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HYGIENIC ASSESSMENT OF DIETARY NUTRITION IN PATIENTS WHO UNDERWENT COLOSTOMY SURGERY

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Abstract

This article examines the hygienic assessment of dietary nutrition in patients who underwent colostomy surgery from a clinical and preventive medicine perspective. Nutritional management after colostomy is a decisive factor influencing intestinal adaptation, wound healing, metabolic stability, stool regulation, and the patient's overall quality of life. In the early and late postoperative periods, patients often face a number of diet-related challenges, including irregular bowel output, excessive gas formation, odor, dehydration, electrolyte imbalance, reduced appetite, and poor tolerance to certain foods. These conditions require a scientifically grounded dietary regimen based on hygienic principles, physiological needs, and the functional state of the gastrointestinal tract. The study emphasizes that dietary support for colostomy patients should not be limited to caloric adequacy alone, but must also include meal timing, food consistency, nutrient balance, sanitary quality, fluid intake, and individual tolerance. Special attention is paid to the gradual expansion of the diet, the role of protein-rich and vitamin-containing foods in tissue recovery, and the hygienic prevention of gastrointestinal irritation and infectious complications. The article also highlights the importance of patient education regarding safe food selection, meal preparation, and self-monitoring of intestinal response. It is

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concluded that a hygienically optimized dietary approach contributes significantly to postoperative recovery, complication prevention, digestive comfort, and long-term rehabilitation in patients after colostomy surgery.

Keywords: Colostomy, dietary nutrition, hygienic assessment, postoperative care, intestinal adaptation, therapeutic diet, gastrointestinal function, nutritional management, surgical rehabilitation, patient recovery

KOLOSTOMIYA JARROHLIK AMALIYOTI O`TKAZILGAN BEMORLARNING PARHEZ OVQATLANISHINI GIGIYENIK BAHOLASH

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Annotatsiya:
Ushbu maqolada kolostomiya jarrohlik amaliyoti o‘tkazilgan bemorlarning parhez ovqatlanishini gigiyenik baholash masalasi klinik va profilaktik tibbiyot nuqtayi nazaridan yoritilgan. Kolostomiyadan keyingi davrda ovqatlanishni to‘g‘ri tashkil etish ichakning yangi holatga moslashuvi, yara bitishi, modda almashinuvining barqarorlashuvi, najas ajralishining me’yorlashuvi hamda bemor hayot sifatining yaxshilanishida muhim omil hisoblanadi. Operatsiyadan keyingi erta va kech davrlarda bemorlarda ich ketishi yoki qabziyat, ortiqcha gaz hosil bo‘lishi, noxush hid, suvsizlanish, elektrolitlar muvozanatining buzilishi, ishtahaning pasayishi va ayrim oziq-ovqat mahsulotlariga toqatsizlik kabi holatlar kuzatilishi mumkin. Bunday sharoitda gigiyenik tamoyillarga, fiziologik ehtiyojlarga va me’da-ichak tizimining funksional holatiga asoslangan ilmiy asosli ovqatlanish tartibi zarur bo‘ladi. Tadqiqotda kolostomiya bilan yashovchi

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bemorlar uchun parhez faqat kaloriyaga emas, balki ovqatlanish rejimi, taom konsistensiyasi, oziq moddalarning mutanosibligi, sanitariya sifati, suyuqlik iste'moli va individual moslashuvga ham tayangan holda tuzilishi kerakligi ta'kidlanadi. Ratsionni bosqichma-bosqich kengaytirish, oqsil va vitaminlarga boy mahsulotlarning to‘qimalar tiklanishidagi o‘rni, me'da-ichakni ta'sirlantiruvchi omillar hamda infeksion asoratlarning oldini olish masalalariga alohida e'tibor qaratiladi. Shuningdek, bemorlarni xavfsiz mahsulot tanlash, taom tayyorlash va ichak javobini kuzatish bo‘yicha o‘qitish muhimligi ko‘rsatib beriladi. Gigiyenik jihatdan optimallashtirilgan parhez yondashuvi operatsiyadan keyingi tiklanish, asoratlarni kamaytirish, ovqat hazm qilish qulayligi va uzoq muddatli reabilitatsiyani ta'minlashga sezilarli hissa qo‘shishi haqida xulosa qilinadi.

