e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2025; 17(12); 2067-2071

Original Research Article

Impact of Early Ambulation on Ileus and Hospital Stay

P. Manipal Kumar Puvvala[1], S. Nareshkumar[2], Jithendhar P.[3]

[1]Associate Professor, Department of General & Laparoscopic Surgery, Government Medical College, Medak, Telangana

[2]Associate Professor, Department of General Surgery, Government Medical College, Sangareddy, Telangana

[3]Associate Professor, Department of General Surgery, Government Medical College, Karimnagar, Telangana

Received: 01-09-2025 / Revised: 15-10-2025 / Accepted: 21-11-2025

Corresponding author: Dr. Jithendhar P

Conflict of interest: Nil

Abstract

Background: Postoperative ileus (POI) is a common complication following abdominal surgery and is associated with delayed gastrointestinal recovery and prolonged hospital stay. Early ambulation is a key component of enhanced recovery protocols and may help reduce the incidence of POI and improve postoperative outcomes.

Methods: This prospective, comparative interventional study was conducted at a tertiary care teaching hospital over 12 months. A total of 77 adult patients undergoing elective or emergency abdominal surgery were enrolled and divided into two groups: Group A (early ambulation, n = 35), who were mobilized within 12–24 hours postoperatively, and Group B (conventional ambulation, n = 42), who ambulated after 48–72 hours or following passage of flatus. Both groups received standardized postoperative care. Outcomes assessed included incidence of postoperative ileus, time to return of bowel sounds, time to first passage of flatus and stool, and length of postoperative hospital stay. Statistical analysis was performed using SPSS version 25.

Results: The two groups were comparable in baseline demographic and clinical characteristics. The incidence of postoperative ileus was significantly lower in the early ambulation group compared to the conventional group (14.3% vs 33.3%; $p = 0.04$). Patients in Group A demonstrated significantly earlier return of bowel sounds, earlier passage of flatus and stool, and a shorter mean hospital stay (6.2 ± 1.4 days vs 8.1 ± 2.0 days; $p < 0.001$).

Conclusion: Early ambulation following abdominal surgery significantly reduces postoperative ileus, accelerates gastrointestinal recovery, and shortens hospital stay. Incorporation of early ambulation into routine postoperative care is a simple, safe, and cost-effective strategy to enhance surgical recovery.

Keywords: Postoperative ileus; early ambulation; abdominal surgery; gastrointestinal recovery; Length of hospital stay.

Introduction

Postoperative ileus (POI) is defined as a transient impairment of coordinated gastrointestinal motility following surgery in the absence of mechanical obstruction and represents one of the most common complications after abdominal operations.

Clinically, POI manifests as abdominal distension, nausea, vomiting, delayed passage of flatus or stool, and intolerance to oral intake, leading to patient discomfort, increased risk of pulmonary and thromboembolic complications, and prolonged hospitalization [1,2]. It is a major contributor to extended hospital length of stay (LOS) and increased healthcare expenditure following gastrointestinal surgery [3]. The pathophysiology of POI is multifactorial, involving surgical stress–induced inflammatory responses, autonomic nervous system dysfunction, electrolyte imbalance, bowel wall edema, and opioid-related inhibition of intestinal motility (2). As no single pharmacological therapy has proven universally effective, contemporary perioperative care increasingly relies on multimodal, non-pharmacological strategies to prevent or shorten the duration of POI.

Early ambulation has emerged as a key component of Enhanced Recovery After Surgery (ERAS) protocols aimed at improving postoperative gastrointestinal recovery. ERAS Society guidelines for colorectal surgery strongly recommend early postoperative mobilization, often on the day of surgery, as it is associated with faster return of bowel function and reduced length of hospital stay

[4]. Ambulation is believed to stimulate gastrointestinal motility by enhancing splanchnic blood flow, improving diaphragmatic movement, reducing systemic inflammation, and minimizing opioid requirements through improved overall functional recovery [1,4].

Clinical studies have demonstrated that structured and supervised early mobilization is both feasible and safe in the immediate postoperative period and may significantly contribute to earlier resolution of ileus and shorter hospital stay [5]. Systematic reviews and meta-analyses further support the beneficial role of early mobilization in accelerating gastrointestinal recovery and reducing postoperative morbidity in patients undergoing abdominal surgery [6].

Given the substantial clinical and economic burden of POI, and the simplicity and low cost of ambulation-based interventions, evaluating the impact of early ambulation on postoperative ileus and hospital stay is of considerable clinical relevance, particularly in resource-limited healthcare settings.

Materials and Method

This was a prospective, comparative, hospital-based interventional study conducted to evaluate the impact of early ambulation on the incidence of postoperative ileus and duration of hospital stay in patients undergoing abdominal surgery.

