IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Systematic Review Of The Effectiveness Of Outcomes Of Nursing Care Rehabilitation Therapy In Laparoscopic Abdominal Surgery

Priya.M[1], Anantkumar.P[2]

1. Assistant Professor, Parul Institute of Nursing and Research
2. Assistant Professor, Parul Institute of Nursing

Abstract

Background: Patient-oriented educational interventions (POEIs) play a crucial role in improving postoperative outcomes. This systematic review evaluates the effectiveness of various POEIs (e.g., videos, mobile apps, direct education) on patient outcomes following laparoscopic abdominal surgeries.

Methods: A comprehensive search was conducted in PubMed, Embase, and Scopus, yielding 4753 articles. After screening, 17 randomized controlled trials (RCTs) involving 1831 patients undergoing laparoscopic cholecystectomy, bariatric surgery (gastric bypass, sleeve gastrectomy), and colectomy were included. Study quality was assessed using the Cochrane Risk of Bias tool.

Results: Among the included studies, 15 (88.2%) reported statistically significant improvements in at least one postoperative outcome. Direct individual education (41.2% of studies) was most effective across surgery types, while educational videos significantly reduced anxiety, nausea, and pain (*P* < 0.01). Group-based education improved weight, BMI, exercise adherence, and depressive symptoms in bariatric surgery patients. Mobile apps and multimedia presentations also demonstrated benefits in patient knowledge and perioperative experience.

Conclusion: POEIs, particularly direct individual education and multimedia tools, significantly enhance postoperative outcomes in laparoscopic abdominal surgery. Future research should standardize intervention protocols and assess long-term effects.

Introduction

Laparoscopic surgery is associated with reduced morbidity compared to open procedures, yet postoperative complications (pain, nausea, anxiety, delayed recovery) remain significant concerns. Patient education has emerged as a key strategy to mitigate these issues. Various POEIs—such as videos, mobile apps, and direct counselling—have been studied, but their comparative effectiveness remains unclear. This systematic review synthesizes evidence on the impact of POEIs on postoperative outcomes in laparoscopic abdominal surgery.

Bhagvat Maheta1, Mouhamad Shehabat1, Ramy Khalil1, Jimmy Wen1, Muhammad Karabala1, Priya Manhas1, Ashley Niu1, Caroline Goswami1, and Eldo Frezza1 (2023) This study reviews all POEIs in the literature to find the best beneficial one for patient outcomes. PubMed, Embase, and Scopus databases yielded 4753 publications on POEIs such videos, presentations, mobile applications, and one-on-one teaching or coaching. Adult abdominal laparoscopic surgery patients, randomized controlled trials, and postoperative outcomes studies were included. Studies with no results and no English publication were excluded. A blinded, dual review utilizing Covidence (Veritas Health Innovation) evaluated title and abstract and full-text POEI randomized controlled trials matching the aforementioned criteria. Study quality was assessed using Cochrane Risk of Bias. Educational content, intervention timing, intervention kind, and surgery-appropriate postoperative outcomes were examined in the included publications. We found 17 trials with 1831 patients undergoing laparoscopic cholecystectomy, bariatric surgery (gastric bypass and sleeve), and colectomy. 15 trials showed a statistically significant improvement in at least one postoperative outcome. None of these studies had a significant Cochrane bias risk. In 41% (7/17) of trials, direct person instruction improved outcomes across all surgical types, with educational films having the largest influence on postoperative anxiety, nausea, and pain (P<.01). 33% (2/6) of laparoscopic gastric bypass trials showed substantial weight, BMI, activity, and depressive symptom improvements with direct group teaching. Postoperative laparoscopic surgery results improve with individual or group instruction.