Kalit so‘zlar: kolostomiya, parhez ovqatlanish, gigiyenik baholash, operatsiyadan keyingi parvarish, ichak moslashuvi, davolovchi dieta, me'da-ichak faoliyati, ovqatlanishni boshqarish, jarrohlik reabilitatsiyasi, bemor tiklanishi

Introduction

Colostomy surgery remains one of the important operative interventions in modern abdominal surgery and is commonly performed in patients with colorectal malignancies, traumatic bowel injuries, inflammatory intestinal diseases, congenital malformations, intestinal obstruction, and severe anorectal pathology. The creation of a stoma changes the physiological route of fecal elimination and inevitably influences digestion, bowel habits, nutritional status, hydration, electrolyte balance, and the patient's psycho-emotional condition. For this reason, postoperative rehabilitation of colostomy patients cannot be limited to surgical wound care and technical stoma management alone. It must also

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include scientifically organized dietary support based on hygienic principles, physiological demands, and the adaptive capacity of the gastrointestinal tract.

Nutrition after colostomy has a direct impact on recovery outcomes. In the early postoperative period, the bowel requires functional rest, gradual stimulation, and careful dietary advancement. During this stage, inappropriate food choices may aggravate abdominal discomfort, increase gas formation, cause diarrhea or constipation, provoke peristomal irritation, and worsen the general condition of the patient. In the later period, when the patient returns to daily life, long-term dietary regulation becomes essential for maintaining digestive comfort, ensuring stable bowel output, preventing malnutrition, and improving quality of life. Thus, diet is not merely supportive therapy in colostomy patients; it is one of the central determinants of clinical adaptation and hygienic well-being.

The hygienic assessment of dietary nutrition in such patients involves several interconnected dimensions. It includes evaluation of caloric adequacy, nutrient composition, food safety, meal regularity, culinary processing, fluid consumption, tolerance to individual products, and the effect of diet on bowel function. Since the colostomy alters the passage and consistency of fecal matter, certain foods may produce excessive fermentation, unpleasant odor, increased stoma output, or delayed bowel transit. Therefore, the choice of products and meal structure must be individualized. Hygienic assessment also requires attention to the sanitary quality of food preparation, because patients in the postoperative period may be especially vulnerable to gastrointestinal infections, dehydration, and inflammatory complications.

A major challenge in the management of colostomy patients is that tolerance to food differs considerably between individuals. Some patients adapt rapidly and tolerate a broad diet, whereas others experience prolonged sensitivity to milk, legumes, coarse fiber, spicy meals, fried food, or carbonated drinks. This variability makes it necessary to combine general dietary recommendations with continuous monitoring of patient response. In addition, postoperative appetite

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disturbances, fear of eating due to expected stoma problems, and limited knowledge about safe nutrition may result in self-imposed food restrictions and inadequate intake of protein, vitamins, and minerals. Such patterns may delay tissue repair, reduce immune resistance, and compromise long-term rehabilitation.

From the viewpoint of surgical diseases and clinical hygiene, dietary planning for colostomy patients should pursue several aims simultaneously. It should support wound healing, maintain energy balance, stabilize bowel movements, reduce odor and gas, prevent constipation or diarrhea, and minimize mechanical or chemical irritation of the intestine. At the same time, hygienic nutrition must be safe, digestible, nutritionally balanced, and adapted to the stage of recovery. Foods rich in high-quality protein, vitamins A, C, and group B, as well as sufficient minerals and fluids, have a special role in maintaining postoperative recovery. Equally important is the regulation of meal frequency, portion size, and food texture to avoid overloading the digestive tract.

In medical universities and surgical education, the study of dietary nutrition in colostomy patients has considerable practical importance. Future physicians must understand that nutritional management is part of comprehensive treatment rather than a secondary recommendation. They should be able to assess the hygienic quality of the patient's diet, identify dietary risk factors, advise on safe product selection, and educate patients on self-care. This is especially relevant in the context of expanding attention to patient-centered rehabilitation and preventive approaches in surgery.

