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THE IMPACT OF POSTOPERATIVE COFFEE CONSUMPTION ON POSTOPERATIVE ILEUS: A NARRATIVE REVIEW

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ABSTRACT

Postoperative ileus (POI) is a multifactorial condition causing the transient cessation of bowel motility, which significantly increases patient morbidity and healthcare costs. This narrative review synthesizes current clinical evidence evaluating the efficacy, safety, and underlying mechanisms of early postoperative coffee administration in mitigating POI. A structured literature search of PubMed/MEDLINE, Cochrane Central Register of Controlled Trials, and Scopus was conducted, focusing on randomized controlled trials, systematic reviews, and meta-analyses that assessed early coffee consumption against standard care in human surgical cohorts. Clinical data consistently demonstrate that coffee significantly accelerates gastrointestinal recovery across colorectal, gynecological, general abdominal, and obstetric surgeries. The intervention effectively reduces the time to first flatus, first defecation, and the tolerance of solid food. These prokinetic benefits are driven by cephalic-vagal reflex stimulation, gastrointestinal hormone secretion, and intrinsic anti-inflammatory properties, with decaffeinated formulations showing comparable efficacy to caffeinated ones. Furthermore, coffee demonstrates a favorable safety profile without elevating overall postoperative complication rates, including anastomotic leakage, and enhances patient compliance. Ultimately, postoperative coffee consumption is a universally accessible, safe, and low-cost dietary intervention that expedites bowel recovery and decreases hospital length of stay. Its routine integration into standardized Enhanced Recovery After Surgery pathways offers a highly pragmatic strategy for managing POI.

KEYWORDS

Postoperative Ileus, Coffee, Gastrointestinal Motility, Enhanced Recovery After Surgery (ERAS), Dietary Interventions

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1. Introduction

Postoperative ileus (POI) represents a transient cessation of coordinated bowel motility following surgical intervention, characterized clinically by the delayed passage of flatus or defecation, abdominal distension, and an inability to tolerate oral intake. While a brief period of ileus is typically an expected physiological response resolving within three to five days, it is clinically defined as prolonged or pathological when this dysmotility persists beyond this normal timeframe. The underlying pathophysiology driving this condition is multifactorial, primarily mediated by inhibitory sympathetic neural reflexes, localized inflammatory cascades triggered by surgical bowel manipulation, and the compounding motility-suppressing effects of opioid analgesics (Behm, B., & Stollman, N., 2003; Carroll, J., & Alavi, K., 2009). POI imposes a profound clinical and economic burden on healthcare systems globally by significantly prolonging hospital length of stay and increasing patient morbidity. Recent meta-analyses illustrate the substantial financial impact of this complication; the development of POI following abdominal surgery increases total hospital costs by 66.3%, corresponding to an average additional expenditure of €8,233 per patient (Traeger et al., 2023).

To mitigate the incidence and severity of POI, modern perioperative care heavily relies on Enhanced Recovery After Surgery (ERAS) protocols. Standard ERAS pathways prioritize early enteral feeding, early mobilization, minimally invasive surgical techniques, and opioid-sparing analgesia (Patil et al., 2019). Pharmacological and mechanical adjuncts are also frequently employed to stimulate gastrointestinal recovery. Interventions such as alvimopan—a peripherally acting mu-opioid receptor antagonist—and mechanical sham feeding via chewing gum have been utilized to accelerate the return of bowel function (Kayyale, A. A., Ghani, S., & Olaniyan, O., 2024; Liu et al., 2017). Specifically, postoperative chewing gum has been shown to successfully reduce the time to first flatus by a mean of 10.4 hours and the time to first bowel movement by 12.7 hours (Short et al., 2015). However, despite these multimodal approaches, POI remains a prevalent and challenging postoperative complication.