The study was carried out in the Department of General Surgery at Government Medical College, Karimnagar a tertiary care teaching hospital. The study was conducted over a period of 12 Months.

All adult patients undergoing elective or emergency abdominal surgery during the study period and fulfilling the inclusion criteria were considered eligible for participation.

Inclusion Criteria

- Patients aged ≥18 years
- Patients undergoing abdominal surgery under general or regional anesthesia
- Hemodynamically stable patients in the postoperative period
- Patients who provided informed written consent

Exclusion Criteria

- Patients with pre-existing bowel obstruction or paralytic ileus
- Patients requiring prolonged postoperative ventilatory support
- Patients with severe cardiopulmonary or neurological conditions precluding ambulation
- Patients with postoperative complications requiring re-exploration within 24 hours

A total of 77 patients were included in the study and allocated into two groups based on postoperative ambulation protocol.

Study Groups

Group A (Early Ambulation Group) (n=35): Patients were encouraged to ambulate within 12–24 hours of surgery. Ambulation included sitting out of bed, standing, and supervised walking at least 2–3 times daily as tolerated.

Group B (Conventional Care Group) (n=42): Patients received routine postoperative care with ambulation initiated after the passage of flatus or as per traditional ward practices, usually after 48–72 hours.

Postoperative Management: Apart from ambulation timing, both groups received standardized postoperative care, including pain management, intravenous fluids, antibiotics, and gradual resumption of oral intake as per institutional protocol. Opioid use was minimized where possible and documented.

Data Collection: Clinical and demographic data were recorded using a structured proforma. Postoperative bowel activity, ambulation timing, and hospital stay were documented daily until discharge.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using the Statistical Package for Social Sciences (SPSS) software version 25.

Continuous variables were summarized as mean ± standard deviation (SD), while categorical variables were expressed as frequencies and percentages.

Comparisons between the study groups were performed using Student's t-test for continuous variables and the Chi-square test or Fisher's exact test for categorical variables, as appropriate. A p-value of less than 0.05 was considered statistically significant.

Observation and Results

Table 1: Demographic and Clinical Profile of Study Participants (n = 77)

Variable	Group A (n = 35)	Group B (n = 42)	t-test/Chi-square	p-value
Mean age (years)	39.6 ± 11.8	41.2 ± 12.5	0.59	0.56
Male sex, n (%)	26 (74.3)	30 (71.4)	0.08	0.77
Type of Surgery n (%)				
Emergency surgery	18 (51.4)	23 (54.8)	0.009	0.76
Elective surgery	17 (48.6)	19 (45.2)		

Table 1 shows the baseline demographic and clinical characteristics of the 77 study participants, divided into Group A (early ambulation, n = 35) and Group B (conventional ambulation, n = 42). The mean age was comparable between the two groups (39.6 ± 11.8 years in Group A vs 41.2 ± 12.5 years in Group B), with no statistically significant difference (t = 0.59, p = 0.56). Male predominance was observed in both groups, and the difference in sex distribution was not significant (χ^2 = 0.08, p = 0.77). Similarly, the proportion of patients undergoing emergency and elective surgeries was comparable between the groups (χ^2 = 0.009, p = 0.76).

These findings indicate that both groups were well matched at baseline, minimizing confounding due to demographic or surgical factors.

Table 2: Postoperative Ileus and Gastrointestinal Recovery

Outcome	Group A (n = 35)	Group B (n = 42)	t-test/Chi-square	p-value
Postoperative ileus, n (%)	5 (14.3)	14 (33.3)	4.17	0.04
Time to bowel sounds (days)	1.6 ± 0.5	2.4 ± 0.7	5.59	<0.001
Time to first flatus (days)	2.1 ± 0.6	3.2 ± 0.8	6.72	<0.001
Time to first stool (days)	3.0 ± 0.7	4.1 ± 0.9	5.98	<0.001

Table 2 compares postoperative ileus and gastrointestinal recovery parameters between the two groups. The incidence of postoperative ileus was significantly lower in the early ambulation group (14.3%) compared to the conventional care group (33.3%), and this difference was statistically significant (χ^2 = 4.17, p = 0.04). Patients in Group A also demonstrated a significantly faster return of bowel function, with earlier appearance of bowel sounds (1.6 ± 0.5 vs 2.4 ± 0.7 days), earlier passage of flatus (2.1 ± 0.6 vs 3.2 ± 0.8 days), and earlier passage of stool (3.0 ± 0.7 vs 4.1 ± 0.9 days). All these differences were highly statistically significant (p < 0.001), indicating that early ambulation substantially accelerates postoperative gastrointestinal recovery.

