Polo del Conocimiento

Pol. Con. (Edición núm. 110) Vol. 10, No 9
Septiembre 2025, pp. 18222-1837
ISSN: 2550 - 682X
DOI: https://doi.org/10.23857/pc.v10i9.10416

Colgajo DIEP en reconstrucción mamaria postmastectomía: Innovación Quirúrgica y su efecto en la recuperación funcional y psicológica de las pacientes

DIEP Flap in Post-Mastectomy Breast Reconstruction: Surgical Innovation and Its Effect on Patients' Functional and Psychological Recovery

Retalho DIEP na reconstrução mamária pós-mastectomia: inovação cirúrgica e seu efeito na recuperação funcional e psicológica das pacientes

Alejandro Solis Vinueza [I]
solisvinuezaalejandro@gmail.com
https://orcid.org/0009-0008-9316-1175

Josselyn Nathaly Endara Chantera [II]
josselyn.endara88@gmail.com
https://orcid.org/0009-0005-2443-3905

Ana Belén Herrera Martínez [III]
Ana.herrera.martinez@udla.edu.ec
https://orcid.org/0000-0002-1131-1563

Milton Antonio Sambonino Espinoza [IV]
miltonsambonino@gmail.com
https://orcid.org/0009-0008-8478-1794

Correspondencia: solisvinuezaalejandro@gmail.com

Ciencias de la Salud
Artículo de Investigación

*** Recibido:** 26 de julio de 2025 ***Aceptado:** 22 de agosto de 2025 *** Publicado:** 19 de septiembre de 2025

I. Especialista en Cirugía General y Laparoscópica; Fellowship de Laparoscopia Avanzada y Cirugía Bariátrica; Médico; Jefe de Cirugía General en el Hospital Básico El Ángel, Jefe de Cirugía General en el Hospital Básico San Gabriel; Jefe de Servicio General en la Clínica Santa Lucia; Director en Laparascopic Center; Quito, Ecuador
II. Magíster en Seguridad y Salud Ocupacional; Médica; Médico Ocupacional; Investigadora Independiente;Quito, Ecuador
III. Médica Cirujana; Médica Residente del Servicio de Cirugía Plástica en el Hospital Quito No.1 de la Policía Nacional; Quito, Ecuador
IV. Medico General; Investigador Independiente; Homologación Título en Estados Unidos en Kaplan Medical; New Jersey, Estados Unidos

Resumen

El colgajo DIEP (Perforador Epigástrico Inferior Profundo) representa una innovación clave en la reconstrucción mamaria postmastectomía. Esta técnica microquirúrgica utiliza tejido (piel y grasa) del abdomen inferior de la paciente para recrear la mama, con la ventaja única de preservar el músculo recto abdominal. Esto la distingue de métodos más antiguos como el colgajo TRAM, que implicaba la extirpación del músculo. La preservación muscular resulta en una menor morbilidad de la zona donante, una recuperación funcional más rápida y menos dolor, así como en un menor riesgo de hernias o debilitamiento de la pared abdominal. La literatura revisada para esta investigación se basa en una síntesis de la información de los documentos proporcionados, que incluyen metaanálisis, series de casos y revisiones temáticas publicadas en los últimos años siguiendo las directrices del manual de revisiones sistemáticas y el diagrama de flujo de la declaración PRISMA (Ítems de Informe Preferidos para Revisiones Sistemáticas y Metaanálisis). Se siguió un enfoque estructurado para la síntesis de la información. La selección de los documentos se realizó mediante la identificación y extracción de datos clave directamente relacionados con los objetivos del estudio. Posteriormente, se evaluó la pertinencia y la calidad de cada información para su inclusión. La reconstrucción mamaria con colgajo DIEP es el estándar de oro postmastectomía, ya que preserva el músculo abdominal, reduce significativamente las complicaciones y acelera la recuperación, a diferencia de técnicas más antiguas como el TRAM. La elección de este procedimiento es un proceso individualizado que requiere la coordinación de equipos médicos, pero la literatura actual presenta una limitación clave: la falta de datos sobre el impacto a largo plazo en la reincorporación laboral y la vida sexual de las pacientes. A pesar de la complejidad del procedimiento, se enfatiza su adopción generalizada y la capacitación de los cirujanos, ya que representa una opción clínica y económicamente superior para mejorar la calidad de vida a largo plazo de las pacientes.

Palabras clave: DIEP, Mama, Funcional, Recuperación.

Abstract

The DIEP (Deep Inferior Epigastric Perforator) flap represents a key innovation in post-mastectomy breast reconstruction. This microsurgical technique uses tissue (skin and fat) from the

patient's lower abdomen to recreate the breast, with the unique advantage of preserving the rectus abdominis muscle. This distinguishes it from older methods like the TRAM flap, which involved cutting the muscle. Muscle preservation results in less donor site morbidity, faster functional recovery, and less pain, as well as a reduced risk of hernias or abdominal wall weakening. The literature reviewed for this research is based on a synthesis of information from the provided documents, which include meta-analyses, case series, and thematic reviews published in recent years following the guidelines of the systematic review manual and the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement flowchart. A structured approach was followed for the information synthesis. Document selection was performed by identifying and extracting key data directly related to the study's objectives. Subsequently, the relevance and quality of each piece of information was evaluated for its inclusion. Breast reconstruction with a DIEP flap is the post-mastectomy gold standard because it preserves the abdominal muscle, significantly reducing complications and accelerating recovery, unlike older techniques like the TRAM. The choice of this procedure is an individualized process that requires the coordination of medical teams, but current literature has a key limitation: the lack of data on the long-term impact on patients' return to work and sexual life. Despite the complexity of the procedure, its widespread adoption and surgeon training are emphasized, as it represents a clinically and economically superior option for improving patients' long-term quality of life.