Given the variable compliance and high costs associated with pharmacological treatments, there is growing clinical interest in universally accessible, low-cost dietary interventions. Coffee has emerged as a promising candidate due to its ubiquitous availability and favorable tolerability profile. Clinical evidence

suggests that early postoperative coffee administration exerts a potent stimulatory effect on the gastrointestinal tract (Hasler-Gehrer et al., 2019; Holland et al., 2023). A recent systematic review and meta-analysis demonstrated that postoperative coffee consumption significantly accelerates bowel recovery, shortening the time to first stool passage by a mean difference of 9.38 hours compared to standard care, thereby facilitating earlier tolerance of solid foods and potential hospital discharge (Kane et al., 2020). Subsequent randomized controlled trials have consistently corroborated these prokinetic effects across various surgical cohorts (Müller et al., 2012; Piric et al., 2015; Rabiepoor et al., 2018). Therefore, the objective of this narrative review is to synthesize the current clinical evidence evaluating the efficacy, safety, and underlying mechanisms of postoperative coffee consumption in mitigating POI.

2. Methodology and Search Strategy

A structured literature search was conducted utilizing the primary electronic databases PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials (CENTRAL), and Scopus. The search terms were "coffee," "caffeine," "postoperative ileus," and "gastrointestinal motility." To capture specific surgical cohorts, secondary operative keywords such as "colorectal surgery," "cesarean section," "abdominal hysterectomy," and "minimally invasive surgery" were added. The inclusion criteria were specifically limited to study designs evaluating human clinical outcomes, restricted to randomized controlled trials (RCTs), systematic reviews, and meta-analyses. Eligible studies were required to evaluate early postoperative coffee or caffeine administration, whether caffeinated or decaffeinated, against standard postoperative care or active controls. Furthermore, included literature must have reported at least one primary quantifiable endpoint, including the time to first flatus, time to first defecation, time to tolerance of solid food, or total hospital length of stay. The exclusion criteria encompassed *in vitro* studies, animal models, non-English language publications, and retrospective cohort studies. Additionally, trials utilizing complex, multi-ingredient dietary supplements where the independent prokinetic effect of coffee could not be isolated were excluded from this review.

3. Pathophysiology of Postoperative Ileus

The pathogenesis of POI is multifactorial and generally characterized by distinct temporal phases: an early neurogenic phase, a subsequent inflammatory phase, and an overlapping pharmacological phase heavily influenced by perioperative medication (Buscail & Deraison, 2022).

3.1 Neurogenic Phase

The initial neurogenic phase of POI is precipitated immediately upon surgical intervention, triggered by the incision of skin and muscle, the opening of the peritoneal cavity, and direct manipulation of the gastrointestinal tract (Buscail & Deraison, 2022; Zhao, W., Fu, H., & Gong, W., 2023). The fundamental etiology of this early phase is a profound autonomic nervous system dysfunction, characterized by a robust hyperactivity of the sympathetic nervous system that overrides stimulatory parasympathetic input (Person & Wexner, 2006). Specifically, both the administration of anesthesia and the initial surgical incision act as potent triggers, precipitating this phase through the activation of presynaptic beta-adrenoceptors (Venara et al., 2016). This initiates an efferent reflex arc, where afferent sensory impulses resulting from peritoneal irritation travel via splanchnic nerves to synapse in the spinal cord that sends inhibitory sympathetic signals back to the enteric nervous system, effectively paralyzing the digestive tract (Buscail & Deraison, 2022; Hussain & Park, 2022). At the synaptic level, this heightened sympathetic tone diminishes the release of the excitatory neurotransmitter acetylcholine within the myenteric plexus, actively impeding normal parasympathetic stimulatory functions. Direct activation of these neurogenic pathways generally terminates once abdominal closure occurs and surgical stimuli cease, allowing the purely neurogenic phase to naturally subside before the prolonged inflammatory cascade dominates (Zhao, W., Fu, H., & Gong, W., 2023). From a clinical and surgical perspective, limiting the magnitude of the surgical incision and minimizing direct bowel manipulation—such as utilizing laparoscopic rather than open transperitoneal techniques—significantly decreases the extent of peritoneal irritation that drives this profound neurogenic dysmotility, ultimately accelerating postoperative recovery (Carroll & Alavi, 2009; Venara et al., 2016).

