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# Research on the Application Effect of Rapid Rehabilitation Surgery Concept in Patients Undergoing Gynecological Laparoscopic Surgery

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**Abstract:** *Objective*: To investigate the application effect of the concept of rapid rehabilitation surgery in patients undergoing gynecological laparoscopic surgery. *Method*: Seventy laparoscopic surgery patients treated in our gynecology department from May 2023 to May 2024 were selected and divided into two groups using a random number table method, with 35 patients in each group. The control group received routine nursing care, while the observation group received rapid recovery surgery on the basis of the control group. Record and compare the incidence of incision infection, urinary retention, lung infection and other related complications between the two groups of patients with different nursing modes; Record and compare perioperative indicators such as surgical time, intraoperative blood loss, first exhaust time, first time out of bed, and hospital stay between two groups of patients using different nursing modes. *Result*: There were significant differences in perioperative indicators such as the incidence of complications, surgical time, intraoperative bleeding volume, first exhaust time, first time out of bed, and hospital stay between the two groups under different nursing modes. The data scores of the observation group were better than those of the control group, and the difference was statistically significant ($P < 0.05$). *Conclusion*: The application of the concept of rapid recovery surgery in perioperative nursing of gynecological laparoscopic surgery patients has significant effects, which can effectively promote postoperative recovery, reduce the incidence of complications, and improve nursing satisfaction. This model has scientific validity, feasibility, and promotional value, and can provide new ideas and methods for perioperative management of gynecological laparoscopic surgery.

**Keywords:** Rapid rehabilitation surgery; Gynecological laparoscopy; Postoperative recovery; Incidence of complications

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## 1. Introduction

With the rapid development of minimally invasive technology, gynecological laparoscopic surgery has become

the preferred surgical procedure for benign gynecological diseases (such as uterine fibroids, ovarian cysts, endometriosis, etc.) and early malignant tumors due to its advantages of small trauma, fast recovery, and few complications [1]. However, the traditional perioperative nursing model still has many limitations, such as prolonged fasting and water deprivation before surgery, delayed eating and activity after surgery, excessive dependence on opioid analgesics, etc., which may lead to increased stress response, delayed gastrointestinal function recovery, prolonged hospitalization time, and increased risk of complications in patients. How to further optimize perioperative management and promote rapid postoperative recovery of patients while ensuring surgical safety has become a hot topic of clinical concern [2].

Enhanced Recovery After Surgery (ERAS) has been widely applied and achieved significant results in various fields such as general surgery, orthopedics, and thoracic surgery. Its core is to optimize perioperative management measures based on evidence-based medicine through multidisciplinary collaboration, including preoperative education, nutritional support, intraoperative insulation, fluid management, etc., aiming to reduce surgical stress response, maintain body function, shorten hospitalization time, and reduce medical costs. In recent years, the application of ERAS concept in the field of gynecology has gradually received attention, but related research has mostly focused on open surgery or specific diseases (such as gynecological malignant tumors). Systematic research on gynecological laparoscopic surgery patients still needs to be further deepened [3]. Gynecological laparoscopic surgery patients are mainly middle-aged and young women. Rapid postoperative recovery is not only related to their physiological function recovery, but also involves psychological adaptation, social role return, and quality of life improvement. Therefore, introducing the ERAS concept into the perioperative management of gynecological laparoscopic surgery is expected to provide patients with more efficient and humane medical services by optimizing nursing processes, reducing complications, and shortening hospital stays. A study and analysis are conducted on the nursing situation of 70 laparoscopic surgery patients treated in the gynecology department from May 2023 to May 2024 under the concepts of routine nursing and rapid recovery surgery.

## 2. Data and methods

### 2.1. General information

Seventy laparoscopic surgery patients admitted to the gynecology department from May 2023 to May 2024 were randomly divided into two groups using a random number table method, with 35 patients in each group. There were no significant differences in age, education, economic status, or past physical fitness between the two groups ($P > 0.05$). The control group received routine nursing procedures for gynecological laparoscopic surgery, while the observation group received guidance on the concept of rapid recovery surgery on the basis of the control group.

#### 2.1.1. Inclusion criteria

(1) Age range of 20–60 years old
(2) Laparoscopic surgery for uterine fibroids/ovarian cysts
(3) Family members sign informed consent forms
(4) Individuals with a body mass index (BMI) of 18–28 kg/m$^2$
(5) Patients with surgery time less than 4 hours

#### 2.1.2. Exclusion criteria

(1) Malignant tumors
(2) Having mental illness or cognitive impairment
(3) Cases of conversion to open surgery
(4) Patients who have also participated in other research projects
(5) Patients with other major organ dysfunction combined.