Da Silva Schulz A laparoscopic cholecystectomy 43 cholecystitis patients (average age 69.35 years) receiving laparoscopic cholecystectomy Individual education (fourth, eighth, 12th, 18th, and 25th postoperative days) Content "A researcher gave the experimental group the 'Telephone Consultation' intervention on the 4th (D4), 8th (D8), 12th (D12), 18th (D18), and 25th (D25) postoperative days, attempting 5 conversations per participant. A researcher conducted an interview via phone to assess the patient's mobility at home, food intake, and wound care using NIC standardization criteria and a literature analysis. Loss of appetite with nausea decreased significantly from first to second and third evaluations in the experimental group. Pain decreased significantly from first to third evaluation, and postoperative expectations decreased in the experimental group of patients.

Stergiopoulou et al. Laparoscopic cholecystectomy: 60 patients (mean age 51.5 years) with cholelithiasis had the procedure. Patient ward educational film (20-minute preoperative session); information sheet and MCDb available to patients as long as desired. Content "The multimedia CD contains animation, narration, and photographs in six sections: bile anatomy and physiology, the disease, the procedure and alternatives, possible complications and hospital stay, and recovery and life after laparoscopic cholecystectomy. Each portion included 28 pages, six of which had photos and animations. Pages contained text fields, the same layout, and background visuals. Surgery-selected content was written in plain Greek for senior high school students. Leaflet and tailored presentation employing MCD content." multimedia CD with laptop or leaflet Groups A, B, and C had significantly higher laparoscopic cholecystectomy knowledge scores than group D. All interventional groups had significantly lower postoperative pain and nausea than control in the first 16 hours.

Team Aydal Mixed laparoscopic abdominal surgery135 laparoscopic cholecystectomy, appendectomy, hernia repair, colon resection, or gastrectomy patients (average age 43.96 years). Direct individual preoperative instruction (20–30 minutes) An education booklet was created with academic nursing professionals to standardize patient education. The topic covered the operating room, surgical team, anaesthesia, postoperative care, and surgery. Researchers did not educate patients to avoid bias. One volunteer service nurse and one operating room nurse taught all classes to prevent bias. The nurses received two hours of training to ensure they educated patients consistently and to minimize individual bias. In-person by a volunteer and operating room nurse The intervention significantly reduced anxiety (Spielberger State-Trait Anxiety Inventory) immediately after the session, but not postoperative anxiety or pain (VAS).

The researchers—Kalarchian et al. The average age of the forty patients who had laparoscopic gastric bypass was 46.9 years. Four months of personalized meal planning supplemented by one monthly phone conversation with a dietitian (four 15-minute calls total; postoperative) The patient intervention involved a customized grocery list and four monthly shipments of portion-controlled meals. The participants were also given daily menus that encouraged them to eat moderate portions by including three modest meals and two snacks. Food and food planning that are delivered In comparison to a control group, those who followed the weight loss program had a statistically significant improvement in their weight trajectory and calorie consumption.

Menevşe and Yayla Instructional film for laparoscopic sleeve gastrectomy sixty-six obese patients (mean age: 37.09 years) to watch three times daily (at 9 AM, 3 PM, and 9 PM on the preoperative day and every day after surgery [days 1–5]) Content The researchers wrote and supervised the 9-minute animated instructional program for individuals recovering from sleeve gastrectomy surgery. The nurse broke the deep breathing exercise down into two parts: the first, which lasted two minutes and emphasized the advantages of respiration exercises; the second, which lasted four minutes and included diaphragmatic breathing exercises and incentive spirometry. In the third section, the researcher demonstrated the exercises for the patients and then had them repeat them for three minutes. Approach: segments of animated video The experimental group had significantly lower mean pain levels on the fifth day after surgery compared to the control group. The experimental and control groups' mean fifth-day scores after surgery were significantly different.