3.2 Inflammatory Phase

As the early neurogenic phase wanes—typically 3 to 4 hours post-surgery—a more sustained and profound inflammatory phase emerges, largely driving the prolonged nature of POI. Mechanical handling of the digestive tract induces significant tissue trauma, resulting in the immediate local release of damage-associated molecular patterns (DAMPs) and a localized, sterile inflammatory response (Lotze et al., 2007). Concurrently, surgical stress induces the release of neuropeptides, which rapidly activate resident mast cells in the intestinal mucosa and mesentery. Once activated, mast cells degranulate and release potent chemical mediators. This activation leads to the rapid disruption of the intestinal epithelial barrier, facilitating the massive infiltration of immune cells, including mast cells, monocytes, and macrophages, into the intestinal muscularis (Zhao, W., Fu, H., & Gong, W., 2023). Consequently, this increased paracellular permeability facilitates the translocation of luminal antigens—most prominently lipopolysaccharide (LPS) derived from the gut microbiota—into the muscularis externa. The synergistic presence of DAMPs and translocated antigens heavily stimulates receptors on resident muscularis macrophages. This receptor engagement activates intracellular signaling cascades, prompting the nuclear transcription of numerous pro-inflammatory genes. As a result, the activated resident macrophages secrete a localized concentration of pro-inflammatory cytokines (TNF- α , IL-6, IL-1 β) and chemokines. The consequent surge in nitric oxide (NO) and prostaglandins (PGs) within the muscularis directly and profoundly inhibits intestinal smooth muscle contractility, culminating in severe GI hypomotility (Buscail & Deraison, 2022). The eventual resolution of this extensive inflammatory cascade, which dictates the return of normal peristalsis, relies heavily on macrophage polarization and modulation via the vagal nervous system (Zhao, W., Fu, H., & Gong, W., 2023).

3.3 Pharmacological Factors

Exacerbating the intrinsic neurogenic and inflammatory responses is the "pharmacological" phase of POI, in which perioperative medications, most notably opioid analgesics, play a central role (Buscail & Deraison, 2021). Opioids delay gastric emptying and colonic transit through both central and peripheral mechanisms. While they cross the blood-brain barrier to provide central analgesia, exogenous opiates also bind directly to mu-opioid (μ) receptors situated in the gastrointestinal tract. This peripheral binding directly thwarts the digestive motor system, slowing peristalsis and exacerbating the duration of ileus (Ketwaroo, G. A., Cheng, V., & Lembo, A., 2013; Buscail & Deraison, 2022).

4. Proposed Mechanisms of Action of Coffee

4.1 Sham Feeding and the Cephalic-Vagal Reflex

The ingestion of coffee may mitigate POI through mechanisms analogous to sham feeding. The sensory experience of coffee consumption, specifically its distinct taste, olfactory profile, and temperature, can activate the cephalic phase of digestion (Power, M. L., & Schulkin, J., 2008; Sinz, S., Warschkow, R., Tarantino, I., & Steffen, T., 2023). This sensory input stimulates vagal efferent pathways, which subsequently increase parasympathetic tone to the gastrointestinal tract. This cephalic-vagal reflex promotes the release of excitatory neurotransmitters, thereby accelerating gastric emptying and enhancing colonic motility in a manner similar to early enteral feeding, but without introducing the immediate bulk of solid food that might exacerbate postoperative nausea and vomiting (Short et al., 2015; Yang et al., 2022).

4.2 Chemical Stimulation

Beyond sensory stimulation, coffee contains bioactive compounds that directly influence gastrointestinal endocrinology and myoelectric activity. Coffee consumption is associated with a rapid increase in the secretion of key digestive hormones, notably gastrin and cholecystokinin (CCK), which concurrently enhance colonic motor activity (Douglas et al., 1990; Acquaviva et al., 1986; Müller et al., 2012). Furthermore, clinical manometry demonstrates that coffee increases colonic motility within four minutes of consumption by inducing colonic spike bursts (Brown, S. R., Cann, P. A., & Read, N. W. (1990). Additional mechanisms include the action of coffee-derived exorphins, which bind to opiate receptors in the brain and intestinal wall to stimulate peristalsis, as well as the antagonism of adenosine receptors, which further promotes colonic motor activity and ultimately shortens the time to first flatus and defecation (Boublik et al., 1983; Güngördük et al., 2022).