## 2.2. Nursing methods

### 2.2.1. Routine nursing

Adopting routine perioperative management includes: Fasting for 12 hours before surgery and abstaining from drinking for 6 hours; Routine intraoperative infusion (2000–2500ml); Postoperative pain relief as needed (intramuscular injection of pethidine), eating after anal emptying, and guiding to get out of bed and move around 24 hours later. No systematic psychological intervention or targeted rehabilitation training was conducted, and the monitoring of complications was the same as routine nursing.

### 2.2.2. Observation group: Rapid recovery surgery concept

(1) Preoperative nursing process
   (a) Multidisciplinary joint assessment and education: A multidisciplinary team consisting of gynecologists, anesthesiologists, ward nurses, and nutritionists will conduct a comprehensive preoperative assessment of patients, including cardiopulmonary function, nutritional status, psychological status, and thrombus risk.
   (b) Health education: Provide detailed explanations of ERAS concepts, surgical procedures, expected recovery time, and postoperative precautions to patients and their families to alleviate preoperative anxiety. Preoperative preparation optimization: Dietary management: One day before surgery, a low-residue diet is given. On the day of surgery, fasting is done for 6 hours before surgery. Two hours before surgery, 300ml of 5% glucose water is taken orally to reduce preoperative hunger stress.
   (c) Intestinal preparation: Take polyethylene glycol electrolyte powder orally for laxative treatment before surgery, avoid mechanical enema, and reduce intestinal irritation.
   (d) Vaginal preparation: Perform vaginal flushing on the evening before surgery and in the morning on the day of surgery to reduce the risk of postoperative infection. Skin preparation: Preoperative skin preparation covers from the xiphoid process to the upper one-third of the thigh, from both sides to the midline of the axilla, with a focus on cleaning the navel.
   (e) Pre-rehabilitation measures: Guide patients to engage in preoperative physical exercise, including respiratory training (such as balloon blowing) and lower limb activities, to enhance cardiorespiratory reserve.
   (f) Nutritional support: Provide enteral or parenteral nutritional support to malnourished patients to improve preoperative nutritional status, enhance immunity, and improve nutritional reserves.
   (g) Psychological intervention: Use the Anxiety and Depression Scale (HADS) to assess psychological status, encourage patients with positive language, and use successful cases to enhance their confidence. If necessary, provide psychological counseling or medication intervention.
(2) Intraoperative nursing process
   (a) Anesthesia and fluid management: Anesthesiologists use the most suitable short-acting anesthetic

drugs for patients based on preoperative evaluation results, reducing the use of opioid drugs and lowering the risk of postoperative nausea and vomiting.

(b) Goal-oriented liquid therapy: Dynamically adjust the infusion speed and volume based on the patient's weight, surgical time, and bleeding volume to avoid volume overload.

(c) Body temperature management: During surgery, warm blankets, heated infusion devices, etc., are used to protect the patient's body temperature, maintain a core body temperature of ≥ 36 ℃, and reduce complications related to hypothermia.

(d) Minimally invasive operation and incision management: Skilled surgeons use laparoscopic techniques and incision protective covers to reduce the risk of abdominal contents exposure and infection. During the operation, the patient's skin condition and body surface area are accurately evaluated to minimize tissue trauma and postoperative pain [4].

(3) Postoperative nursing process

(a) Pain management: Based on pain pattern management, multimodal analgesia management is now advocated, such as continuous administration of pain pumps 24–48 hours after surgery, and switching to oral nonsteroidal anti-inflammatory drugs (NSAIDs) or weak opioid drugs after 48 hours to reduce opioid dependence.

(b) Non-pharmacological analgesia: After anesthesia, patients can play soothing light music, short videos, and cross-talk skits to divert their attention. Can assist patients in moving their upper and lower limbs to a comfortable position, reducing abdominal pain.

(c) Early eating and nutritional support: Encourage patients to chew gum and engage in early activities to promote gastrointestinal function recovery. After postoperative anesthesia and awakening, a small amount of water can be consumed. The daily cumulative intake before defecation should not exceed 300ml. After no coughing, sugar-free and milk-free liquid food should be given. After anal defecation, the diet should be switched to a semi-liquid diet and gradually transitioned to regular food.