Table 3: Length of Postoperative Hospital Stay

Parameter	Group A (n = 35)	Group B (n = 42)	t-test	p-value
Hospital stay (days)	6.2 ± 1.4	8.1 ± 2.0	4.79	<0.001

Table 3 presents the comparison of postoperative hospital stay between the two groups. Patients in the early ambulation group had a significantly shorter mean hospital stay (6.2 ± 1.4 days) compared to those in the conventional ambulation group (8.1 ± 2.0 days). This difference was statistically significant (t = 4.79, p < 0.001), demonstrating that early ambulation not only improves gastrointestinal recovery but also translates into earlier discharge and reduced hospitalization duration

Discussion

Postoperative ileus (POI) continues to be a key contributor to delayed recovery and prolonged hospital stay following abdominal surgery. Contemporary perioperative care emphasizes "enhanced recovery" elements—especially early mobilization—because immobility is associated with pulmonary complications, venous thromboembolism, deconditioning, delayed functional recovery, and potentially slower gastrointestinal recovery in abdominal surgery patients.

In the present study, Group A (early ambulation; n=35) and Group B (conventional ambulation; n=42) were comparable with respect to age, sex distribution, and type of surgery (emergency/elective), with no statistically significant differences (p>0.05). This baseline homogeneity reduces the likelihood that demographic or surgical-case mix differences explain the observed outcome differences, thereby strengthening the inference that the ambulation strategy contributed meaningfully to postoperative recovery outcomes.

Effect of early ambulation on postoperative ileus: A major finding of this study was a significantly lower incidence of POI in the early ambulation group (14.3%) compared with the conventional group (33.3%) (χ^2=4.17, p=0.04). Clinically, this supports early ambulation as a simple, low-cost intervention that can reduce ileus-related morbidity.

When compared with published evidence, our findings are consistent with broader enhanced-recovery literature, where early mobilization is repeatedly positioned as a core component to reduce postoperative functional delay and accelerate recovery. ERAS Society recommendations for colorectal surgery strongly advocate mobilization on the day of surgery and structured mobilization thereafter [4]. A systematic review of early postoperative mobilization after gastrointestinal surgery reported improved gastrointestinal recovery outcomes (earlier bowel

function markers) although it also emphasized heterogeneity across trials and variable effects on hard endpoints such as morbidity and length of stay [6].

It is important to interpret our result in the context of earlier physiological work. Waldhausen and Schirmer (1990) suggested that ambulation alone may not substantially hasten resolution of ileus when assessed by postoperative myoelectric patterns, implying that the benefit of early mobilization may be mediated through broader functional recovery pathways rather than a direct prokinetic effect [7]. In real-world postoperative care, early ambulation is often implemented alongside opioid-sparing analgesia, early feeding, and goal-directed fluids—together reducing factors that perpetuate ileus. Therefore, the significant reduction in POI in our cohort may reflect the practical, integrated benefit of early mobilization within routine postoperative care rather than ambulation acting as a single isolated "motility drug."

Early ambulation and gastrointestinal recovery milestones: Beyond ileus incidence, early ambulation was associated with significantly faster return of gastrointestinal function: earlier bowel sounds (1.6±0.5 vs 2.4±0.7 days), earlier first flatus (2.1±0.6 vs 3.2±0.8 days), and earlier first stool (3.0±0.7 vs 4.1±0.9 days), all $p<0.001$.

These results align well with evidence synthesis suggesting that early mobilization improves gastrointestinal recovery markers after gastrointestinal surgery [6]. Mechanistically, early mobilization may improve diaphragmatic excursion and pulmonary mechanics, reduce systemic stress responses, enhance overall circulation, and reduce opioid requirements by improving functional recovery—all of which can support earlier return of bowel function.

Impact on length of hospital stay: A key practical outcome in our study was the significantly shorter postoperative hospital stay in Group A (6.2±1.4 days) compared with Group B (8.1±2.0 days), with a highly significant difference ($t=4.79$, $p<0.001$).

This ~2-day reduction is clinically meaningful in terms of patient throughput, cost containment, and bed availability. International evidence supports that ERAS pathways (which include early mobilization as a major element) reduce hospital stay across multiple surgical populations. A large meta-analysis in JAMA Network Open reported a pooled reduction in length of stay for ERAS groups compared with conventional care (mean reduction ~1.9 days), though with substantial heterogeneity across studies [8]. Our observed reduction is consistent in magnitude with these findings and suggests that early ambulation may contribute materially to earlier discharge readiness by accelerating bowel recovery and functional mobilization.