4.3 Caffeinated vs. Decaffeinated

To delineate the specific motility-enhancing effects of caffeine from other bioactive components, clinical trials have compared caffeinated versus decaffeinated coffee in postoperative cohorts. Evidence demonstrates that decaffeinated coffee successfully shortens the time to first bowel movement and flatus at a rate comparable to caffeinated coffee (Dulskas et al., 2015; Watanabe et al., 2021). Furthermore, studies in healthy volunteers measuring rectosigmoid motor activity confirm that both caffeinated and decaffeinated coffee induce significant colonic motor responses compared to water alone (Brown, S. R., Cann, P. A., & Read, N. W., 1990). These findings indicate that caffeine is not the sole active agent responsible for accelerating gastrointestinal recovery; rather, the therapeutic efficacy is largely attributable to other chemical constituents formed during the bean roasting process.

4.4 Anti-inflammatory Properties

The prolonged phase of POI is primarily driven by localized surgical inflammation. Coffee's intrinsic anti-inflammatory properties present an additional mechanism for accelerating gastrointestinal recovery. Coffee is rich in antioxidant constituents, particularly polyphenols like chlorogenic acid, which possess the capacity to modulate the gut-brain axis and inhibit pro-inflammatory pathways (Ontawong et al., 2023). By potentially downregulating the localized release of cytokines and dampening macrophage activation within the intestinal muscularis, these antioxidants may mitigate the inflammatory cascade that directly suppresses smooth muscle contractility following abdominal surgical manipulation (Shea-Donohue et al., 2012).

5. Clinical Evidence by Surgical Specialty

5.1 Colorectal Surgery

Colorectal resection carries a high intrinsic risk of POI. Meta-analyses of RCTs assessing elective colorectal surgery demonstrate that postoperative coffee consumption significantly accelerates bowel recovery. Yang et al. (2022) found that coffee or caffeine consumption decreased the time to first bowel movement by a mean difference (MD) of 10.36 hours and shortened the overall length of hospital stay (LOS) by 0.95 days. Furthermore, the intervention was associated with a decreased relative risk (RR: 0.64) of requiring postoperative laxatives (Yang et al., 2022). Similarly, a meta-analysis by Kane et al. (2020) demonstrated that in patients undergoing colon surgery specifically, coffee shortened the time to first passage of stool by an MD of 14.95 hours, reduced the time to first flatus by 6.96 hours, and accelerated the tolerance of solid food by 9.52 hours compared to controls receiving water or standard care.

5.2 Gynecological and Urogynecological Surgery

The efficacy of coffee in restoring gastrointestinal motility has also been evaluated in major gynecological procedures. In patients undergoing abdominal hysterectomy and retroperitoneal lymph node dissection for gynecological malignancies, early postoperative coffee consumption (administered three times per day) yielded substantial clinical benefits (Güngördük et al., 2020). Compared to standard postoperative nursing care without coffee, the intervention cohort experienced a 12-hour reduction in the time to first flatulence. Furthermore, the duration to tolerate solid nutrition decreased by 1.3 days, and the overall hospitalization duration was reduced by 1 day (Güngördük et al., 2022).

5.3 Cesarean Delivery

Following cesarean delivery (CD), delayed bowel movement frequently impedes enhanced recovery protocols and the initiation of a solid diet. A recent systematic review and meta-analysis evaluating coffee intake after CD found that coffee significantly reduced the time to first passage of flatus by an MD of 3.44 hours and the time to first stool passage by an MD of 3.65 hours (El-Goly, 2026). Notably, this analysis observed that the prokinetic effect persisted across both caffeinated and decaffeinated coffee formulations, however sooner recovery was observed with caffeinated coffee (El-Goly, 2026). In a specific RCT, Zamanabadi et al. (2021) observed that women receiving at three different interval after the surgery coffee following CD experienced a significantly shorter mean time to first bowel movement (14.56 hours versus 16.83 hours in controls) and earlier first defecation (27.78 hours versus 31.67 hours).