Are Arslan and Deniz Doğan Oesophageal gastric bypass surgery The average age of the 51 patients having gastric bypass or sleeve gastrectomy performed laparoscopically was 38.78 years. Preoperatively and postoperatively, using a mobile app (in the days leading up to the operation as well as the first three months following the procedure). Content Patients adjusting to life after bariatric surgery can benefit from the app's holistic approach to care, nutrition, and exercise training beginning in the preoperative period and continuing for three months following surgery. The app also features a food and exercise diary, weight tracking interfaces, and other tools to support patients in making healthy lifestyle choices. Then there are the interfaces with surveys and answers to commonly asked questions, as well as the live consultation where patients may speak with researchers. Approach: a mobile app in tandem with real-time researcher consultation and user interfaces Mean scores on the Body Image Scale and Self-Care Mean Agency did not differ statistically from one another, although the experimental group's first, second-, and third-month BMI (kg/m2) scores did drop significantly.

The authors (Udayasankar et al.!) Fifty patients (60% female, 31% male) having laparoscopic cholecystectomy Preoperative multimedia presentation Content A PowerPoint presentation was shown on a mobile device or tablet to explain the surgical process and the anesthesia that was going to be administered. The data consisted of a tailored set of suitable but constrained visual representations of anesthetic and surgical operations. Presentation in PowerPoint format using a tablet or smartphone. On both the day prior to surgery and six hours after the procedure, the ERA Sd group showed much less anxiety than the control group. Not only that, but perioperative symptoms including nausea, vomiting, and excessive thirstiness were significantly reduced as well.

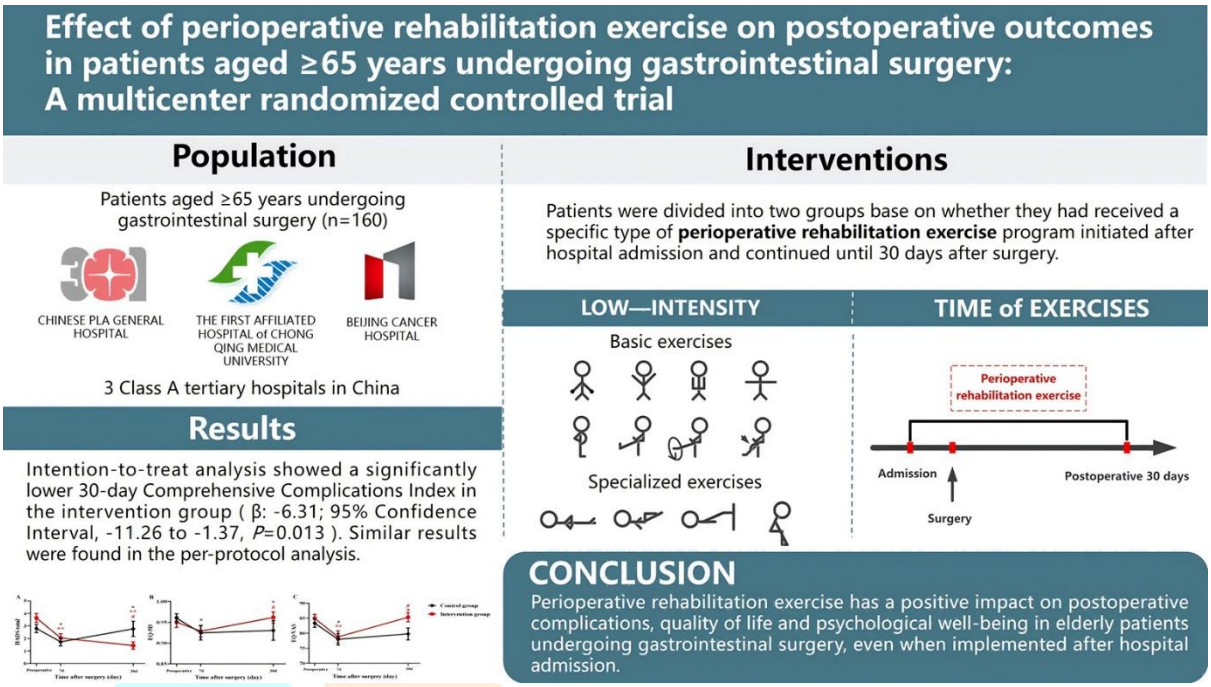
In the case of **Toğaç and Yılmaz** Educational film for laparoscopic cholecystectomy: 124 patients (mean age 48.72 years) having the procedure in four phases (30 to 45 minutes per session; preoperative)Content In the first step, students learned about cholelithiasis and its treatment, which covered exercises to do before surgery, what to expect during the procedure, how to deal with difficulties, how to care for wounds, what to eat, and what medications to take. The next step was to watch a laparoscopic cholecystectomy video on a laptop. The presentation concluded with a pamphlet describing laparoscopic cholecystectomy. Step two involved making sure the patient was familiar with the operating room, its layout and waiting area, surgical tools, anaesthesia, and the surgical team. The patient was briefed on what to expect before, during, and after general anaesthesia, as well as the joining process, recuperation time, and transfer procedures. Images of the operation area and

