

Total Knee Replacement (TKR) – Physiotherapy Management

Harvard Business School (HBS) Case-Based Puzzle Format

Case Scenario: "The Successful Surgery, Unsuccessful Outcome"

A 65-year-old woman underwent **Total Knee Replacement (TKR)** for severe Osteoarthritis of the right knee.

Postoperative Day 5 Assessment:

- Pain: 3/10
- Knee ROM: 0–60°
- Quadriceps strength: Grade 3/5
- Ambulation: 30 meters with walker
- Surgical wound: Healthy
- Patient says, "My knee feels fine, but I am afraid to walk."

The orthopedic surgeon is satisfied with the surgical outcome.

Puzzle 1: Identify the Bottleneck

Question

What is the primary barrier to recovery?

Options

- A. Infection
 - B. Poor ROM
 - C. Fear of movement
 - D. Implant failure
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Puzzle 2: The First Priority

Situation

You have only 20 minutes for today's treatment session.

Which intervention should be prioritized?

- A. Ultrasound therapy

B. Patient education and supervised gait training

C. Massage

D. Bed rest

Puzzle 3: KPI Challenge

Question

Which outcome best reflects successful rehabilitation at 6 weeks?

A. Pain score only

B. X-ray appearance

C. Independent functional mobility

D. Scar appearance

Puzzle 4: Decision-Making Under Constraints

Case

At 2 weeks post-TKR:

- ROM: 0–70°
- Significant stiffness
- Swelling controlled

Question

Which physiotherapy intervention should receive the greatest emphasis?

A. Strengthening only

B. ROM exercises

C. Electrotherapy only

D. Complete rest

Puzzle 5: Risk Management

Scenario

On postoperative day 2, the patient develops calf pain and swelling.

Question

What should the physiotherapist do FIRST?

- A. Begin aggressive exercises
 - B. Apply heat
 - C. Stop treatment and inform the medical team
 - D. Increase walking distance
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Puzzle 6: The Stair-Climbing Problem

Case

At discharge, the patient can walk independently with a walker but cannot climb stairs.

Question

What muscle group should receive special attention?

Options

- A. Quadriceps
 - B. Deltoid
 - C. Wrist extensors
 - D. Triceps
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Puzzle 7: Cost vs Outcome

Situation

A hospital administrator wants to reduce rehabilitation costs.

Which intervention would provide the greatest value?

- A. Daily passive modalities
 - B. Structured exercise and home program
 - C. Extended bed rest
 - D. Repeated imaging
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Puzzle 8: Discharge Readiness

Case

A patient has:

- ROM: 0–110°
- Independent transfers
- Independent walker ambulation
- Good wound healing

Question

Is the patient ready for discharge?

HBS Final Challenge

The CEO Question

If you could measure only ONE indicator of successful TKR rehabilitation, what would it be?

Options

- A. Knee circumference
- B. ROM
- C. Ability to return to meaningful daily activities independently
- D. Pain score