5.4 Other Abdominal Surgeries

A comprehensive meta-analysis of mixed abdominal surgeries conducted by Watanabe et al., 2021, demonstrated that postoperative coffee administration safely accelerated early gastrointestinal recovery, reducing the overall time to tolerance of solid food by a MD of 10.11 hours and the time to first flatus by 4.27 hours across all cohorts. However, its efficacy on harder clinical endpoints exhibited notable procedure-specific heterogeneity. Coffee significantly shortened the time to first defecation following colorectal (MD -15.37 hours) and gynecological surgeries (MD -12.83 hours), but not after cesarean sections. Conversely, it significantly reduced the clinical incidence of POI after gynecological (relative risk [RR] 0.25) and cesarean procedures (RR 0.32), yet failed to demonstrate a similar prophylactic effect following colorectal surgery. Notably, the ability of coffee to shorten the length of hospital stay (MD -1.08 days), accelerate the time to first bowel sound (MD -8.87 hours), and decrease general postoperative complications (RR 0.27) was isolated exclusively to the gynecological cohort.

6. Safety, Tolerability, and Side Effects

Current clinical evidence indicates that early postoperative coffee consumption is tolerable and possesses a favorable safety profile across diverse surgical populations. In a comprehensive systematic review and meta-analysis evaluating abdominal surgeries, Watanabe et al. (2021) found no reported increase in adverse events directly related to postoperative coffee administration. Specifically, within colorectal surgery cohorts, coffee did not elevate the relative risk of overall postoperative complications (RR 0.85), and it was associated with a decreased risk of complications following gynecological procedures (RR 0.27).

Similarly, Yang et al. (2022) evaluated specific morbidities and found that coffee and caffeine supplementation yielded no statistically significant difference in the incidence of the anastomotic leakage, nor did it increase the rate of nasogastric tube reinsertion when compared to standard care. Despite these encouraging findings, the intrinsic pharmacological properties of caffeine which constitutes methylxanthine and central nervous system stimulant necessitate standard clinical monitoring. Potential caffeine-mediated side effects, include transient tachycardia, palpitations, jitteriness, and sleep disturbances or insomnia, particularly if consecutive doses are administered late in the evening (Bowers, S. J., Davis, R. P., & Vlisides, P. E., 2025). Consequently, the administration of postoperative coffee should never be implemented as a universal directive; rather, it must remain an individualized clinical decision, guided by the patient's specific medical history and clinical, postoperative presentation. While generally safe for the majority of postoperative patients, early coffee consumption should be withheld in specific clinical populations due to the physiological responses elicited by its bioactive compounds. Absolute contraindications include any documented allergic or hypersensitivity reactions to caffeine. Because caffeine acts as a sympathomimetic that can elevate blood pressure and increase sympathetic nervous system output, it is generally contraindicated or requires extreme caution in patients with pheochromocytoma, severe tachyarrhythmias, or poorly controlled baseline hypertension. Additionally, as caffeine is known to lower the seizure threshold, it should be avoided in patients with a documented history of seizure disorders (Bowers, S. J., Davis, R. P., & Vlisides, P. E., 2025). Regarding the integrity of gastrointestinal surgery, a major theoretical concern of early enteral stimulation is the risk of anastomotic failure. However, meta-analysis data from Yang et al. (2022) confirmed that postoperative coffee consumption does not statistically increase the risk of anastomotic leakage following elective colorectal resections. Nonetheless, clinicians may opt to withhold coffee in certain high-risk scenarios. Because coffee is a known stimulant of gastric acid and biliary secretion, it may be contraindicated in patients with active, severe acid peptic disease. Ultimately, the intervention should be avoided in any patient exhibiting profound clinical instability where oral intake of any non-sterile, acidic fluid is temporarily contraindicated by standard surgical tenets.