The purpose of this article is to analyze the hygienic assessment of dietary nutrition in patients who underwent colostomy surgery, to identify the main nutritional problems observed during postoperative adaptation, and to substantiate the principles of rational and hygienically safe dietary support. The article focuses on the relationship between nutrition, intestinal function, stoma

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management, recovery dynamics, and quality of life, emphasizing the importance of diet as an essential component of postoperative care.

Methods

The present work was designed as a descriptive and analytical study devoted to the hygienic assessment of dietary nutrition in patients who underwent colostomy surgery. The methodological basis of the article relied on an integrated clinical-hygienic approach combining analysis of postoperative nutritional requirements, evaluation of food tolerance, observation of bowel function through the stoma, and assessment of diet-related factors influencing rehabilitation. The study framework was oriented toward identifying the principal hygienic characteristics of rational nutrition in the postoperative period and determining how dietary organization affects adaptation, comfort, and prevention of complications in colostomy patients.

The methodological concept was built around several assessment domains. The first domain included the general nutritional status of patients, with attention to body weight dynamics, appetite, tolerance to meals, and the presence of signs suggesting insufficient intake or dietary imbalance. The second domain focused on the hygienic structure of daily nutrition, including meal frequency, timing, caloric adequacy, ratio of proteins, fats, and carbohydrates, culinary processing of foods, and compliance with basic sanitary standards in food preparation and storage. The third domain concerned gastrointestinal and stomal response to dietary intake, such as stool frequency, consistency of intestinal output, gas production, unpleasant odor, abdominal discomfort, signs of diarrhea or constipation, and local skin irritation around the stoma. The fourth domain addressed patient behavior and knowledge, particularly the ability to select safe foods, regulate fluid consumption, recognize food intolerance, and maintain dietary discipline during home rehabilitation.

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The study used a staged approach to postoperative dietary evaluation. In the early postoperative period, special attention was given to tolerance of liquid and semi-liquid foods, gradual transition to soft and later physiologically complete meals, and the prevention of intestinal overload. During this phase, hygienic assessment emphasized the suitability of food consistency, the absence of irritating ingredients, the safety of culinary preparation, and the adequacy of hydration. In the later stage of rehabilitation, the evaluation shifted toward the long-term sustainability of the patient's diet, balance of essential nutrients, diversity of food products, regularity of meals, and the relationship between specific foods and bowel function.

For hygienic analysis, foods were grouped according to their physiological and practical effects in colostomy patients. Easily digestible cereals, lean meat, poultry, fish, fermented dairy products when tolerated, cooked vegetables, bananas, apples without coarse peel, and mild soups were considered conditionally favorable products for gradual dietary expansion. In contrast, fried meals, heavily spiced dishes, smoked products, alcohol, carbonated beverages, legumes, excess cabbage, onions, and foods known to increase gas formation or irritate the bowel were assessed as potentially unfavorable during various stages of adaptation. Individual food diaries and clinical observation principles were considered useful methodological tools for correlating dietary patterns with intestinal symptoms and stoma-related complaints.

The hygienic assessment also included analysis of fluid consumption. Since changes in bowel output may alter water and electrolyte losses, the adequacy of fluid intake was considered one of the central criteria of postoperative nutrition. Evaluation focused on the regularity of water intake, use of safe beverages, exclusion of irritating or strongly sweetened drinks, and patient awareness of dehydration symptoms. Additional methodological emphasis was placed on vitamin and protein sufficiency because these factors are essential for wound healing, immune support, and metabolic recovery after surgery.

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A qualitative educational component was also incorporated into the methodological structure. The effectiveness of dietary recommendations was viewed not only through physiological outcomes but also through the patient's understanding of hygienic nutrition principles. Therefore, explanatory counseling on meal scheduling, food selection, sanitation in home cooking, avoidance of risky products, and self-monitoring of bowel reaction was regarded as part of the assessment model. This educational perspective is especially relevant in colostomy care, where long-term success depends significantly on patient adherence and informed dietary behavior.

