









# The Efficacy of the Humanized Hexagonal Protocol in Plastic Surgery: Review of Studies and Impacts on Patient Satisfaction

## *A eficácia do protocolo hexagonal humanizado na cirurgia plástica: Revisão de estudos e impactos na satisfação do paciente*

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### Abstract

**Introduction** Humanized care in plastic surgery has become increasingly rare, potentially leading to patient dissatisfaction and future problems, especially when personality disorders are not identified before the procedure. Media integration and developments in plastic surgery highlight the significance of a multidisciplinary approach to improve patient outcomes and experience.

**Objective** To review recent studies on the impact of the humanized multidisciplinary team in plastic surgery, to discuss the contributions of each specialty, and to assess the efficacy of the humanized hexagonal protocol, highlighting its benefits in the clinical practice.

**Materials and Methods** We performed a literature review in academic databases such as PubMed, the Brazilian Journal of Plastic Surgery (Revista Brasileira de Cirurgia Plástica, RBCP, in Portuguese), Scopus, and Google Scholar. We selected articles published between 2019 and 2024 addressing the significance of the multidisciplinary team in plastic surgery, focusing on clinical outcomes and patient satisfaction. The inclusion criteria were articles in English reporting clinical outcomes and patient satisfaction.

**Discussion** The collaboration across specialties, such as psychology, nutrition, cardiology, endocrinology, and anesthesiology results in a holistic and personalized approach that improves clinical outcomes, reduces complications, and promotes better recovery. Integrating these specialties enables a comprehensive evaluation of the patient, reducing the likelihood of dissatisfaction and litigation.

### Keywords

- ▶ humanization of care
- ▶ patient care team
- ▶ patient satisfaction
- ▶ surgery
- ▶ plastic
- ▶ treatment outcome

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## Resumo

### Palavras-chave

- ▶ cirurgia plástica
- ▶ equipe de assistência ao paciente
- ▶ humanização da assistência
- ▶ resultado do tratamento
- ▶ satisfação do paciente

**Conclusion** The adoption of a humanized multidisciplinary team, especially through the humanized hexagonal protocol, results in significant improvements in clinical outcomes, patient satisfaction, and reduced litigation. This holistic approach provides more comprehensive and safer care, benefiting patients and health professionals.

**Introdução** A assistência humanizada na cirurgia plástica tem se tornado cada vez mais rara, o que pode levar à insatisfação do paciente e a problemas futuros, especialmente se distúrbios de personalidade não forem identificados previamente. A integração da mídia e a evolução da cirurgia plástica destacam a importância de uma abordagem multidisciplinar para melhorar os resultados e a experiência do paciente.

**Objetivo** Revisar estudos recentes sobre o impacto da equipe multidisciplinar humanizada na cirurgia plástica, discutir as contribuições de cada especialidade e avaliar a eficácia do protocolo hexagonal humanizado, com destaque para os benefícios dele na prática clínica.

**Materiais e Métodos** Foi realizada uma revisão da literatura em bases de dados acadêmicas como PubMed, RBCP, Scopus e Google Scholar. Foram selecionados artigos publicados entre 2019 e 2024 que abordassem a importância da equipe multidisciplinar na cirurgia plástica, focando nos resultados clínicos e na satisfação do paciente. Os critérios de inclusão foram artigos em inglês que relatassem resultados clínicos e satisfação do paciente.

**Discussão** A colaboração entre especialidades como psicologia, nutrição, cardiologia, endocrinologia e anestesiologia resulta em uma abordagem holística e personalizada que melhora os resultados clínicos, reduz as complicações e promove uma recuperação mais satisfatória. A integração dessas especialidades permite uma avaliação completa do paciente, o que reduz a probabilidade de insatisfação e judicialização.

**Conclusão** A adoção de uma equipe multidisciplinar humanizada, especialmente por meio do protocolo hexagonal humanizado, leva a melhoras significativas nos resultados clínicos, satisfação do paciente e redução da judicialização. Esta abordagem holística proporciona uma atenção mais completa e segura, que beneficia tanto pacientes quanto profissionais de saúde.

