



# The Effect Of Chewing Gum While Sham-Feeding On Bowel Motility In Post Laparotomy Patients In Rural Indian Population.

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## ABSTRACT-

### INTRODUCTION:

Gum chewing as a mock feeding technique is a cheap and well-tolerated way to encourage gastrointestinal motility after major abdominal surgery. Strong evidence to support its use in standard postoperative therapy is lacking. However, the Enhanced Recovery After Surgery (ERAS) Society recognises it as one of the multimodal ways to speed recovery after surgery.

### OBJECTIVE:

To evaluate the effect of chewing gum on the early return of bowel function postoperatively in patients undergoing laparotomy.

### METHODOLOGY:

In this study total of 50 patients were included, 25 cases and the remaining controls. The cases were given chewing gum to chew after the surgery while the controls were allowed to heal without chewing gums in conventional style, and both were observed hourly for clinical outcomes.

**RESULTS:**

There were 17 female patients and 33 total male patients. Between the research and control groups, there was no discernible difference in the way bowel sounds appeared, the average flatus passage time, the passage of stools, or the perception of hunger. The study group's mean time was less in all of these characteristics. The early discharge of patients from the trial group differed in a statistically significant way.

**CONCLUSION:**

According to the findings, chewing gum does not appear to be significantly helpful in reducing the length of postoperative ileus. Although it was observed that individuals who chewed gum had shorter overall recovery times for bowel movements, as evidenced by the appearance of bowel sounds, passing flatus and motion, and feelings of hunger, these findings were not statistically significant.

**INTRODUCTION:**

Postoperative ileus (POI) is the temporary absence of gut motility without mechanical obstruction, commonly occurring after abdominal surgery. It is reported to occur in 25% of patients.<sup>[1]</sup> Postoperative ileus spontaneously resolves within 2–3 days after sigmoid motility returns to normal. Ileus that persists for more than three days following surgery is termed postoperative adynamic ileus or paralytic ileus.<sup>[2]</sup> The complex interaction between the autonomic and central nervous systems, as well as local and regional substances like inflammatory mediators released during surgery as a part of stress response, may result in disordered electrical activity and cause intestine paralysis. This is the pathophysiology behind the condition. Early feeding is associated with early recovery of gut motility<sup>[3]</sup>, but patients often complain of nausea and vomiting and are reluctant to take feed during the postoperative period. It is reported that sham feeding stimulates bowel motility;<sup>[4,5]</sup> It brings up the growing interest in chewing gum as a makeshift food source for Postoperative ileus's quick recuperation. The production of saliva, digestive juice, and gastrointestinal hormones is thought to be the mechanism by which chewing gum improves bowel motility by stimulating the cephalo-vagal reflex. In some recent randomized studies, gum chewing was found to improve gut motility and led to an early recovery of Postoperative ileus,<sup>[6]</sup> whereas in a meta-analysis, it was found insignificant.<sup>[7]</sup> This study was done to determine whether chewing gum aided postoperative ileus recover quickly.

**MATERIALS AND METHODS:**

This prospective comparative study was conducted at Great Eastern Medical School and Hospital, Ragolu, Srikulam. All of the participants in the study provided written informed consent. Patients who underwent a laparotomy and any intestinal anastomosis during either emergency or elective surgery were included in this study. It covered all anastomosis performed by hand sewing as well as by GI stapler. It also covered all anastomosis types, including side-to-side, end-to-end, and end-to-side. All patients who underwent clean contaminated laparotomies—elective laparotomies with prior bowel preparation and contaminated laparotomies—were included in the study. Clean contaminated laparotomies involved opening the gut in a controlled way without initial bowel preparation, resulting in very little contamination of the peritoneal cavity, and were then followed by resection anastomosis of the intestine, whether it was between the small intestine, between small and large intestines, or between large intestines. We also included the patients who underwent ileoileal end-to-end anastomosis as part of ileostomy closure. Due to feculent and purulent peritonitis, we excluded the unclean laparotomy.

Additionally, patients who had anastomotic leaks had septicemia, or were in shock were not included in the study. By drawing names from a slip, the patients were split into two groups, each with 25 patients. All study group participants (n = 25) were instructed to chew one stick of gum for 30 minutes, four times daily, throughout the duration of the study. the morning, afternoon, evening, and before bedtime, from 6h after surgery (after recovery from anaesthesia) until passing flatus. Patients in the control group (n = 25) were maintained on nil per oral till flatus passed in the postoperative phase. In this investigation, chewing gum that is readily available was employed. Every patient was required to record the moment they felt a bowel movement, passed faeces or flatus, felt hungry for the first time, and ate for the first time, as well as the moment they were discharged from the hospital.

Serum electrolyte levels and routine blood testing were performed in each patient. For three days, the serum electrolyte was checked every day, and any imbalances were treated. For analgesia injection, diclofenac was given

every eight h in intravenous form for three days. It was encouraged to mobilise quickly. After passing flatus, oral intake was initiated, and the patient was discharged when they passed stools.

The statistical analysis was performed using IBM Corporation's statistical package for social sciences (SPSS) software, version 20.0. A probability value of 5% was used for statistical significance. ( $P < 0.05$ ). The Chi-square test was employed to look for variations in proportions.

## RESULTS:

In this study Fifty patients in total were enrolled, and 25 patients in the study group and 25 patients in the control group were prospectively randomised into two groups. From a demographic and surgical perspective, the groups were comparable.