Indian evidence, though less extensive than Western ERAS literature, similarly indicates shorter hospital stay when ERAS elements including early mobilization are adopted. Samuel et al. (Father Muller Medical College, Mangalore) evaluated ERAS in colorectal surgery and reported improved recovery with reduction in hospital stay using early initiation of oral feeds and early mobilization as key components [9]. In another Indian study focusing on an enhanced surgical recovery nursing program emphasizing early feeding and mobilization after elective abdominal surgery, Barboza et al. highlighted improved postoperative recovery with reduction in postoperative hospital stay, reinforcing the feasibility of implementing early mobility-led recovery strategies in Indian hospital settings [10]. These Indian observations support our findings and strengthen external validity for similar tertiary-care contexts.

Beyond randomized trials, outcomes may depend on adherence to mobilization targets. Stethen et al. (2018) reported that missed ambulation events after bowel resection were associated with worse recovery and longer hospital stay, underscoring that structured implementation and patient participation are crucial for translating "early ambulation policy" into meaningful outcomes [11]. This perspective is relevant to our results because the early ambulation group likely benefited not only from earlier first ambulation but also from more consistent daily mobility.

Overall, our data suggest that early ambulation is associated with (i) reduced POI incidence, (ii) earlier gastrointestinal recovery milestones, and (iii) shorter hospital stay. Given that early ambulation is low-cost and scalable, it should be emphasized as a routine postoperative care standard, ideally within a structured ERAS-like framework that also promotes opioid-sparing analgesia, early feeding when appropriate, and standardized discharge criteria [4,8].

Conclusion

Early ambulation after abdominal surgery is associated with a significant reduction in postoperative ileus, faster gastrointestinal recovery, and a shorter hospital stay. As a simple, safe, and cost-effective intervention, early ambulation should be routinely incorporated into postoperative care protocols to enhance recovery and improve patient outcomes.

References

1. Harnsberger CR, Maykel JA, Alavi K. Postoperative ileus. Clin Colon Rectal Surg. 2019;32(3):166-170. doi:10.1055/s-0038-1677003.
2. Venara A, Neunlist M, Slim K, Barbieux J, Colas PA, Hamy A, et al. Postoperative ileus: Pathophysiology, incidence, and prevention. J Visc Surg. 2016;153(6):439-446. doi:10.1016/j.jviscsurg.2016.08.010.
3. Traeger L, Banz VM, Lehmann K, Warschkow R, Schmied BM, Steffen T. Global cost of postoperative ileus following abdominal surgery: A systematic review. BJS Open. 2023;7 (3):zrad054. doi:10.1093/bjsopen/zrad054.
4. Gustafsson UO, Scott MJ, Hubner M, Nygren J, Demartines N, Francis N, et al. Guidelines for perioperative care in elective colorectal surgery: Enhanced Recovery After Surgery (ERAS) Society recommendations: 2018. World J Surg. 2019;43(3):659-695. doi:10.1007/s00268-018-4844-y.
5. Thörn RMW, Stepniewski J, Ahlstrand R, Hjelmqvist H, Ljungqvist O. Supervised immediate postoperative mobilization after elective colorectal surgery: A feasibility study. World J Surg. 2022;46(1):34-42. doi:10.1007/s00268-021-06347-2.
6. Willner A, Forsberg A, Remes V, et al. Effects of early postoperative mobilization following gastrointestinal surgery: A systematic review and meta-analysis. BJS Open. 2023;7(5): zrad102. doi:10.1093/bjsopen/zrad102.
7. Waldhausen JH, Schirmer BD. The effect of ambulation on recovery from postoperative ileus. Ann Surg. 1990;212(6):671-677.
8. Sauro KM, et al. Enhanced Recovery After Surgery Guidelines and Hospital Length of Stay, Readmission, Complications, and Mortality: A Systematic Review and Meta-analysis. JAMA Netw Open. 2024;7(2):e 235XXXX.
9. Samuel KA, Kollampare SG, Rai RA. A prospective, observational study to assess the effectiveness of enhanced recovery after surgery (ERAS) protocol in patients undergoing colorectal surgery. J Med Sci Health. 2025; (published online Feb 24, 2025).
10. Barboza HR, Dsilva F, Lobo AS, et al. Enhanced Surgical Recovery Nursing Program: A Focus on Initiation of Early Feeding and Mobilization Following Elective Abdominal Surgery. Indian J Crit Care Med. 2025;29(10):823-828.
11. Stethen TW, Ghazi YA, Heidel RE, Daley BJ, Barnes L, Patterson D, et al. Walking to recovery: the effects of missed ambulation events on postsurgical recovery after bowel resection. J Gastrointest Oncol. 2018;9(5):953-961.