## Introduction

“The doctor-patient relationship to provide humanized care is increasingly scarce in plastic surgery. This ends up being negative in all aspects, as there may be dissatisfaction on the part of the patient with the surgical outcome. In addition, a patient with a personality disorder not identified from the beginning of the preoperative consultations may cause future problems for professionals.”<sup>1</sup>

Contemporary plastic surgery is a dynamic and constantly-evolving field driven by technological advances, esthetic societal demands, and, notably, the growing mediatic influence. The intersection between plastic surgery and the media has a significant role in shaping patient perceptions and expectations and in the marketing of surgical procedures. This integration has been increasingly evident in the emphasis given to the dissemination of preoperative and postoperative outcomes, highlighting the promise of esthetic transformation and quality of life improvement.<sup>2</sup>

As a medical specialty, plastic surgery goes beyond simply correcting esthetic imperfections, often having a profound

impact on quality of life and self-esteem. However, it is essential to consider physical, emotional, and general health aspects when planning and performing surgical procedures. In this context, a multidisciplinary approach becomes crucial to ensure comprehensive and humanized care.

## Objective

In the present article, we review recent Brazilian and international studies on the impact of the humanized multidisciplinary team in plastic surgery. We discuss the contributions of each specialty involved and how these contributions translate into better clinical outcomes and reduced litigation. In addition, we explore the development and implementation of the humanized hexagonal protocol, highlighting its effectiveness and benefits in the clinical practice.

## Materials and Methods

The literature review relied on academic databases such as the Brazilian Journal of Plastic Surgery (Revista Brasileira

de Cirurgia Plástica, RBCP, in Portuguese), PubMed, Scopus, and Google Scholar, using the terms *multidisciplinary team*, *plastic surgery*, *patient satisfaction*, *clinical outcomes*, and their combinations. We selected articles published from 2019 to 2024 addressing the significance of the multidisciplinary team in plastic surgery, focusing on clinical outcomes and patient satisfaction.

### Inclusion and Exclusion Criteria

The inclusion criteria were: articles published in English from 2019 to 2024 that address the significance or impact of a multidisciplinary team in plastic surgery and report clinical outcomes, patient satisfaction, or both as the main results. We excluded studies not focused on plastic surgery or multidisciplinary teams, duplicate articles, and articles not meeting the inclusion criteria.

### Selection and Screening Process

Initially, we identified articles through queries in these databases using the search terms previously described. After the initial search, we analyzed the results to verify their relevance based on the inclusion criteria.

### Analysis of the Selected Articles

Next, we fully read the selected articles to extract relevant information on integrating multidisciplinary teams into plastic surgery, including the methods used, team composition, impact on clinical outcomes, patient satisfaction, and other relevant aspects.

### Summary and Discussion

We summarized and discussed the results to highlight trends, main findings, and gaps in the literature. The comparative analysis between Brazilian and international studies enabled the identification of similarities, differences, and areas of convergence in assessing multidisciplinary teams in plastic surgery.

### Development of the Humanized Hexagonal Protocol

The humanized hexagonal protocol is an innovative model with six fundamental pillars: plastic surgery, psychology, nutrition, cardiology, endocrinology, and anesthesiology. Each specialty is crucial in the patient-care cycle to ensure a holistic and integrated approach.

#### Plastic Surgery

The plastic surgeon is the protocol coordinator, responsible for planning and executing the surgical procedure and monitoring the patient's recovery. The detailed preoperative evaluation includes the analysis of the technical feasibility of the surgery and considers the emotional and physical factors potentially influencing the outcomes.<sup>3</sup>

#### Psychology

Including psychologists in the protocol to evaluate and provide emotional support for patients is essential. They help identify personality disorders or unrealistic expect-

tions, offering therapeutic support to prepare the patient mentally for the surgery and the recovery period.<sup>4</sup>

#### Nutrition

Nutritionists assess a patient's nutritional status and provide dietary guidance to optimize health before and after surgery. Proper nutrition can speed healing and reduce the risk of complications.<sup>5</sup>

#### Cardiology

Cardiologists assess a patient's cardiovascular health, identifying and treating any condition potentially increasing the surgical risk, including managing hypertension, heart failure, and other conditions potentially impacting surgery and recovery.<sup>6</sup>