The total number of male patients was 33, and 17 were females. The study group's mean age was  $38.12 \pm 14.41$  years, while the control groups was  $38.08 \pm 14.07$  years.

Mean time for the onset of bowel sounds was  $51.54 \pm 6.33$  hours in the study group and  $61.20 \pm 8.42$  hours in the control group, [Table 1]. Despite the study group's early onset of bowel sounds, statistically speaking, it was not significant ( $P = 0.13$ ). The study group's mean flatus transit time was  $67.36 \pm 5.12$  hours while the control groups was  $74.64 \pm 9.05$  hours. Although the study group's patients passed flatus earlier than the control group did ( $P = 0.14$ ), this difference was not statistically significant. Stool passage occurred also earlier in the study group ( $89.44 \pm 7.64$  hours) than in the control group ( $103.76 \pm 16.29$  hours), although this difference was not statistically significant ( $P = 0.21$ ) again. Again, it was statistically insignificant ( $P = 0.06$ ); the mean duration of feeling hungry was  $70.72 \pm 5.53$  hours in the study group and  $80.96 \pm 11.83$  hours in the control group. Surgery took  $120.6 \pm 24.76$  minutes in the study group and  $113.06 \pm 29.56$  minutes in the control group; a  $P$  value of 0.81 indicated that the difference was not statistically significant. It was statistically significant ( $P = 0.03$ ) that the patient was discharged earlier in the study group ( $104.96 \pm 10.45$  hours) than in the control group ( $121.44 \pm 20.62$  hours).

**Table 1: Evaluation of various study and control group factors**

	Study group (n=25)	Control group (n=25)	P
Appearance of bowel sound (h)	51.44±6.33	61.20±8.42	0.13
Passing of flatus (h)	67.36±5.12	74.64±9.05	0.14
Passing of stool (h)	89.44±7.64	103.76±16.29	0.21
Feeling of hunger (h)	70.72±5.53	80.96±11.83	0.06
Duration of surgery (min)	120.6±24.76	113.06±29.56	0.81
Discharge (h)	104.96±10.45	121.44±20.62	0.03

## DISCUSSION:

In various meta-analyses, it was emphasised that more research is needed to establish the role of chewing gum in the early recovery of Postoperative ileus.<sup>[7,8]</sup> The present study was conducted to evaluate the effect of gum chewing on Postoperative ileus in patients undergoing intestinal resection anastomosis. Fifty patients were included in this trial, of whom 25 were in the study group (to whom chewing gum was administered) and 25 were in the control group (to whom chewing gum was not administered). Postoperative ileus is known to be impacted by the duration of surgery. The duration of surgery between the groups was not significant statistically ( $P = 0.81$ ). There was no requirement for blood transfusion intraoperatively and postoperatively in any patient in either group.

The study group had a shorter mean time before bowel sounds appeared, but this difference was not statistically significant.

Marwah *et al.* reported that bowel sounds appeared significantly earlier in the study group.<sup>[6]</sup> Matros *et al.*, in their clinical trial, suggested that gum chewing does not reduce the duration of Postoperative ileus.<sup>[9]</sup> In the study group, the passage of the first flatus and the first defecation was short, but it was not statistically significant. Matros *et al.* reported in their randomized trial that there was no significant difference in time to passage of the first bowel movement.<sup>[9]</sup> Marwah *et al.* reported that the study group's mean time for the passage of the first flatus and first stool was significantly shorter.<sup>[6]</sup> Andersson *et al.* reported that the mean time to first flatus and defecation was shorter in the intervention group, although the difference was insignificant.<sup>[10]</sup> Quah *et al.*<sup>[11]</sup> and Cavuşoğlu *et al.*<sup>[12]</sup> also reported that the time for the passage of the first flatus and the first defecation was short in the study group, but it was not statistically significant.

The mean time taken for the feeling of hunger was short in the study group, but it was not significant. Schuster *et al.* reported that the mean time for the appearance of a sense of hunger was short in patients' chewing gum, but the difference was not statistically significant.<sup>[13]</sup> Marwah *et al.* found that the mean time taken to experience the feeling of hunger was significantly shorter in the study group compared to the control group.<sup>[6]</sup> The patients in the study group were discharged earlier than the control group, and the only finding in this study was statistically significant ( $P = 0.03$ ). The postoperative hospital stay was shorter in the study group (mean  $104.96 \pm 10.45$  h) than in the control group (mean  $121.44 \pm 20.62$  h). Marwah, *et al.*,<sup>[6]</sup> Chan MK,<sup>[14]</sup> and Noble EJ, *et al.*<sup>[15]</sup> also reported a statistically significant shorter hospital stay in the study group, whereas Fitzgerald JE *et al.*<sup>[16]</sup> and de Castro SM *et al.*<sup>[17]</sup> found that it was not statistically significant.

#### CONCLUSION:

Chewing gum does not seem to be substantial in reducing the duration of post-operative ileus. However, it was observed that individuals who chewed gum reported early bowel sound appearance, passing motion and flatus, as well as early hunger sensations, however this was not statistically significant. Nonetheless, the patients in the gum-chewing group were significantly discharged early. Chewing gum does not cause any complications or adverse reactions. It requires more studies and research to establish the role of chewing gum in post-operative ileus.

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