Patient-Directed Ambulation After Colorectal Surgery Reduces Time to Bowel Function: A Pilot Randomized Control Trial

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Introduction: Many surgeons recommend ambulation to hasten return of bowel function (ROBF), however little evidence supports this practice. We conducted a pilot randomized control trial to determine the effect of early ambulation on ROBF after elective colorectal surgery. Our intervention was intended to be patient-centered and patient-driven. We hypothesized patients in the intervention arm would take more daily steps early postoperatively and would have faster ROBF.

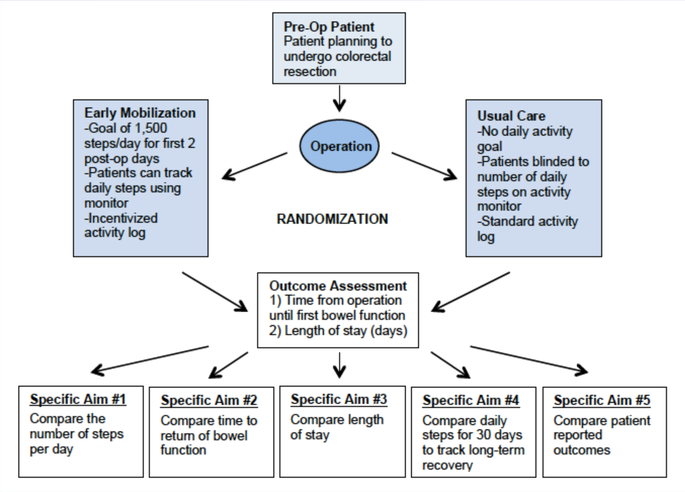


FIgure: 1 Study design and aims of the project.

Methods: Inclusion criteria for this study were adult patients undergoing colorectal resection. Exclusion criteria were emergent surgery, non-ambulatory patients, and those undergoing simultaneous resection of another organ. Consecutive patients were screened and approached for enrollment. All patients wore a wristwatch pedometer during the first 30 postoperative days (POD) and were randomized to either control (usual care, blinded to daily steps) or treatment (ability to track daily steps, recommended daily step goals) arms. Outcomes included daily steps taken each of the first three postoperative days, prospectively tracked time to ROBF and length of hospitalization.

Variable	Control (n=8)	Treatment (n=8)	p-value
Age	72 [51,74]	64 [58,65]	0.40
Male gender	8 (100)	6 (75)	0.45
BMI	30 [28,31]	28 [24,30]	0.37
Charlson Comorbidity Index	3 [0,4]	2 [1,2]	0.35
Baseline Duke Activity Status Index	36 [17,54]	49 [38,58]	0.26
ASA ≥3	7 (88)	6 (75)	>0.99
Minimally invasive	6 (75)	4 (50)	0.61
Operation			0.61
Right colectomy	4 (50)	5 (63)	
Left colectomy	2 (25)	3 (38)	
Rectal surgery	2 (25)	0 (0)	
Steps POD1	106 [0,499]	629 [314,1876]	0.13
Steps POD2	88 [55,786]	1086 [80,3290]	0.23
Steps POD3	109 [69,981]	1362 [480,4294]	0.03
Return of bowel function (days)	5 [2,7]	2 [2,3]	0.10
Hospital length of stay (days)	9 [6,19]	4 [4,5]	0.03

Results: 36 consecutive patients were approached; 20 enrolled and 4 withdrew prior to surgery, leaving 16 patients included. Patients in both groups had similar baseline characteristics. There were more patients undergoing rectal resection as well as minimally invasive surgery in the control group, although these differences were not significant. Patients in the treatment group took more steps on POD1-3; this difference was significant on POD3 (median 1362 vs. 109 steps, p=0.03). Time to ROBF was not significantly different (2 vs. 5 days, p=0.10).

Conclusions: Interventions to reduce postoperative ileus are critical to improve outcomes after colorectal resection. Our results suggest that a protocol using a pedometer with daily goals may increase ambulation and improve outcomes. Larger studies are needed to confirm the trends identified here.

Table (left): Comparison of control and treatment arms.

This research was supported by a 2018 SAGES Foundation Research Grant