The methodological approach of the study thus combined clinical observation, hygienic analysis, and preventive reasoning. Rather than evaluating diet only from a nutritional standpoint, it considered the broader interaction between food quality, sanitary safety, digestive adaptation, and the functional state of the operated bowel. Such an approach makes it possible to interpret dietary nutrition in colostomy patients as a complex therapeutic and hygienic system directed toward reducing postoperative burden and promoting stable rehabilitation.

Results

The analytical assessment of dietary nutrition in patients who underwent colostomy surgery demonstrated that hygienically organized nutrition plays a substantial role in postoperative adaptation and the stabilization of gastrointestinal function. The observed tendencies indicate that patients who followed a structured dietary regimen with gradual expansion of food components showed better tolerance to meals, more stable intestinal output, fewer complaints related to gas formation and odor, and a more favorable general recovery profile. In contrast, unsystematic nutrition, irregular meal timing, excessive use of irritating foods, and poor fluid regulation were associated with a higher frequency of digestive discomfort and reduced postoperative well-being.

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One of the most significant findings concerns the effect of meal regularity on bowel adaptation. Patients whose diets were divided into several moderate meals throughout the day generally experienced more predictable colostomy function than those consuming large, infrequent portions. Regular meal timing appeared to support more stable digestive activity, reduce sudden changes in stoma output, and lessen functional overload of the intestine. This result confirms the hygienic importance of not only what patients eat, but also how and when food is consumed. The postoperative bowel, especially after surgical intervention involving colostomy formation, responds more favorably to a rhythmically organized diet than to irregular or excessive nutritional intake.

Another important result relates to the consistency and culinary processing of food. During the early recovery phase, patients tolerated liquid, semi-liquid, and soft-textured foods better than coarse, fried, or heavily seasoned meals. Hygienically appropriate culinary preparation, including boiling, steaming, and light stewing, was associated with reduced complaints of abdominal heaviness, bloating, and irritation. As the diet was gradually expanded, tolerance improved in many patients; however, foods with a strong fermentative effect or mechanical roughness continued to provoke discomfort in a considerable proportion of cases. This finding highlights the importance of progressive dietary expansion rather than abrupt transition to unrestricted nutrition.

The results also showed that excessive gas formation and unpleasant odor remained among the most common nutrition-related concerns after colostomy surgery. These symptoms were more often associated with the intake of legumes, cabbage, onions, carbonated beverages, heavily spiced products, and certain high-fat meals. Conversely, patients who limited such foods and maintained a diet based on individually tolerated products reported greater digestive comfort and confidence in everyday life. This suggests that hygienic dietary correction has not only physiological but also psychosocial significance, as control over odor and

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gas improves self-esteem, social adaptation, and readiness for long-term rehabilitation.

Fluid consumption emerged as another decisive factor. Patients with sufficient intake of safe fluids generally demonstrated better stool consistency, fewer signs of dehydration, and lower risk of bowel irregularity. Inadequate hydration, especially when combined with dietary imbalance, was associated with weakness, unstable intestinal output, and diminished tolerance to daily activities. These observations underline the practical necessity of integrating fluid balance into the hygienic assessment of nutrition, particularly in patients whose bowel elimination pattern has been altered surgically.

The nutritional quality of the postoperative diet was also reflected in tissue recovery and general condition. Diets containing adequate amounts of protein and vitamin-rich foods were associated with more favorable wound healing, better preservation of appetite, and improved overall resilience. Patients with limited protein intake or poorly diversified food patterns more frequently demonstrated signs of delayed recovery, weakness, and reluctance to broaden their diet. This supports the clinical-hygienic principle that adequate nutrition after colostomy should be considered a restorative factor essential to metabolic repair and not merely a supportive recommendation.

An additional result of practical importance concerns patient awareness and dietary behavior. Individuals who received clearer explanations on food hygiene, safe cooking practices, meal planning, and product tolerance monitoring adapted more successfully than those who lacked consistent guidance. The use of simple dietary self-observation, such as noting food intake and subsequent bowel reaction, helped patients identify problematic products and gradually create a personalized diet. This demonstrates that educational support is an important determinant of hygienic nutrition effectiveness in the postoperative period.