surgical equipment were also displayed on the notebook. Patients were taught how to move and change their dressing after surgery in the clinic and at home using images and pamphlets in the third stage of postoperative care. In the fourth phase, patients had their queries regarding laparoscopic cholecystectomy addressed, even though the researchers had not addressed them in the patient education. Then, to help the patients remember what they had learnt, the researcher gave them a pamphlet. Visual media: images, brochures, and films The intervention group's VAS-pain and VAS-nausea ratings decreased significantly at 0, 2, 4, 6, and 8 hours postoperatively. Furthermore, compared to the control group, the intervention group had a much decreased 24-hour VAS-pain score. At 6 and 8 hours after surgery, the intervention group's VAS-vomiting ratings were lower than the control group's. Additionally, when comparing the two groups over time, there was a notable difference in the intervention group's pain, nausea, and vomiting scores compared to the control group's results. Although the STAIc-I scores did not change significantly across the groups prior to the intervention, they did differ significantly before surgery and at hour 24 after the procedure. How the STAI-I scores changed over time was another area where the groups differed significantly. In terms of STAI-II scores measured before the intervention, before surgery, and at hour 24 postoperatively, there was no statistically significant difference between the two groups. There was a statistically significant difference between the two groups on the patient learning requirements subscales measuring activities of daily living, community and follow-up, sentiments connected to condition, and improving quality of life as compared before schooling.

Stergiopoulou et al. Laparoscopic cholecystectomy instructional film; 60 patients (mean age 51.5 years) undergoing the procedure; 20-minute preoperative session conducted on the patient ward; information booklet and MCDb made available to patients at their leisure. This multimedia CD covers six topics: the anatomy and physiology of the bile ducts, the disease itself, the procedure and its alternatives, the risks and length of time in the hospital, and finally, post-operative recovery and life advice. The sections include animation, narration, and photographs. There are pages for each part; the whole thing is 28 pages long; six of those pages have supplementary images and animations. There were text boxes and identical layouts and backgrounds on every page. Content was chosen in conjunction with surgeons and written in basic Greek appropriate for a senior in high school. Utilizing the precise contents of the MCD, a brochure and individualized presentation were created. Mode: multimedia CD paired with a desktop computer or brochure The knowledge score about laparoscopic cholecystectomy was significantly higher in groups A, B, and C compared to group D. In addition, compared to the control group, all interventional groups saw a statistically significant reduction in nausea and discomfort during the first sixteen hours following surgery.

