

# Repercussões clínicas da abreviação do jejum em colecistectomias

## Clinical repercussions of fasting abbreviation in cholecystectomies

## Repercusiones clínicas de la reducción del ayuno en colecistectomía

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### RESUMO

**Objetivo:** Descrever as repercussões clínicas relatados na literatura científica associadas à abreviação do jejum pré-operatório em pacientes submetidos a colecistectomias, com foco na repercussão clínica e recuperação pós-operatória. **Método:** Revisão integrativa da literatura. **Resultados e Discussão:** Foram selecionados 7 estudos correspondentes a pergunta de pesquisa do quais resultou em 3 eixos temáticos, sendo eles: Abreviação do Jejum e Melhora da Capacidade Funcional, Efeitos da Abreviação do Jejum na Resistência Insulínica, Jejum Reduzido e Repercussões Gastrointestinais. **Considerações Finais:** Evidências sugerem que a redução do tempo de privação alimentar, aliada à ingestão de líquidos claros ou soluções ricas em carboidratos, contribui de maneira significativa para a melhora da resposta metabólica ao trauma cirúrgico, para a redução da resistência insulínica e para o aumento da sensação de conforto do paciente.

**Descritores:** Jejum; Período pré-operatório; Colecistectomia.

### ABSTRACT

**Objective:** To describe the clinical repercussions reported in the scientific literature associated with shortening the preoperative fast in patients undergoing cholecystectomies, focusing on clinical repercussions and postoperative recovery. **Method:** Integrative literature review. **Results and Discussion:** Seven studies corresponding to the research question were selected, resulting in three thematic axes: Fasting Abbreviation and Improvement of Functional Capacity; Effects of Fasting Abbreviation on Insulin Resistance; Reduced Fasting; and Gastrointestinal Repercussions. **Final Considerations:** Evidence suggests that reducing the time of food deprivation, combined with the intake of clear liquids or carbohydrate-rich solutions, contributes significantly to improving the metabolic response to surgical trauma, reducing insulin resistance, and increasing the patient's sense of comfort.

**Descriptors:** Fasting; Preoperative period; Cholecystectomy

### RESUMEN

**Objetivo:** Describir las repercusiones clínicas reportadas en la literatura científica asociadas al acortamiento del ayuno preoperatorio en pacientes sometidos a colecistectomías, centrándose en las repercusiones clínicas y la recuperación postoperatoria. **Método:** Revisión integrativa de la literatura. **Resultados y Discusión:** Se seleccionaron siete estudios correspondientes a la pregunta de investigación, resultando tres ejes temáticos: Abreviatura del Ayuno y Mejora de la Capacidad Funcional; Efectos de la abreviatura del ayuno sobre la resistencia a la insulina; Ayuno Reducido; y repercusiones gastrointestinales. **Consideraciones finales:** La evidencia sugiere que reducir el tiempo de privación de alimentos, combinado con la ingesta de líquidos claros o soluciones ricas en carbohidratos, contribuye significativamente a mejorar la respuesta metabólica al trauma quirúrgico, reducir la resistencia a la insulina y aumentar la sensación de comodidad del paciente.

**Descriptores:** Ayuno; Preoperatorio; Colecistectomía.

REVISÃO

## Introduction

Prolonged fasting has been questioned in recent years. Recent scientific evidence demonstrates that maintaining long fasting periods may cause discomfort, hypoglycemia, insulin resistance, and delayed postoperative recovery<sup>2</sup>. In this context, protocols such as ERAS (Enhanced Recovery After Surgery) and ACERTO (Acceleration of Total Postoperative Recovery) have recommended reducing fasting time. Among the strategies used are shortening the preoperative fasting period to two hours before surgery and administering carbohydrate-containing beverages. Initially, these practices were restricted to colorectal surgeries but were later recommended for various types of procedures, including gastrointestinal surgeries<sup>1</sup>.

The ACERTO protocol recommends the intake of 200 mL of water supplemented with 12% maltodextrin to provide energy and attenuate the catabolic response. In addition, the protocol advises that during the five days prior to the procedure, patients receive three daily doses of 200 mL of a supplement containing vitamins and electrolytes, totaling 600 mL per day, with the aim of optimizing nutritional and metabolic status<sup>2</sup>.

Research indicates that the consumption of carbohydrate-containing solutions up to two hours before anesthesia promotes a better metabolic response in the postoperative period. This strategy prevents the catabolic state caused by prolonged fasting and improves the preservation of muscle mass, contributing to faster patient recovery<sup>1</sup>.