Overall, the results confirm that dietary nutrition in patients after colostomy surgery should be evaluated not only according to caloric sufficiency, but also in

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relation to hygienic safety, physiological tolerance, digestive response, and the patient's ability to maintain stable self-care. A properly organized dietary regimen contributes to intestinal adaptation, reduction of postoperative discomfort, prevention of nutritional complications, and improvement of long-term rehabilitation outcomes.

Discussion

The findings of the present analysis confirm that dietary nutrition in patients who underwent colostomy surgery should be regarded as an essential therapeutic and hygienic component of postoperative care. The role of diet in this group of patients extends far beyond the general concept of energy supply. Nutrition directly influences bowel adaptation, stool formation, gas production, peristomal comfort, hydration, wound healing, and the patient's psychological readiness to return to ordinary daily activities. For this reason, hygienic assessment of dietary patterns must be integrated into the broader clinical strategy of surgical rehabilitation.

One of the central points emerging from the study is that the postoperative digestive system requires not only physiological support but also functional protection. After colostomy surgery, the bowel undergoes a period of adaptation in which excessive mechanical, chemical, or fermentative stimulation may worsen recovery. This explains why carefully selected food texture, culinary processing, and regular meal timing proved beneficial. These observations are consistent with the general principles of postoperative nutritional hygiene, according to which the digestive tract should be reloaded gradually, in a controlled and individually adjusted manner. A sharp transition from restricted to unrestricted feeding may not only provoke discomfort but also reduce patient confidence in eating, leading to unnecessary long-term dietary limitations.

An important aspect of the discussion concerns the individual variability of food tolerance. Although general recommendations can be formulated for colostomy

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patients, actual response to specific products differs depending on age, preoperative nutritional status, bowel function, associated diseases, the level of surgical intervention, and adaptive capacity of the organism. This means that hygienic dietary regulation should combine universal clinical principles with individualized correction. The practical value of this approach is considerable because it allows patients to avoid both extremes: excessive restriction caused by fear of symptoms and careless dietary expansion that provokes bowel instability. From a medical-pedagogical standpoint, this also emphasizes the importance of educating patients to observe their own reactions and participate actively in dietary self-management.

The discussion also highlights the significance of protein and micronutrient adequacy in the recovery process. In patients after colostomy, the demand for restorative nutrition is increased due to tissue repair, immune support, metabolic compensation, and the prevention of postoperative weakness. If the patient avoids many foods without professional guidance, the risk of nutritional insufficiency increases. In such cases, inadequate intake may delay wound healing, aggravate fatigue, and lower resistance to inflammatory complications. Therefore, hygienic assessment of diet should include not only digestive tolerance but also its reparative and preventive value. This approach is particularly important in surgical diseases, where the quality of rehabilitation is directly linked to the adequacy of restorative nutrition.

Another issue of great relevance is the psychosocial dimension of dietary hygiene. Patients with colostomy often experience anxiety related to unpredictable bowel output, odor, gas, and social embarrassment. Dietary regulation becomes a means of restoring not only physiological but also emotional stability. When patients understand which products are safe, how to structure their meals, and how to respond to adverse reactions, they develop greater confidence in self-care. Thus, hygienic nutrition serves as a bridge between medical treatment and social reintegration. This point is especially

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important for long-term rehabilitation, because successful adaptation depends not only on surgical outcomes but also on the patient's ability to maintain everyday comfort and dignity.

The educational implications of the study are also substantial. In medical universities, especially within the field of surgical diseases, students should be trained to view nutrition as an active therapeutic instrument. Future physicians must be capable of evaluating the hygienic quality of a patient's diet, identifying unsafe or poorly tolerated food practices, and giving practical dietary recommendations grounded in both physiology and sanitation. This requires interdisciplinary preparation linking surgery, clinical nutrition, hygiene, gastroenterology, and patient counseling. The concept of postoperative care should therefore be expanded from technical management of the stoma to comprehensive support of the patient's nutritional adaptation.

At the same time, it should be recognized that dietary management after colostomy cannot be based on rigid universal prohibitions alone. Overly restrictive instructions may produce fear-based eating behavior and reduce nutritional diversity. A more rational strategy involves stepwise testing of food tolerance, preservation of nutritional adequacy, and continuous observation of intestinal response. Such a model better reflects the principles of personalized medicine and preventive hygiene. It also creates a more sustainable framework for long-term dietary adherence.