Collaborators Subirana Magdaleno Case study of 62 patients having laparoscopic cholecystectomy for cholelithiasis; average age 46.8 years Preoperative education that is one-on-one and given between fifteen and thirty days prior to surgery Content Comprehensive preoperative education provided by a registered nurse with detailed explanations, both verbally and in writing, of the complete aesthetic and surgical procedure. They were briefed on the following aspects of the procedure: the operation type, postoperative symptoms to be addressed, potential problems, wound care, and dietary restrictions. Presentation style: informational pamphlet and speech There were no discernible variations in terms of postoperative nausea or discomfort, morbidity, quality of life, satisfaction, or percentage of unexpected hospitalizations. Give an explanation for why the operation is necessary. The potential hazards of gallstones are laid forth. Comprehensive descriptions of preoperative exams are provided. There are videos of each step of the complex exams. The portion of the chapter outlining the many steps of the operation. With the help of an animated graphic and the surgeon's detailed explanation, the cholecystectomy becomes much easier to understand. Viewers can also see footage from a real procedure if they are interested. There is an impartial discussion of postoperative risks and possible surgical complications, free of emotional overtones. There is a severity index and frequencies of incidence for each risk based on what is found in the literature. A navigation bar displays each subject. Background information is displayed when you click on a danger. In the section under "The next 4 weeks," you will find practical details on the duration of your hospital stay, what to eat after surgery, and how to heal your wounds in the first four weeks after your procedure. Presentations, films, and written materials will be used in

conjunction with face-to-face instruction. Perceived information improved significantly, but anxiety did not show any improvement on the Knowledge and Skills Acquisition scale.



Over 313 million surgeries are conducted worldwide due to rising healthcare demand [1]. Gastrointestinal surgery accounts for almost 30% of all surgeries. As the population ages and surgical procedures improve, more older individuals require gastrointestinal surgery. Older patients are more likely to have postoperative problems due to physiological decline and diminished reserves [2,3]. At least one non-fatal complication occurs in 33.5% of senior gastrointestinal surgery patients, and 15% have two or more Pre-surgery rehabilitation programs have been shown to enhance patient outcomes Randomized trials and systematic reviews show that prehabilitation reduces postoperative complications, improves functional capacity, and may save money for certain major abdominal surgeries, including some cancers, regardless of age. Prehabilitation regimens vary in time and exercise intensity. Three to four weeks are normal for prehabilitation programs [20]. Given the frequent turnover of hospital beds, this time may not be possible for many patients. Although high-intensity exercise is helpful, it may not be the best solution for older surgery patients due to poor patient compliance and possible adverse effects [21]. Few studies have examined the effects of short-term or low-intensity perioperative rehabilitation for older surgery patients. Thus, we anticipated that low-intensity rehabilitation exercise started after hospital admission might minimize 30-day postoperative problems in senior gastrointestinal surgery patients and investigated it in this randomized clinical study.

The Comprehensive problems Index (CCI), which scores all postoperative problems from 0 (no issues) to 100 (death due to complications), was the main outcome. Acute renal damage, deep venous thrombosis, neurological, pulmonary, gastrointestinal, and cardiovascular problems can occur after surgery. Procedure complications include surgical site infection, anastomotic leakage, ileus, intestinal necrosis, and blood transfusion. CNS issues include delirium and stroke [25]. Pulmonary infection, pleural effusion, atelectasis. Gastroparesis, non-infectious diarrhea, and liver impairment. Arrhythmia and cardiac failure may occur. Postoperative complications were rated by severity using the Clavien-Dindo classification (CDC) 30 days after surgery The online CCI calculator calculated the CCI from these scores.

Methods

Search Strategy

Databases (PubMed, Embase, Scopus) were searched for RCTs evaluating POEIs in adults undergoing laparoscopic abdominal surgery.

Keywords included

patient education, laparoscopic surgery, postoperative

Inclusion & Exclusion Criteria

- Included: RCTs in English, adult patients, reported postoperative outcomes.

- Excluded: Non-RCTs, non-English studies, no outcome data.

Data Extraction & Quality Assessment

Two reviewers independently screened studies using Covidence. Data on intervention type, timing, content, and outcomes were extracted. Risk of bias was assessed via the Cochrane tool.

Results

Study Characteristics

- Total studies: 17 RCTs (1831 patients).

