**Labraca NS, Castro-Sanchez AM, Mataran-Penarrocha GA, and et al. Benefits of starting rehabilitation within 24 hours of primary total knee arthroplasty: randomized clinical trial. Clinical Rehabilitation 2011; 25(6): 557–566.**

**Critique author:** Linda Metzger 5-27-15

**Design:** Randomized clinical trial

**Objective:** To compare the benefits of initiating rehabilitation treatment within 24 hours versus 48–72 hours after total knee arthroplasty for osteoarthritis.

**Population /sample size/setting:**

- A total of 273 participants (211 females, 62 males, mean age 66 years) recruited from a single hospital in Spain scheduled for TKA due to OA were randomized to an experimental group ($n$ = 138) or to a control group ($n$ = 135).
- Inclusion criteria included age between 50 and 75 years, and receipt of elective knee joint replacement surgery due to unilateral osteoarthritis.
- Exclusion criteria included cardiac, renal or hepatic event in the previous year; prosthesis due to rheumatoid arthritis or cancer; and the presence of severe cognitive deficit, acute femoral fracture, infection, fever, low blood pressure or severe respiratory disease that might limit treatment or require implantation of a special prosthesis.

**Interventions/Methods:**

- Participants in the study were randomly assigned by sealed envelope to an intervention group for rehabilitation onset within 24 hours of the surgery or a control group for rehabilitation onset between 48 and 72 hours post-surgery.
- The assessor responsible for measuring outcome variables was blinded to group assignment.
- The same post-surgery rehabilitation protocol was administered to all patients and consisted of a daily 45-minute session during their hospital stay, always from the same therapist. The patients in the control group remained at rest in bed or chair during the first 24 hours and received no treatment.
- Patients developing post-surgical complications at any time were excluded from the rehabilitation program and the study.
- The baseline measurement of variables took place before the patients were randomly assigned to the intervention or control groups. After completion of the inpatient rehabilitation therapy for each participant, the same variables were assessed including the length of hospital stay (in days) and number of rehabilitation sessions received by the patient.

**Main outcome measures/Results:**

- The primary outcome measurement was pain assessment measured by using a visual analogue scale ranging from 0 (no pain) to 10 (worst imaginable pain). Secondary outcome was length of hospital stay in days

- Fifteen patients in the experimental group and 18 in the control group dropped out of the study due to postoperative complications.
- At baseline, the outcome measurement for pain VAS was significantly different between the groups. The experimental group had a pain score of 6.46 (2.94) compared to the control group 7.08 (2.31) $P < 0.045$.
- After rehabilitation treatment, the experimental group showed significant improvements versus baseline values in pain VAS (6.46 vs. 3.01, P<0.005). The control group also showed significant improvements versus baseline in pain VAS (7.08 vs. 5.36, P<0.014).
- After rehabilitation treatment, significant between group differences were found in pain VAS (3.01 vs. 5.36, P<0.027) favoring the experimental group.
- The experimental group had significantly fewer days of hospital stay (6.37 vs. 8.46), P<0.001) and rehabilitation sessions before discharge from this rehabilitation treatment (14.92 vs.19.87, P<0.001).

**Authors' conclusions:**

- This study found that the initiation of rehabilitation within 24 hours of total knee arthroplasty reduced the hospital stay and thus the number of sessions in comparison to a later start of rehabilitation (48–72 hours post-surgery). The earlier onset of rehabilitation also reduced pain.
- The mean hospital stay of the patients receiving earlier rehabilitation was 6.37 days, compared to a mean hospital stay in the controls of 8.46 days. This is a difference of 2.09 fewer days in the hospital for the intervention group.
- In this study, the number of post-surgery rehabilitation sessions received before hospital discharge was higher in the control group by 4.95 days.
- Rehabilitation treatment yields greater patient benefits if started earlier after total knee arthroplasty (<24 hours vs. 36–72 hours post-surgery) that achieve earlier onset of postoperative recovery.

**Comments:**

- The earlier overall improvement and earlier onset of postoperative recovery and hospital discharge experienced in the intervention group may be valued by some patients and employers. Mean age of the participants in this study were 66 years, and potentially still working. It is possible that earlier onset of recovery and hospital discharge was beneficial in terms of faster return to work.
- One study limitation was the omission of analyzing the difference in inpatient and outpatient postoperative rehabilitation health costs for these 2 groups of patients.
- Sample size and/or power calculations were not provided, so it is not known if the study was adequately powered to detect statistical differences.
- No mention of adverse events was included by the authors. It would be useful to know the incidence of adverse events and if there were any significant differences between the 2 groups.

**Assessment*:***

- This adequate study provides some evidence that initiating rehabilitation treatment within 24 hours versus 48–72 hours after total knee arthroplasty for osteoarthritis is more effective in reducing the hospital stay and reducing pain leading to an earlier onset of postoperative recovery.