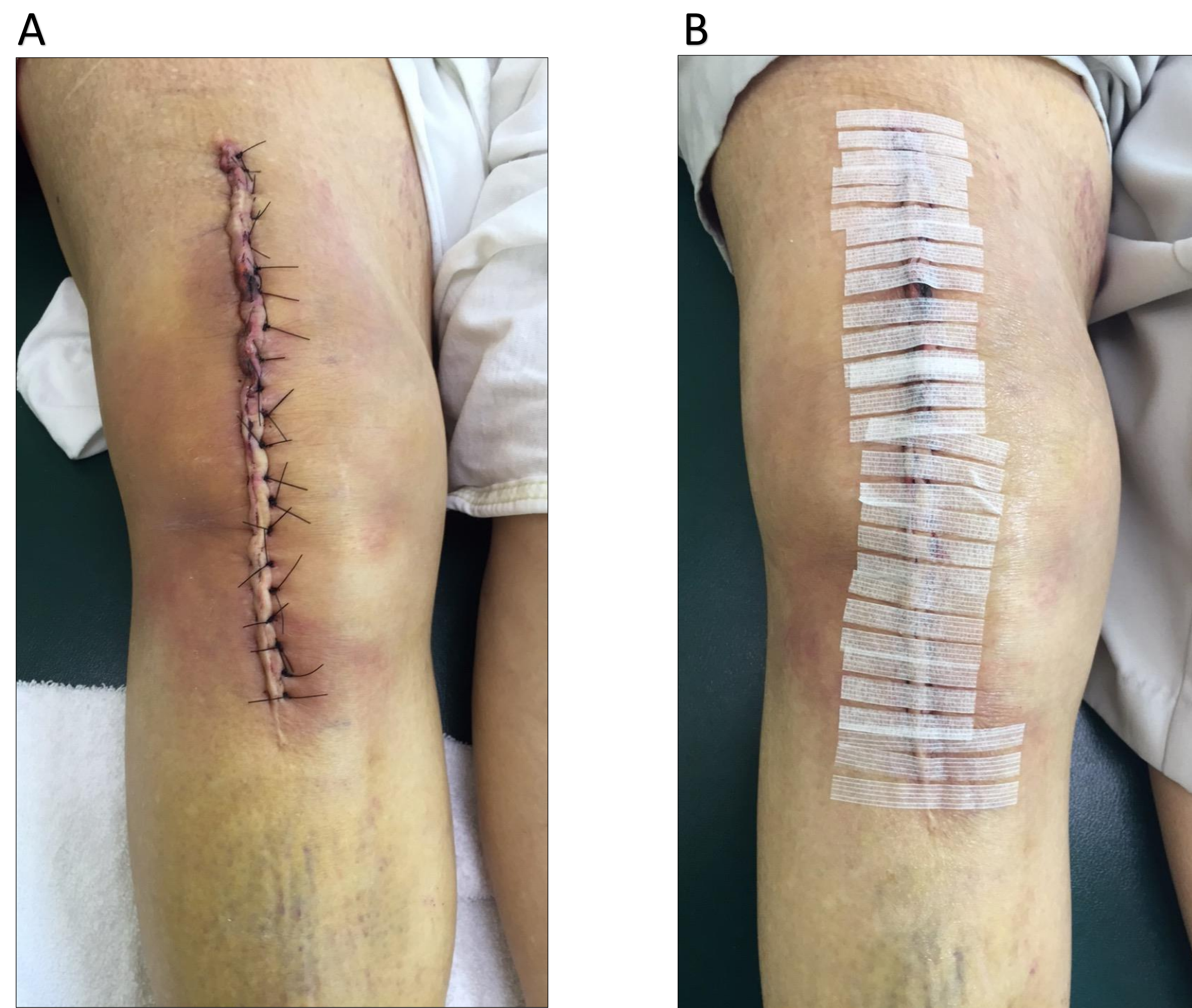
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Background

- Total knee arthroplasty (TKA) is an orthopedic surgery involving the total replacement of compartments of the knee joint
- Osteoarthritis (OA) is the most common reason for TKA
- Risk factors for OA: obesity, sports-related injuries, and genetics
- The artificial knee joint typically lasts between 15-20 years
- Early failures may occur due to loosening of artificial components, infection, fractures, and instability
- Approximate number of TKA procedures performed annually: 581,000
- By 2030, the demand for TKA procedures is expected to grow by 673%



<http://orthoinfo.aaos.org/topic.cfm?topic=a00389>



The surgical incision 4 days post surgery (Figure A) compared to the incision 6 days post surgery with the sutures removed (Figure B).