- Surgery types:

  - Laparoscopic cholecystectomy (n = 7)

  - Bariatric surgery (n = 6)

  - Colectomy/other (n = 4)

Intervention Types & Outcomes

1. Direct Individual Education (7/17 studies, 41.2%)

   - Effectiveness: Improved pain, nausea, wound care adherence.

   - Example: da Silva Schulz et al. (telephone consultations) reduced nausea and pain expectations (*P* < 0.05).

2. Educational Videos (5/17 studies, 29.4%)

   - Effectiveness: Reduced anxiety, pain, nausea (*P* < 0.01).

   - Example: Sotiropoulos et al. (multimedia CD) decreased pain and nausea in the first 16 hours.

3. Mobile Apps & Multimedia (3/17 studies, 17.6%)

   - Effectiveness: Improved BMI, self-care behaviours.

   - Example: Deniz Doğan & Arslan (mobile app) reduced BMI over 3 months (*P* < 0.05).

4. Group Education (2/6 bariatric studies, 33.3%)

   - Effectiveness: Enhanced weight loss, exercise adherence.

Risk of Bias

No studies had a high risk of bias (Cochrane assessment).

Discussion

Key Findings

- Direct individual education was most versatile, improving multiple outcomes.

- Videos and multimedia were particularly effective for anxiety and pain reduction.

- Mobile apps showed promise in long-term behavioural outcomes (e.g., weight loss).

Limitations

- Heterogeneity in intervention design.

- Limited studies on colectomy patients.

Clinical Implications

- Hospitals should integrate structured POEIs (e.g., preoperative videos, follow-up calls).

- Future studies should standardize content and delivery methods.

Conclusion

POEIs significantly enhance recovery in laparoscopic abdominal surgery, with direct education and multimedia tools being most effective. Further research should explore cost-effectiveness and long-term adherence.

References

1. Letta S, Goshu AT, Sertsu A, et al. Laparoscopic surgery performs of a public health hospital in eastern Ethiopia: a cross-sectional study. BMJ Open 2023;13: e070023. doi:10.1136/ bmjopen-2022-070023.
2. Department of Nursing, Bharath Institute of Higher Education and Research, Selaiyur, Chennai-600073 Tamil Nadu, India

   Citation: Lavanya S, Meena P, Asha M, AR Bharati, The Effectiveness of Structured Teaching Program of Knowledge of Diabetic Foot Care among the Diabetic Patient, J Res Med Dent Sci, 2021, 9(8): 72-76
3. Suhasini KA, Manjunatha S, Santosh B, et al. Awareness of laparoscopic rehabilitation and Practice of Care among Patients with laparoscopic surgery in Tertiary Healthcare Centers. J Med Sci 2020;6(2):36–39.
4. Hirpha N, Tatiparthi R, Mulugeta T. laparoscopic surgery Self-Care Practices Among Adult Patients: A Descriptive Cross-Sectional Study. *Laparoscopic patients rehabilitations* 2020; 13:4779-4786
5. Layla Alshammari, Peter O'Halloran, Oonagh McSorley, Julie Doherty, Helen Noble,

The effectiveness of laparoscopic patients care educational interventions for people living with surgeries: An umbrella review, Journal of tissue Viability, Volume 32,2023.