Regarding this topic, a study involving 40 patients undergoing myocardial revascularization surgery (CABG) who received liquid solutions before the procedure evaluated several perioperative clinical variables, including insulin resistance. Although the results did not show significant differences in insulin resistance, preoperative fasting abbreviation with carbohydrate intake in patients with this surgical profile was safe. Furthermore, it improved glycemic control during ICU recovery, reduced the duration of dobutamine use, and shortened ICU and hospital length of stay<sup>3</sup>.

Another prospective, comparative, randomized study conducted in 2019 with patients undergoing surgery for colorectal cancer treatment in Curitiba (PR) found that shortening preoperative fasting resulted in improved metabolic and nutritional responses, in addition to contributing to reduced hospital costs<sup>1</sup>.

Given the positive factors associated with implementing preoperative fasting abbreviation protocols, the following question arises: What are the clinical repercussions of shortened fasting in cholecystectomies? The general objective of this study is to describe the clinical repercussions reported in the scientific literature associated with preoperative fasting abbreviation in patients undergoing cholecystectomy, focusing on clinical outcomes and postoperative recovery.

## Methodology

This is an integrative literature review, which allows the synthesis of current scientific evidence regarding a specific research question through the search for previously published original articles. The objective is to contextualize the current state of knowledge on the topic and encourage the production of new studies<sup>4</sup>.

The research question was developed using the PICO strategy. The defined parameters were: P: Patients undergoing cholecystectomy; I: Preoperative fasting abbreviation; Co: Clinical outcomes and postoperative recovery<sup>11</sup>. Based on this framework, the following research question was formulated: What benefits in terms of

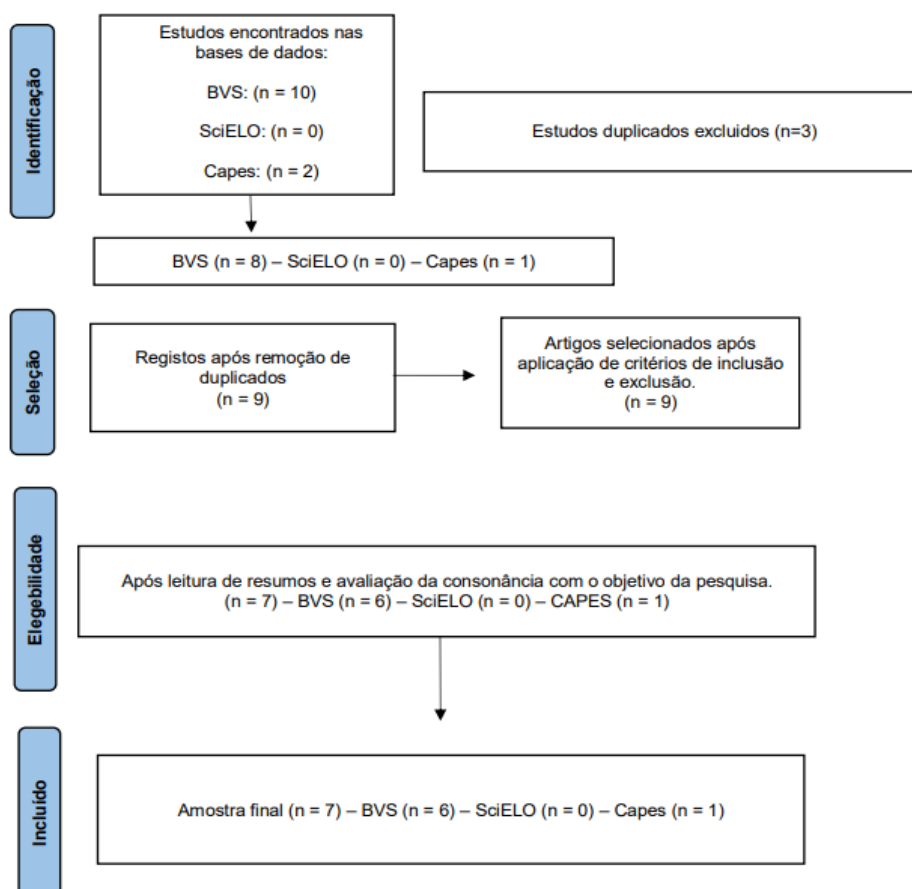
clinical outcomes and postoperative recovery are associated with fasting abbreviation in cholecystectomies?