Tests and Measures	Results at Initial Evaluation	Results at Discharge
Goniometry (AROM)	R knee: 7-42 degrees	R knee: 3-105 degrees
Numeric Pain Rating Scale	Best: 7 Worst: 10 Current: 8	Best: 4 Worst: 7 Current: 5
A/P circumference of R patella	16.5"	15"
Timed Up and Go (TUG)	23 seconds (with FWW)	14 seconds (with FWW)
Gait analysis	FWW, decreased cadence and stride length, decreased R knee flexion, antalgic gait (decreased stance time on R LE), step to pattern	FWW, normalized gait pattern with slight remaining antalgic gait

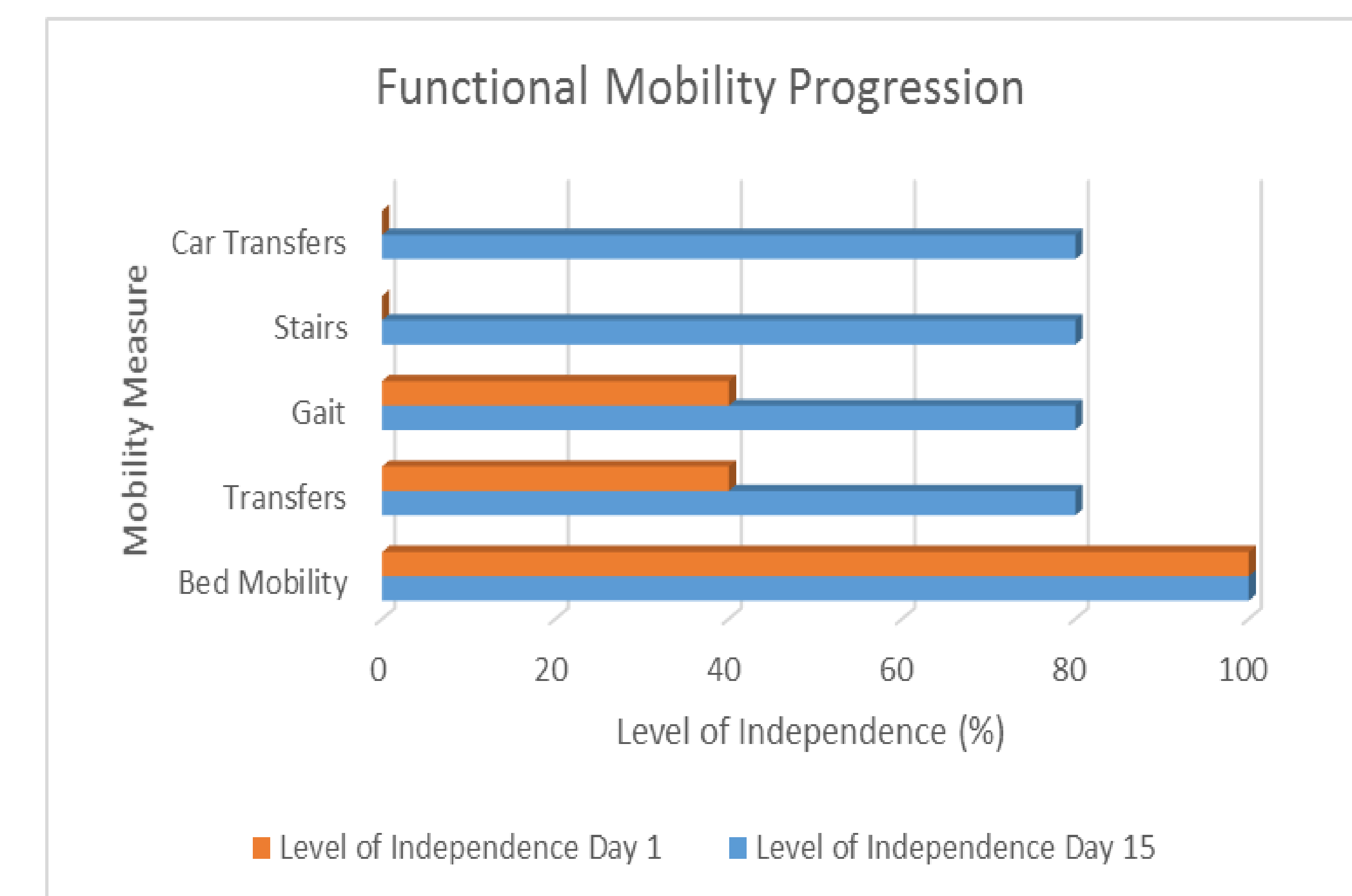
Purpose

To document the potential benefits of prescribed PT interventions, including therapeutic exercise and manual stretching, for a patient who underwent TKA revision. The setting of this rehabilitation process was a skilled nursing facility.