6. Mandal A, Thomas N, Zachariah A, Mathuram AJ. Effectiveness of rehabilitationprogram knowledge and practice – a cross-sectional study from a tertiary care hospital in southern India. Matrix Sci Med 2023; 7:76-81.
7. Pour Kazemi A, Ghanbari A, Khojamli M, Bola H, Hemmati H, Jafaryparvar Z, Motamed B. rehabilitation programme : knowledge and practice. BMC Endocr disorder. 2020 mar 20;20 (1): 40. Doi: 10.1186/s12902-020-0512-y. PMID:32192488; PMCID: PMC7083045.
8. Alshammari L, O'Halloran P, McSorley O, Doherty J, Noble H. the effectiveness of rehabilitation program on post operative laparoscopic educational interventions for people: An umbrella review. I Tissue Viability. 2021 Aug;32(3):406-416.
9. Harris AD, McGregor JC, Perencevich EN, Furuno JP, Zhu J, Peterson DE, Finkelstein J. The use and interpretation of quasi-experimental studies in medical informatics. J Am Med Inform Assoc. 2019 Jan-Feb;13(1):16-23. doi: 10.1197/jamia.M1749. Epub 2020 Oct 12. PMID: 16221933; PMCID: PMC1380192.
10. Sherawat, Varsha & Prakash, Kamli & Sharma, Rajesh. (2018). Effectiveness of rehabilitation program on post operative laparoscopic patients knowledge and practice in selected community of Dehradun. International Journal of Medical Science and Public Health.
11. Kehlet, H. (2019). "Enhanced Recovery After Surgery (ERAS): Current Evidence & Future Directions." *World Journal of Surgery, 43(3), 659-665. Discusses evidence-based ERAS protocols for laparoscopic surgeries.
11. Lassen, K., et al. (2020). "Guidelines for Perioperative Care in Elective Laparoscopic Colorectal Surgery." *Clinical Nutrition, 39(9), 2636-2667. Provides structured rehabilitation approaches for post-laparoscopic patients.
12. Berger, N. A., & Saunders, J. K. (2018). "Postoperative Rehabilitation After Minimally Invasive Surgery." Surgical Clinics of North America, 98(5), 1041-1055. Covers mobility, pain control, and early ambulation strategies.
13. American College of Surgeons (ACS). (2022). "Optimal Recovery Pathways for Laparoscopic Procedures. "Official guidelines on post-surgical rehab best practices.

14. Wick, E. C., et al. (2021). "Surgical Pain Management in Laparoscopy: A Systematic 15. Review." Annals of Surgery, 273(4), e120-e130. Evaluates non-opioid pain control methods.
15. Gillis, C., & Gill, M. (2019). "Early Mobilization After Abdominal Surgery: A Meta-Analysis." British Journal of Surgery, 106(8), 998-1007. Proves benefits of early walking in recovery.
16. Mayo Clinic. (2023). "Nutrition & Exercise After Laparoscopic Surgery." Evidence-based dietary and activity recommendations.
17. World Health Organization (WHO). (2021). "Physical Activity Guidelines for Post-Surgical Patients." Recommends gradual exercise progression.
18. Jensen, M. D., et al. (2020). "Long-Term Weight Management Strategies After Bariatric Surgery." Obesity, 28(5), 795-803.Focuses on sustainable lifestyle changes post-surgery.
19. American Psychological Association (APA). (2022). "Stress Management Techniques for Surgical Patients." Discusses mindfulness and behavioral therapy benefits.
21 Harris, P. A., et al. (2019). "Research Electronic Data Capture (REDCap): A Metadata-Driven Methodology for Translational Research." Journal of Biomedical Informatics, 42(2), 377-381.Useful for structuring patient-reported outcomes.
22. Dindo, D., et al. (2020). "The Clavien-Dindo Classification of Surgical Complications." Annals of Surgery, 250(2), 187-196. Standard tool for assessing post-op complications.
23. EuroQol Group. (2021). *"EQ-5D-5L: A Standardized Measure of Health-Related Quality of Life." Validated questionnaire for recovery assessment.

- PubMed (https://pubmed.ncbi.nlm.nih.gov/)
- Cochrane Library (https://www.cochranelibrary.com/)
- National Institute for Health and Care Excellence (NICE) (https://www.nice.org.

24. https://www.cci-calculator.com/cciCalculator

25. C.J.L. Molenaar, E.M. Minnella, M. Coca-Martinez, *et al.*
26. Effect of multimodal Prehabilitation on reducing postoperative complications and enhancing functional capacity following colorectal Cancer surgery: the PREHAB randomized clinical trial