Keywords: DIEP, Breast, Functional, Recovery.

Resumo

O retalho DIEP (Deep Inferior Epigastric Perforator) representa uma inovação fundamental na reconstrução mamária pós-mastectomia. Essa técnica microcirúrgica utiliza tecido (pele e gordura) do abdômen inferior da paciente para recriar a mama, com a vantagem única de preservar o músculo reto abdominal. Isso o distingue de métodos mais antigos, como o retalho TRAM, que envolvia o corte do músculo. A preservação do músculo resulta em menor morbidade do local doador, recuperação funcional mais rápida e menos dor, bem como redução do risco de hérnias ou enfraquecimento da parede abdominal. A literatura revisada para esta pesquisa baseia-se em uma síntese de informações dos documentos fornecidos, que incluem meta-análises, séries de casos e revisões temáticas publicadas nos últimos anos, seguindo as diretrizes do manual de revisão

sistemática e o fluxograma de declaração PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). Uma abordagem estruturada foi seguida pela síntese das informações. A seleção dos documentos foi realizada identificando e extraindo dados-chave diretamente relacionados aos objetivos do estudo. Posteriormente, a relevância e a qualidade de cada informação foram avaliadas para sua inclusão. A reconstrução mamária com retalho DIEP é o padrão-ouro pós-mastectomia, pois preserva a musculatura abdominal, reduzindo significativamente as complicações e acelerando a recuperação, diferentemente de técnicas mais antigas, como o TRAM. A escolha desse procedimento é um processo individualizado que requer a coordenação de equipes médicas, mas a literatura atual apresenta uma limitação fundamental: a falta de dados sobre o impacto a longo prazo no retorno das pacientes ao trabalho e à vida sexual. Apesar da complexidade do procedimento, sua ampla adoção e o treinamento do cirurgião são enfatizados, pois representa uma opção clínica e economicamente superior para melhorar a qualidade de vida das pacientes a longo prazo.

Palavras-chave: DIEP, Mama, Funcional, Recuperação.

Introduction

Breast cancer is the most common malignant neoplasm in women worldwide, with an incidence of 67.1 cases per hundred thousand women (1). Treatment, although often curative, includes a mastectomy, a procedure that can have a significant and lasting impact on a patient's body image, femininity, and psychological well-being (2). In this context, breast reconstruction has been consolidated as an indispensable component of comprehensive cancer treatment, with the goal of restoring not only physical form but also quality of life and self-image perception (3).

The choice of reconstructive technique is a critical and multifactorial decision. Available procedures vary in complexity, risks, recovery time, and long-term results (4). The evolution of these techniques has been constant, driven by the search for more natural results, less morbidity at the donor site, and superior durability (5).

Historically, breast reconstruction was based on the use of silicone or saline implants. This procedure is relatively fast and less invasive, with minimal blood loss and a shorter recovery period (6). However, this option is associated with higher rates of long-term complications, such as

capsular contracture, implant rupture, and the need for revision surgeries. In fact, evidence suggests that approximately 30% of patients with implants require surgical revision within five years (6).

Subsequently, autologous tissue flaps were developed, which use the patient's own tissue. Pedicled flaps, such as the latissimus dorsi myocutaneous (LD) flap or the transverse rectus abdominis myocutaneous (TRAM) flap, represented a significant advance (4). The TRAM flap, in particular, used skin, fat, and muscle from the abdomen to reconstruct the breast. Despite its advantages, the partial or total sacrifice of the rectus abdominis muscle led to considerable morbidity at the donor site, manifested as chronic pain, abdominal wall weakness, and a higher risk of hernias or bulges (eventrations) (2).

Figure 1. *Bilateral breast reconstruction: DIEP flaps plus nipple-areolar complex reconstruction in a second surgical stage. One-year postoperative image.*

Source: Casado Sanchez et al (7).

The innovation culminated with the development of the deep inferior epigastric artery perforator (DIEP) flap, described in 1989 (8). This microsurgical technique represents a turning point. Unlike TRAM techniques, the DIEP flap allows the transfer of skin and fat from the abdomen to the chest without sacrificing the underlying muscle. The key is the meticulous dissection of the perforator vessels that pass through the muscle, maintaining its functional integrity (2).

Methodology

The literature reviewed for this research is based on a synthesis of the information contained in the provided documents, which include meta-analyses, case series, and thematic reviews published in recent years, following the guidelines of the systematic review manual and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement flowchart. A structured approach was followed for the synthesis of the information.

The literature search was carried out in multiple international databases to ensure broad coverage of the topic. The consulted databases included Google Scholar, Scielo, and Elsevier. The search was limited to publications in the period between 2015 and 2025. The main search terms were combined using Boolean operators (AND, OR) and included: ("Colgajo DIEP" OR "DIEP flap" OR "perforante epigástrico"), ("reconstrucción mamaria" OR "breast reconstruction"), ("postmastectomía" OR "post-mastectomy"), ("recuperación funcional" OR "calidad de vida" OR "recuperación psicológica" OR "bienestar"), ("Colgajo DIEP" AND "reconstrucción mamaria"), ("Colgajo DIEP" AND "reconstrucción mamaria" AND "postmastectomía") AND ("recuperación funcional" OR "recuperación psicológica") ("Colgajo DIEP" OR "DIEP flap") AND ("reconstrucción mamaria" OR "breast reconstruction") AND ("recuperación funcional" OR "calidad de vida").

Rigorous criteria were established for the selection of studies, with the objective of including the most relevant and highest quality evidence available:

Inclusion Criteria:

- Clinical studies in humans, including randomized controlled trials, prospective and retrospective studies, and systematic reviews.
- Articles published in peer-reviewed scientific journals.
- Web pages
- Publications in English or Spanish.

Pol. