

## Could accelerated physical therapy after hip and knee replacement get patients home sooner?

The joint replacement procedures total hip arthroplasty (THA) and total knee arthroplasty (TKA) are among the most effective surgical procedures in modern medicine.

In the United States the number of THA procedures is projected to increase 174% by 2030, to 532,000 cases annually. The estimate for TKA is even greater. Length of stay (LOS) in the hospital for these patients represents a large portion of overall costs. The goal of arthroplasty centers is to limit costs by reducing LOS, without compromising patient safety, satisfaction, and outcomes.

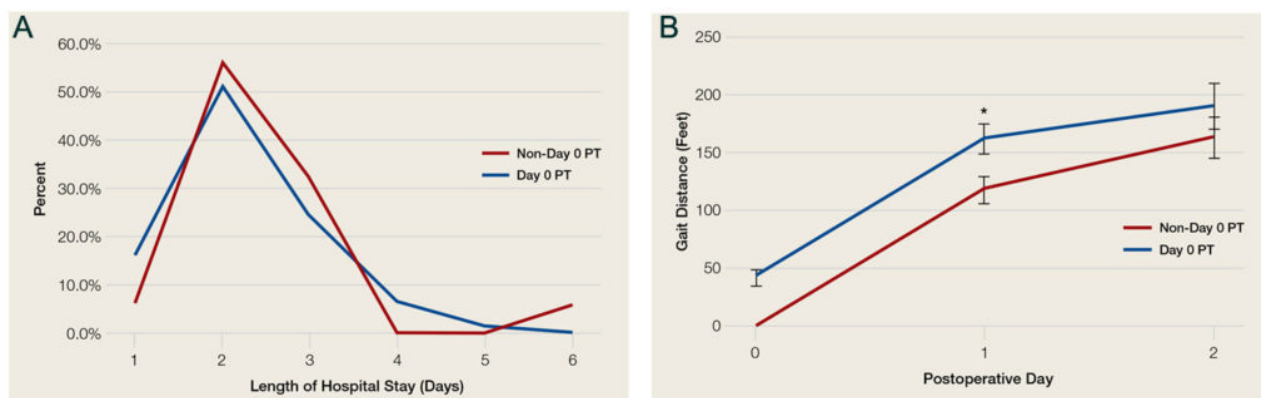


Fig. 1. A. Distribution of percentages of hospital length of stay in total hip arthroplasty patients, with comparison of Day 0 and Non-Day 0 physical therapy (PT) groups. B. Gait distance as function of postoperative day between Day 0 and Non-Day 0 physical therapy (PT) groups in total hip arthroplasty patients. Error bars represent standard errors; asterisk represents statistical significance (P less than 0.05).

Factors associated with LOS after THA include surgical and pain management techniques, but also patient factors such as obesity, age, and social situations/living conditions. Rapid-recovery or fast-track clinical pathways limiting opioid use while emphasizing patient education and early (day-of-surgery) mobilization have shown to reduce LOS without compromising outcomes.

We believe that accelerated ambulation protocols could help achieve early mobilization and safe discharge. Currently, therapy and ambulation protocols following THA and TKA remain unstandardized and largely dependent on institutions and surgeons.

This study compared two patient groups, who underwent elective, primary unilateral THA (113 cases) or TKA (126 cases). We evaluated use of a new postoperative accelerated PT protocol,

called “Day 0 PT,” which assessed patient condition, expectations, and goals; lower limb strengthening; and maximum gait training using an assistive device as needed.

Patients who had a PT session at any point on the day of surgery were designated “Day 0,” and those starting the next day were designated “Non-Day 0.” PT sessions were performed with patient consent and remained consistent over the study period, with twice daily sessions directed at patient mobility, range of motion (ROM), and gentle strengthening.

A combination of general and spinal anesthesia was used in almost all THA and TKA cases. While different surgical approaches were used, all THAs were performed with conventional instruments and uncemented components. All TKAs were performed with a medial approach, conventional instruments, and a tourniquet. The patella was resurfaced, and cemented fixation was used. Drains were not used in any cases. A local anesthetic cocktail was injected for postoperative pain relief in all cases.

Day-of-surgery PT was ordered for all patients. Standard hip movement restrictions were ordered for posterolateral approach patients to protect the soft-tissue repair. Continuous passive motion (CPM) was not used.

Patients were cleared for discharge provided they met the following criteria: no medical condition requiring readmission, surgical incision healing well, sufficient oral medications, normal neurovascular examination, and PT goals achieved (independence with bed mobility transfers, standing balance, and minimum gait distance of 150 feet). There were no complication-related discharge delays.

While discharge day was not substantially altered between the two groups, a higher proportion of “Day 0” THA patients (16%) vs “Non-Day 0” (6%) achieved discharge goals postoperative “Day 1.” This did not prove to be the case with TKA patients (Fig. 1).

Day-of-surgery PT helped THA but not TKA patients achieve discharge goals, potentially justifying use of accelerated PT for these patients.

Factors permitting successful implementation of accelerated rehabilitation include patient motivation, appropriate pain management, and support by physical therapists. A potential risk associated with accelerated PT after THA is dislocation, which did not occur in any of our “Day 0” patients.

These results provide useful information for providers who manage primary THA and TKA cases and seek continual improvement in postoperative patient care, cost control and better resource allocation. We are currently looking at different anesthetic techniques and even more episodes of ambulation on Day 0 to see if this will improve early, safe discharge.

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## **Publication**

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