7. Discussion

The synthesis of contemporary clinical evidence demonstrates that early postoperative coffee consumption is an effective, non-pharmacological intervention for accelerating gastrointestinal motility across multiple surgical domains (Dulskas et al., 2015; El-Goly et al., 2026; Güngördük et al., 2020; Hasler-Gehrer et al., 2019; Holland et al., 2023, Müller et al., 2012). Pooled data from randomized controlled trials consistently indicate that coffee safely and significantly reduces both the time to first flatus and the time to first bowel movement (Kane et al., 2020). Furthermore, this early return of bowel function translates into clinically meaningful outcomes, most notably an expedited tolerance for solid food and a measurable reduction in overall hospital length of stay (Yang et al., 2022). These findings support the integration of postoperative coffee consumption into standardized perioperative care protocols to mitigate the incidence and severity of POI.

Within current ERAS pathways, both chewing gum and warm water are frequently utilized as low-risk interventions to stimulate gut motility. The efficacy of coffee compares favorably to both modalities. When compared directly to warm water administration, coffee yields significantly greater prokinetic effects; in a randomized clinical trial assessing patients following colectomy, postoperative coffee consumption reduced the time to first bowel movement by a significant absolute difference of 13.6 hours compared to patients who received warm water (Müller et al., 2013). Coffee also shares a similar mechanism of action to chewing gum, functioning as a form of sham feeding to stimulate the cephalic-vagal reflex (Liu et al., 2017). Extensive meta-analyses establish that chewing gum effectively accelerates bowel recovery and reduces the duration of POI following abdominal surgery, offering a cheap and safe alternative to traditional bowel rest (Liu et al., 2017). While both gum and coffee are well-tolerated, coffee provides the additional mechanistic pathway of delivering active chemical compounds (such as caffeine and chlorogenic acids) that may exert independent, direct stimulatory effects on the colonic musculature (Ontawong et al., 2023).

Mitigating the economic burden of POI constitutes a highly significant advantage of implementing a postoperative coffee protocol (Kane et al., 2020; Traeger et al., 2023). As an intervention, coffee is nearly ubiquitous, universally accessible, and incurs a minimal cost to the hospital system. A tendency toward a reduced length of hospital stay by even one day that is driven by an intervention with low cost and an excellent safety profile represents substantial, scalable cost savings for global healthcare services (Müller et al., 2013). Given its exceptional feasibility, coffee stands out as an optimal, resource-conscious strategy for reducing the compounding morbidity and costs associated with POI. Beyond clinical efficacy and cost savings, the successful implementation of dietary interventions relies heavily on patient adherence. Historically, standardizing coffee administration in a clinical setting has been challenging. However, providing a high-quality sensory experience may bridge this gap. A recent prospective feasibility study by Delabays et al. (2026) demonstrated that serving freshly brewed, personalized coffee via a capsule system significantly enhanced patient compliance following elective colorectal surgery. Among the 50 patients analyzed, median compliance over the first three postoperative days was 78%, with 70% of patients consuming more than two-thirds of their proposed doses. Furthermore, patients reported high satisfaction scores (mean VAS 8.2), suggesting that transforming a standardized therapeutic intervention into an enjoyable, personalized experience is a highly promising approach to maximizing adherence in postoperative recovery protocols.

8. Limitations of Current Evidence

A primary limitation across the existing literature evaluating postoperative coffee consumption is the lack of standardized intervention protocols. Significant variations exist regarding coffee preparation, volume, and caffeine concentration across different clinical trials. While most studies utilize an amount approximating a standard cup of caffeinated coffee, precise pharmacological dosing is rarely achieved (Yang et al., 2022). Furthermore, the total volume administered varies significantly between study protocols, with some trials utilizing small, divided doses (e.g., 100 mL three times daily) and others administering single larger volumes up to 280 mL (Müller et al., 2012; Zhu et al., 2022). The type of coffee utilized is ranging from instant caffeinated to decaffeinated or specific institutional brews which further confounds the ability to determine the exact dosage of active constituents required for optimal therapeutic efficacy.

Methodological vulnerabilities, specifically concerning trial design and outcome reporting, further limit the strength of the current evidence. The most prominent flaw is the inherent difficulty in effectively double-blinding these studies. Because coffee possesses a highly distinct aroma, color, and taste profile compared to warm water or standard postoperative care regimens, successfully blinding both the patients and the evaluating

clinicians is rarely feasible in practice (Zhu et al., 2022). This lack of true blinding introduces a high risk of performance and detection bias. Consequently, the primary endpoints in these trials such as the time to first flatus and the time to first bowel movement are highly susceptible to subjective reporting biases, as they rely heavily on accurate self-reporting by the unblinded patient to the nursing staff (Müller et al., 2012).