The inclusion criteria were primary studies, theses, and dissertations published between 2005 and 2025, available in full text, written in Portuguese, and that adequately addressed the research question. The exclusion criteria included incomplete or duplicate studies, publications outside the defined time frame, all types of reviews (integrative, scoping, narrative, and systematic), editorials, manuals, technical notes, experience reports, expert opinions, and articles that did not adequately address the research question.

The following descriptors from the DeCS (Health Sciences Descriptors) controlled vocabulary were used: Fasting AND preoperative period AND cholecystectomy. The databases consulted were the Virtual Health Library (VHL), SciELO, and CAPES.

To assess the methodological quality of the included studies, classification according to levels of scientific evidence was adopted. This methodology allows for a more in-depth critical analysis of the results found in the literature, contributing to the identification of the robustness and reliability of the presented data. In addition, this process facilitates the selection of studies with greater scientific relevance, which is essential for supporting safe and effective clinical decisions<sup>5</sup>.

Figura 1 – Fluxograma do processo de construção de revisão integrativa.



## Results

Figure 2 - Synthesis of selected articles for analysis.

| Authors/Year                                            | Sample                                    | Study Type                                           | Classification | Objectives                                                                                                                                                                       | Results/Conclusion                                                                                                                                                                    |
|---------------------------------------------------------|-------------------------------------------|------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GAVA et al., 2016                                       | 27 female patients aged 18–60 years       | Randomized double-blind clinical study               | Level 2        | To investigate the effects of preoperative fasting abbreviation with oral carbohydrate supplementation on handgrip strength in patients undergoing open cholecystectomy.         | Shortening the preoperative fasting period to two hours with a carbohydrate-containing beverage improves muscle function in the perioperative period.                                 |
| ZANI et al., 2015                                       | 92 female patients                        | Prospective randomized clinical trial                | Level 2        | To assess changes in respiratory function and functional capacity according to the type of preoperative fasting                                                                  | Shortening the preoperative fasting period with a solution containing maltodextrin benefits lung function and preserves dominant handgrip strength.                                   |
| DOCK - NASCIMENTO; AGUILAR - NASCIMENTO; WAITBERG, 2012 | 36 adult female patients aged 18–62 years | Prospective randomized controlled double-blind study | Level 2        | To investigate whether fasting abbreviation with a beverage containing glutamine and dextrinomaltose improves the organic response to surgical trauma                            | Shortening the preoperative fasting period to two hours with glutamine and dextrinomaltose improves insulin sensitivity in patients undergoing elective laparoscopic cholecystectomy. |
| DOCK - NASCIMENTO et al., 2011                          | 56 women aged 17–65 years                 | Randomized clinical trial                            | Level 2        | To investigate the safety of shortening fasting to 2 hours with a carbohydrate- and L-glutamine-rich beverage and to measure residual gastric volume after anesthesia induction. | Shortening the preoperative fasting period to 2 hours with carbohydrate and L-glutamine is safe and does not increase the RGV (Residual Volume) during anesthesia induction.          |
| AGUILAR - NASCIMENTO et al., 2007                       | 54 female patients aged 19–69 years       | Prospective randomized study                         | Level 2        | To assess the effect of carbohydrate beverage intake 6 and 2 hours preoperatively on postoperative gastrointestinal symptoms.                                                    | Preoperative carbohydrate intake reduces the occurrence of postoperative gastrointestinal manifestations and the length of hospital stay after cholecystectomy                        |

|                           |                                   |                                                                       |         |                                                                                                                  |                                                                                                                                                                                                                                                                         |
|---------------------------|-----------------------------------|-----------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOCK - NASCIMENTO, 2012   | 64 adult female patients          | Prospective randomized controlled double-blind study                  | Level 2 | To investigate the effects of fasting abbreviation with a liquid formula containing carbohydrates and glutamine. | The shortening of the preoperative fasting period to two hours, with the ingestion of a liquid formula containing carbohydrate and glutamine, beneficially influences the organic response to trauma in patients undergoing elective videolaparoscopic cholecystectomy. |
| BRITOE CUNHA et al., 2017 | 4 adult patients aged 18–60 years | Prospective randomized placebo-controlled double-blind clinical trial | Level 2 | To evaluate the impact of shortened fasting with carbohydrate-enriched liquid.                                   | The benefits of introducing carbohydrate-enriched liquid, already established in the literature, such as decreased insulin resistance/sensitivity and improved patient well-being, were not fully demonstrated in this study due to the limited sample size.            |

## Discussion

### Fasting Abbreviation and Improved Functional Capacity

The traditional practice of prolonged preoperative fasting has been gradually questioned and replaced by protocols that include shortening this period. The analyzed studies consistently demonstrate that reducing fasting to two hours with carbohydrate-containing solutions promotes important functional benefits. None of the studies reported deaths or postoperative complications.