In summary, the discussion confirms that the hygienic assessment of dietary nutrition in colostomy patients has multidimensional significance. It contributes to understanding how food quality, preparation, regularity, safety, and individual tolerance shape both physiological recovery and quality of life. The dietary regimen should therefore be interpreted as a structured therapeutic-hygienic intervention aimed at stabilizing bowel function, reducing complications, supporting tissue repair, and improving the patient's overall adaptation after surgery.

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Conclusion

The hygienic assessment of dietary nutrition in patients who underwent colostomy surgery demonstrates that nutrition is not an auxiliary element of postoperative care, but one of its principal therapeutic foundations. The formation of a colostomy changes the physiological pattern of intestinal evacuation and creates a new set of nutritional, metabolic, hygienic, and adaptive requirements. In this context, the quality of the patient's diet influences not only digestive comfort, but also tissue recovery, fluid and electrolyte balance, bowel regularity, local skin condition, resistance to complications, and long-term quality of life. For this reason, a rational dietary regimen after colostomy should be regarded as an essential part of comprehensive surgical rehabilitation.

The analysis confirms that hygienically organized nutrition contributes significantly to successful postoperative adaptation. A gradual transition from liquid and soft-textured food to a more complete physiologically balanced diet helps protect the operated bowel from overload and irritation. Proper culinary processing, avoidance of excessively fatty, spicy, fried, or gas-forming products, and the maintenance of regular meal timing create favorable conditions for digestive stabilization. Equally important is the adaptation of dietary recommendations to the patient's stage of recovery and individual tolerance. The same food product may be well tolerated by one patient and produce discomfort in another, which makes personalized dietary observation a necessary component of hygienic management.

A major conclusion of this study is that dietary hygiene in colostomy patients must be assessed in a broad and integrated manner. It is insufficient to focus only on calorie intake or formal compliance with diet prescriptions. The hygienic value of nutrition depends on multiple interconnected factors, including food safety, freshness, sanitary conditions of preparation, meal schedule, nutrient balance, fluid adequacy, tolerance to specific products, and the effect of the diet on stool consistency, odor, gas formation, and abdominal comfort. This broader

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understanding allows dietary care to be viewed as a preventive system aimed at minimizing postoperative complications and supporting the patient's physiological and psychosocial adaptation.

The study also shows that adequate intake of protein, vitamins, minerals, and fluids has a decisive restorative significance after colostomy surgery. Nutritional deficiency in the postoperative period may lead to delayed wound healing, fatigue, reduced immune resistance, and poor functional adaptation. On the other hand, well-structured nutrition supports regeneration, stabilizes metabolic processes, and improves the patient's tolerance to daily activities. Thus, hygienic assessment of diet should always include its reparative and protective roles, especially in patients with surgical diseases requiring prolonged rehabilitation.

Another important conclusion concerns the educational dimension of nutritional care. Successful dietary adaptation after colostomy largely depends on the patient's awareness and practical skills. Patients must be taught how to choose safe foods, prepare meals under hygienic conditions, regulate fluid intake, recognize individual intolerance, and monitor bowel response to dietary changes. Informed dietary behavior reduces fear, increases independence, and strengthens self-care capacity. Therefore, patient counseling should be considered a fundamental part of postoperative management rather than an optional supplement.

From the standpoint of medical education and surgical practice, the topic has substantial relevance. Future physicians should be trained to evaluate dietary nutrition in colostomy patients not only from the perspective of general nutrition, but also from the viewpoint of hygiene, prevention, rehabilitation, and quality of life. This requires an interdisciplinary approach combining surgery, clinical nutrition, hygiene, gastroenterology, and patient education. Such training will improve the practical quality of care and support a more patient-centered model of postoperative treatment.

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In general, hygienically optimized dietary nutrition in patients after colostomy surgery creates the conditions necessary for stable bowel adaptation, reduction of gastrointestinal discomfort, prevention of infectious and functional complications, improvement of nutritional status, and enhancement of long-term rehabilitation outcomes. It should therefore be recognized as a key element of effective postoperative care and an important area for further scientific and clinical development.

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