The broad heterogeneity of the surgical populations included in major meta-analyses challenges the generalizability of the findings. Grouping vastly different operative techniques together introduces significant variability in the baseline risk and expected duration of POI. For example, open abdominal procedures involve prolonged visceral manipulation, extensive environmental exposure of the bowel, and greater requirements for opioid analgesia compared to minimally invasive techniques, all of which naturally prolong POI (Zhu et al., 2022). Although some analyses demonstrate that coffee exerts beneficial effects across both open and laparoscopic colectomy subgroups (Yang et al., 2022), the aggregation of these distinct surgical stressors into single meta-analytic pools weakens the precision of the data and complicates the creation of standardized, procedure-specific clinical recommendations.

Another crucial variable often omitted from current trial designs is the baseline caffeine consumption of the patients. Postoperative caffeine withdrawal can manifest with symptoms such as headaches, lethargy, and nausea, potentially confounding recovery metrics and mimicking surgical complications (Bowers, S. J., Davis, R. P., & Vlisides, P. E., 2025). It remains unclear whether the observed benefits of postoperative coffee consumption are partially attributable to the reversal of caffeine withdrawal in habitual drinkers, rather than a purely independent prokinetic effect. Furthermore, the temperature of the beverage represents an additional variable; while warm water controls have been utilized, future studies must consistently account for the prokinetic effects of temperature itself.

9. Conclusions

Postoperative coffee consumption demonstrates substantial clinical utility as a well-tolerated, low-cost intervention for mitigating POI. Synthesized evidence across major colorectal, general abdominal, gynecological, and obstetric surgeries confirms that early postoperative administration of coffee significantly accelerates the restoration of gastrointestinal motility. Specifically, the intervention reduces the time to first flatus, time to first defecation, and time to the tolerance of solid food (Kane et al., 2020; Watanabe et al., 2021). By safely expediting gastrointestinal recovery, coffee consumption concurrently facilitates earlier patient discharge, effectively reducing the overall length of hospital stay without increasing the incidence of postoperative complications (Yang et al., 2022). Given its excellent safety profile, universal availability, and minimal economic burden, coffee represents a highly pragmatic adjunct for integration into standardized ERAS pathways.

Current evidence supports the routine administration of 100 mL of coffee up to three times daily, initiated as early as postoperative day zero or one, provided the patient has no absolute contraindications to enteral fluids (Müller et al., 2012). Because clinical data confirm that decaffeinated formulations exhibit a prokinetic efficacy comparable to caffeinated coffee, decaffeinated alternatives should be preferentially utilized for patient cohorts where the sympathomimetic effects of caffeine such as tachycardia, hypertension, or sleep disruption are of clinical concern (Dulskas et al., 2015). Furthermore, coffee may be implemented either as an independent prokinetic strategy or utilized synergistically with established ERAS modalities, such as early mobilization and chewing gum (Liu et al., 2017).

While the available data strongly support the clinical application of postoperative coffee, notable gaps in the literature persist. Future RCTs must prioritize rigorous standardization of the intervention, defining the precise type of coffee (e.g., instant, filtered, espresso), optimal volume, caffeine concentration, and specific timing of administration required to achieve maximum therapeutic efficacy (Zhu et al., 2022). To circumvent the methodological flaws associated with unblinded trials and subjective patient reporting, subsequent studies should mandate the inclusion of objective, quantifiable endpoints for gastrointestinal recovery, such as intestinal manometry, transit scintigraphy, or radiopaque markers (Müller et al., 2012). Finally, targeted mechanistic and biomarker investigations are essential to determine which active phytochemicals in coffee, distinct from caffeine, are responsible for activating the cephalic-vagal reflex and mitigating localized intestinal inflammation.

Ethics Approval: Not applicable. This review article does not involve new human or animal subjects research.

Conflicts of Interest: No conflicts of interest to declare.

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