Gava et al. (2016) evaluated handgrip strength in patients undergoing open cholecystectomy and observed a significant improvement among those who received carbohydrate supplementation up to two hours before surgery compared to the conventional fasting group. This finding reinforces that preservation of muscle function in the perioperative period is favored by energy availability provided by glucose intake, reducing protein catabolism associated with surgical stress.

Similarly, Zani et al. (2015) demonstrated benefits of fasting abbreviation in both respiratory function and functional capacity measured by handgrip strength. These results support the idea that energy substrate availability before anesthetic induction attenuates muscle mass loss and preserves postoperative strength, directly reflecting better functional recovery.

Thus, fasting abbreviation—especially with maltodextrin-rich solutions—not only reduces patient anxiety and discomfort but also acts as an effective measure to preserve functional capacity<sup>3 5</sup>.

### Effects of Fasting Abbreviation on Insulin Resistance

Another thematic axis identified relates to the relationship between reduced fasting and insulin resistance. Prolonged fasting induces peripheral insulin resistance, exacerbates the catabolic response to trauma, and favors postoperative metabolic complications. Conversely, preoperative carbohydrate intake modulates metabolic response and improves insulin sensitivity.

Dock-Nascimento, Aguilar-Nascimento, and Waitzberg (2012) demonstrated that patients undergoing laparoscopic cholecystectomy who received maltodextrin and glutamine solutions two hours before anesthesia showed greater postoperative insulin sensitivity compared to those under conventional fasting. These findings were corroborated by Dock-Nascimento's thesis (2012), which highlighted glutamine's role in attenuating insulin resistance, improving nitrogen balance, and increasing antioxidant capacity.

Dock-Nascimento et al. (2011) verified that fasting abbreviation with carbohydrate- and glutamine-containing beverages did not increase residual gastric volume, ruling out aspiration risk and demonstrating protocol safety.

In agreement, Brito e Cunha et al. (2017) reported improved insulin sensitivity, reduced wound healing time, and improved patient well-being, including reduced hunger and thirst. These findings confirm that fasting abbreviation improves not only laboratory markers but also clinically relevant outcomes.

Therefore, reduced fasting with carbohydrate supplementation—sometimes combined with glutamine—acts as a protective metabolic strategy, reducing stress hyperglycemia and improving immunometabolic response to surgical trauma.

## **Reduced Fasting and Gastrointestinal Repercussions**

Gastrointestinal repercussions were also evaluated. Postoperative discomfort often manifests as nausea, vomiting, and abdominal distension, which may prolong hospitalization.

Aguilar-Nascimento et al. (2007) observed that patients who consumed carbohydrates up to two hours before surgery had a lower incidence of gastrointestinal symptoms and shorter hospital stays compared to those undergoing conventional fasting.

These findings align with the concept that preoperative carbohydrate intake stimulates gastrointestinal motility, reduces insulin resistance, and decreases inflammatory response, resulting in faster recovery of intestinal transit and symptom relief. Reduced fasting also improves subjective patient comfort by decreasing thirst and perioperative anxiety<sup>27</sup>.

Thus, shortened fasting is not only safe but also contributes to reduced gastrointestinal complications and improved postoperative recovery.

## **Final Considerations**

Preoperative fasting abbreviation in cholecystectomy is a clinically and scientifically relevant topic. The results presented represent a focused segment within a broader and evolving field of knowledge. This study does not exhaust the subject but contributes to efforts aimed at improving perioperative care and supporting safe, effective, and humanized practices.

One limitation encountered during the literature search was the limited availability of specific studies addressing shortened fasting in cholecystectomy, which restricted the breadth of results.

Despite these limitations, critical analysis revealed consistent evidence supporting fasting abbreviation. Findings suggest that reducing fasting time combined with the intake of clear liquids or carbohydrate-rich solutions significantly improves metabolic response to surgical trauma, reduces insulin resistance, and increases patient comfort, without increasing risks such as aspiration or adverse gastrointestinal events.

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