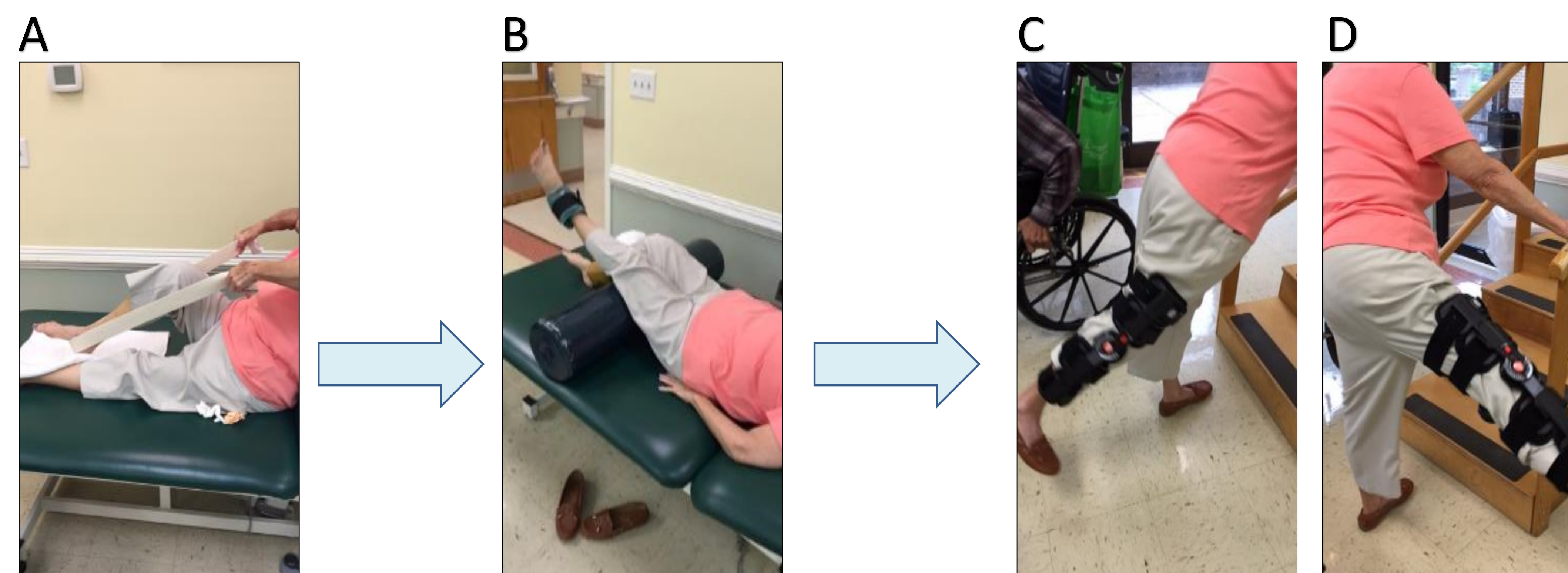
Case Description

- 69 y/o female patient status post right (R) TKA revision
- Original R TKA procedure: 2005 (due to Osteoarthritis)
- History of several subsequent R TKA procedures, with the latest being her eighth
- Latest procedure: R TKA revision due to aseptic loosening of components
- Prior level of function: fully independent
- Chief complaints: pain, swelling, and decreased ROM at the right knee
- Goals: regain prior level of function and be able to live at home safely and take care of her dog

Interventions	Phase 1 (days 1-7)	Phase 2 (days 8-15)
Quad sets (supine)	5" hold x 20 reps	Discontinued day 11
Straight leg raises (supine)	R LE: 3 sets x 15 reps with 0 lb weight L LE: 3 sets x 15 reps with 2.5 lb weight	R LE: 3 sets x 20 reps with 2.5 lb weight L LE: 3 sets x 20 reps with 4 lb weight
Clamshells (side-lying)	3 sets x 15 reps with red TB	Standing hip abduction: 3 sets x 10 reps
Short arc quads (supine)	R LE: 3 sets x 15 reps with 1.5 lb weight L LE: 3 sets x 15 reps with 2.5 lb weight	R LE: 3 x 20 reps with 3 lb weight L LE: 3 x 20 reps with 4 lb weight
Hamstring curls (seated)	3 sets x 15 reps with red TB	3 reps x 20 reps with blue TB
Heel slides with towel (supine)	3 sets x 10 reps	3 sets x 20 reps
Manual stretching R knee (supine)	30" hold x 3 reps in flexion/extension	PNF contract-relax



Systems Review	Results
Cardiovascular/Pulmonary	Not impaired
Musculoskeletal	R LE: AROM: impaired, limited flexion & extension R LE MMT: DNT
Integumentary	Surgical incision, anterior midline of R LE, 8.5 inches long, 21 stitches used
Neuro	Numbness slightly inferior and lateral to patella
Communication, Affect, Cognition	Not impaired



Intervention Progression: Initial exercises targeted ROM and included supine heel slides with gait belt (Figure A). This was progressed to supine strengthening exercises such as the bilateral short arc quads shown in Figure B. Finally, the patient completed standing ther-ex including hip extension (Figure C) and hip abduction (Figure D).

Discussion

- It appears as though therapeutic exercise and manual stretching were beneficial interventions based on the results of the outcome measures.
- Her chief complaints of pain, swelling, and decreased R knee ROM all improved upon discharge.
- The patient agreed to follow up with outpatient PT following discharge in order to address remaining impairments.
- With the projected increase in TKA procedures, it is necessary to continue researching optimal interventions for maximizing knee function and performance.
- Further research should be conducted regarding the long-term benefits of these interventions.

Acknowledgements

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References

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