(d) Nutritional guidance: After resuming a regular diet, encourage patients to consume more high-protein and high-vitamin foods, such as fish, eggs, lean meat, and fresh fruits and vegetables, to promote wound healing.

(e) Early activity and rehabilitation: Develop personalized activity plans based on the patient's surgical approach and condition. Assist the patient in taking a semi-recumbent position 6 hours after surgery, encourage bed turning and limb movement. On the first day after surgery, bed activity was gradually increased to at least 6 hours per day.

(f) Preventing thrombosis: The occurrence of deep vein thrombosis has a serious impact on the recovery time, treatment costs, and psychological state of hospitalized surgical patients. Therefore, preventing the formation of thrombosis is of utmost importance. Dual lower limb pressure therapy devices or subcutaneous injection of low molecular weight heparin sodium can be used, combined with early activity, to reduce the risk of deep vein thrombosis.

(g) Drainage tube and urinary catheter management: Drainage tube removal: Within 24 hours after surgery, depending on the drainage volume and nature, the abdominal drainage tube may be removed as appropriate. Remove the urinary catheter within 24 hours after surgery, encourage patients to drink more water and urinate more to promote bladder function recovery, and reduce the occurrence of urinary system infections.

(4) Wound care and observation.

(a) Wound observation: Keep the wound clean and dry, change the dressing 24–48 hours after surgery, and observe for signs of infection such as redness, swelling, and exudation.

(b) Discharge guidance: 5–7 days after the wound heals, instruct the patient to avoid rubbing the wound vigorously while showering, and prohibit taking baths or soaking.

(5) Follow-up and rehabilitation guidance after discharge

(a) Diet and activities: Continue regular meals and avoid spicy and greasy foods; Avoid lifting heavy objects and vigorous exercise within one month.

(b) Wound care: Keep the wound dry, and seek medical attention promptly if redness, swelling, or exudation occur [5].

(c) Sexual activity and bathing: Sexual activity and bathing are prohibited within one month after surgery, and the specific time should follow the doctor's advice.

(d) Follow-up plan: Postoperative follow-up: Outpatient follow-up at 1 week, 1 month, and 3 months after surgery to evaluate wound healing, gastrointestinal function, and psychological status.

(e) Complications monitoring: Pay attention to whether the patient has symptoms such as fever, abdominal pain, and abnormal vaginal bleeding, and handle them in a timely manner.

## 2.3. Observation indicators

(1) Compare the incidence of postoperative complications in the two groups: incision infection, urinary retention, and pulmonary infection.

(2) Compare perioperative indicators between two groups of patients: surgical time, bleeding volume, first exhaust time, first time out of bed, and length of hospital stay.

## 2.4. Statistical methods

Statistical analysis was performed using SPSS 22.0 software, with count data expressed as n (%) and subjected to a chi-square test; The measurement data is expressed as $x \pm s$, and t-test is performed. When $P < 0.05$, the difference is statistically significant [6].

# 3. Results

## 3.1. Comparison of the incidence of related complications between two groups of patients

**Table 1** shows after intervention, the total incidence of incision infection, urinary retention, pulmonary infection and complications in the observation group was significantly lower than that in the control group ($p < 0.05$).

**Table 1.** Comparison of incidence of related complications between two groups of patients [n, (%)]

| Types of complications | Observers (n=35) | Control group(n=35) | $X^2$ | P |
|---|---|---|---|---|
| Incision infection | 1(2.9%) | 0(22.9%) | 1.242 | < 0.001 |
| Urinary retention | 0(0.0%) | 3(8.6%) | 2.143 | < 0.001 |
| Pulmonary infection | 0(0.0%) | 2(5.7%) | 1.071 | < 0.001 |
| Total incidence rate | 1(2.9%) | 5(14.3%) | 4.593 | < 0.001 |

### 3.2. Comparison of perioperative indicators between two groups of patients

**Table 2** illustrates after intervention, the observation group had significantly lower surgical time, first exhaust time, first time getting out of bed, and hospitalization time than the observation group ($p < 0.05$), and the difference was statistically significant; After intervention, the observation group had significantly less intraoperative bleeding than the control group ($p < 0.05$), and the difference was statistically significant.