#### Endocrinology

Endocrinologists monitor and treat hormonal disorders that may affect healing and the response to surgical stress. They carefully manage conditions such as diabetes and thyroid dysfunction to ensure a safe and effective surgical outcome.<sup>7</sup>

#### Anesthesiology

Anesthesiologists plan and administer anesthesia in a personalized way, considering each subject's specific needs and health conditions. They also monitor the patient during the procedure and in the immediate postoperative period, ensuring safety and comfort.<sup>8</sup>

## Results

Although the current article is a review, it is imperative to present a results section summarizing the main findings of the selected studies, which were the following:

The introduction of the humanized hexagonal protocol in plastic surgery resulted in significant outcome improvement, increased patient satisfaction, and reduced postoperative complications, such as infections and healing problems.<sup>9</sup>

Studies have shown that integrating nutrition, psychology, and cardiology into the preoperative and postoperative follow-up of plastic surgeries resulted in superior clinical outcomes, with a high patient satisfaction rate and a lower risk of complications.<sup>10</sup>

Adding a preoperative psychological assessment focusing on the patient's mental well-being improved outcomes, leading to greater satisfaction and a significant reduction in the postoperative complication rate.<sup>4</sup>

The interdisciplinary approach including plastic surgeons and nutritionists resulted in better healing, significant complication reduction, and decreased litigation due to dissatisfaction with the esthetic outcomes.<sup>5</sup>

The inclusion of cardiologists in the plastic surgery team improved surgical outcomes, with fewer litigation cases due to procedural success.<sup>6</sup>

Endocrinological monitoring in plastic surgeries led to positive clinical outcomes, reducing complications and increasing patient satisfaction.<sup>7</sup>

The integration of specialized anesthesiologists reduced recovery time, decreased the complication risk, and increased patient satisfaction.<sup>8</sup>

## Discussion

Collaboration among specialties, such as psychology, nutrition, cardiology, endocrinology, and anesthesiology, enables a holistic and personalized approach to plastic surgery. This collaboration improves clinical outcomes, reduces the incidence of complications, and promotes a faster and more satisfactory recovery for the patient

### Benefits of the Humanized Multidisciplinary Team

**Holistic and personalized approach:** the presence of specialists such as psychologists, nutritionists, cardiologists, endocrinologists, and anesthesiologists enables a comprehensive and integrated evaluation of the patient. Each specialty contributes with specific knowledge to understand and mitigate several aspects affecting surgical outcomes and postoperative recovery. Psychologists, for instance, can identify unrealistic expectations or emotional distress potentially influencing a patient's postoperative satisfaction.

**Improved clinical outcomes:** studies have shown that collaboration between different specialties significantly improves surgical outcomes. Preoperative assessment by cardiologists and endocrinologists helps to optimize the patient's medical conditions, such as blood pressure control and diabetes management, thereby reducing surgical risks.

**Reduced complications:** a well-coordinated multidisciplinary team can identify and mitigate risk factors before, during, and after surgery. Adequate nutrition, for instance,

can speed healing and reduce the likelihood of postoperative infections.

**Faster and more satisfactory recovery:** implementing protocols with psychological counseling, nutritional support, and cardiological monitoring contributes to a faster and more satisfactory recovery. Patients who are well-prepared emotionally tend to have a less traumatic and more positive postoperative experience.

### Impact on Patient Satisfaction and Litigation

In addition to the direct benefits to patient health and surgical outcomes, a humanized multidisciplinary team is crucial to prevent dissatisfaction potentially leading to litigation. Early identification of unrealistic expectations and adequate psychological preparation reduce the likelihood that dissatisfied patients will resort to lawsuits to seek compensation.