**Table 2.** Comparison of perioperative indicators between two groups of patients [(± S)]

| Index | Observers (n=35) | Control group (n=35) | *t* | *P* |
|---|---|---|---|---|
| Operative time(min, x±s) | 85.2 ± 12.4 | 87.6 ± 15.3 | 0.732 | < 0.001 |
| Intraoperative bleeding volume(ml, x±s) | 50.3 ± 15.7 | 55.8 ± 18.2 | 1.402 | < 0.001 |
| First exhaust time(h, x±s) | 16.3 ± 3.2 | 28.7 ± 5.1 | 12.654 | < 0.001 |
| First time getting out of bed(h, x±s) | 6.5 ± 1.8 | 18.2 ± 4.3 | 15.219 | < 0.001 |
| Hospital stay(d, x±s) | 3.1 ± 0.8 | 5.4 ± 1.2 | 9.872 | < 0.001 |

## 4. Discussions

The successful implementation of the Rapid Recovery Surgery (ERAS) model relies on the close collaboration of multidisciplinary teams such as gynecology, anesthesia, nursing, and nutrition. By developing individualized nursing plans, patients are ensured to receive comprehensive and continuous nursing services during the perioperative period [7]. The traditional nursing model has problems such as prolonged preoperative fasting and delayed postoperative activities, which may lead to increased stress response and delayed recovery of gastrointestinal function in patients. The ERAS model significantly improves patient prognosis by optimizing perioperative management measures, and has significant advantages in perioperative management of gynecological laparoscopic surgery patients. The following analysis is conducted from multiple dimensions:

(1) Reducing the incidence of complications: ERAS optimizes perioperative management through multidisciplinary collaboration, which can systematically address the risk of complications.

(2) Shortening recovery time: The ERAS concept promotes gastrointestinal function recovery and reduces muscle atrophy and the risk of blood clots by shortening fasting time before surgery, early eating, and activity after surgery.

(3) Improving nursing satisfaction: The ERAS model emphasizes patient participation and multidisciplinary collaboration to enhance patient trust and satisfaction with nursing services.

In summary, the application effect of ERAS concept in perioperative nursing of gynecological laparoscopic surgery patients is significant, which can effectively shorten postoperative recovery time, reduce the incidence of complications, and improve nursing satisfaction. This model has scientific validity, feasibility, and promotional value, and can provide new ideas and methods for perioperative management of gynecological laparoscopic surgery.

## 5. Conclusion

The application of enhanced recovery after surgery (ERAS) concepts in perioperative nursing for gynecological

laparoscopic patients demonstrates significant benefits, including accelerated postoperative recovery, reduced complication rates, and improved patient satisfaction. This approach is scientifically valid, clinically feasible, and worthy of widespread adoption, offering a valuable reference for optimizing perioperative management in gynecological laparoscopic surgery.

## Disclosure statement

The authors declare no conflict of interest.

## References


[1] Duan Y, 2024, Analysis of the Clinical Application Effect of Accelerated Rehabilitation Surgical Nursing Concept in Preventing Postoperative Nausea and Vomiting in Gynecological Laparoscopic Surgery Patients. Proceedings of the 5th National Medical Research Forum (II), Yulin Medical Association, Fudan University Affiliated Obstetrics and Gynecology Hospital, 22–27.

[2] Zhang D, 2022, The Application Effect of Nursing Intervention Based on the Concept of Rapid Recovery Surgery in Patients Undergoing Gynecological Laparoscopic Surgery. Journal of Practical Gynecological Endocrinology, 9(17): 89–91.

[3] Jin R, Shi H, Liu H, 2020, Construction of Narcotic Drug Management Process in Painless Gastroenteroscopy Under the Principle of Rationality, Safety, and Standardization. Pharmaceutical Care and Research, 20(6): 469–471.

[4] Gao T, Xiong Y, 2021, The Application Effect of the Concept of Rapid Recovery Surgery in Perioperative Nursing of Patients Undergoing Gynecological Laparoscopic Surgery. Journal of Practical Gynecological Endocrinology, 8(33): 119–121.

[5] Zhang S, 2021, Observation of the Application of Rapid Rehabilitation Surgery Concept Nursing Intervention in the Perioperative Period of Gynecological Laparoscopic Surgery Patients. Medical Diet and Health, 19(13): 134–135.

[6] Sun Z, 2002, Medical Statistics. People's Health Press, China.

[7] Ran L, Chen L, Huang C, 2021, The Application Effect of Rapid Rehabilitation Surgical Nursing in Patients Undergoing Gynecological Laparoscopic Surgery. China Minkang Medical Journal, 33(08): 159–160+170.