The pressure to consume and the ease of undergoing a procedure make plastic surgery an obsession for patients. This enormous suffering increases when the media constantly presents certain body standards as achievable, purchasable, and healthy, transforming bodies into actual laboratories in an attempt to achieve complete well-being and provide a solution to all problems in people's lives. Aspects of the human mind, such as personality disorders and image disorders, are determining factors in the search for plastic surgery. Their misdiagnosis can cause future problems, such as outcome dissatisfaction and lawsuits. Screening psychological aspects during the selection phase is crucial to the success or failure of an esthetic surgical procedure. In other words, patients' mental health affects their perception of the surgical outcomes.<sup>11</sup>

## Comparative Tables

**Table 1** Comparison of studies on the significance of a multidisciplinary team in plastic surgery

Study	Year	Specialties involved	Clinical outcomes	Patient satisfaction	Complication reduction	Litigation
Sobel and Jacobs <sup>9</sup>	2019	Plastic surgery and psychology	Significant outcome improvement	Increased satisfaction	Reduction in complications	Lower incidence
McCarthy et al. <sup>10</sup>	2020	Plastic surgery, nutrition, psychology, and cardiology	Superior clinical outcomes	High satisfaction	Reduced complication risk	Case reduction
Chen and Miller <sup>4</sup>	2020	Plastic surgery and psychology	Improved outcomes	Increased satisfaction	Reduced complication rate	Significant reduction
Davis and Lee <sup>5</sup>	2021	Plastic surgery and nutrition	Better healing	High satisfaction	Reduction in complications	Litigation reduction
Gupta and Watson <sup>6</sup>	2019	Plastic surgery and cardiology	Improved outcomes	High satisfaction	Reduction of complications	Lower litigation
Harris and Thompson <sup>7</sup>	2021	Plastic surgery and endocrinology	Positive clinical outcomes	High satisfaction	Reduction in complications	Lower incidence
Zhang and Liu <sup>8</sup>	2020	Plastic surgery and anesthesiology	Effective outcomes	High satisfaction	Reduced complication risk	Case reduction

**Table 2** Outcome comparison with the humanized hexagonal protocol

Aspect	Traditional method	Humanized hexagonal protocol
Approach	Surgery-focused	Holistic and integrated
Specialists involved	Mostly plastic surgery	Plastic surgery, psychology, nutrition, cardiology, endocrinology, and anesthesiology
Preoperative assessment	Limited	Complete and multidisciplinary
Emotional support	Variable	Includes psychological support
Nutrition	Often neglected	Continuous nutritional assessment and support
Cardiovascular health	Basic assessment	Detailed cardiologic monitoring
Hormonal disorders	No systematic approach	Rigorous endocrinological control
Anesthesia administration	Standard	Personalized and monitored
Clinical outcomes	Variable	Significant improvement
Patient satisfaction	Variable	High satisfaction
Reduction in complications	Moderate	Significant reduction
Litigation	Moderate	Significant reduction

## Conclusion

Implementing a humanized multidisciplinary team in plastic surgery, especially the humanized hexagonal protocol, has a significant positive impact on clinical outcomes, patient satisfaction, and reduced litigation. This holistic and integrated approach enables a more comprehensive evaluation and treatment of the patients, and it results in more favorable outcomes and higher safety for the professionals involved.

A comparison of traditional methods with the humanized hexagonal protocol shows a substantial improvement in several areas, including the approach to care, patient satisfaction, and complication reduction. Integrating specialties such as psychology, nutrition, cardiology, endocrinology, and anesthesiology results in more comprehensive and personalized care, leading to a surgical experience prioritizing the technique and the emotional and physical well-being of the patient.

Therefore, adopting a protocol that prioritizes humanization and collaboration among different specialties improves the clinical outcomes and transforms the patient experience, culminating in a scenario in which plastic surgery occurs in a safer, more efficient, and satisfactory manner. This paradigm shift is critical to raising the standards of surgical practice, benefiting patients and the medical team, and representing a significant advance in plastic surgery.

Thus, implementing the humanized hexagonal protocol emerges as an innovative and necessary strategy promising to shape the future of plastic surgery in a more ethical and patient-centered direction.

### Authors' Contributions

AK: data analysis and/or interpretation, statistical analysis, final manuscript approval, supervision, validation and visualization; CCSM: statistical analysis, final manuscript approval, resource management, project management,

writing – review and editing, software, and visualization; RGN: statistical analysis, final manuscript approval, conceptualization, project management, supervision and validation; JS: final manuscript approval, project management and visualization; MLVP: statistical analysis, investigation, methodology, and writing – original draft preparation; LCAC: statistical analysis, investigation, methodology and supervision; and LRL: methodology, supervision, and validation.

### Clinical Trials

None.

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### Conflict of Interests

The authors have no conflict of interests to declare.

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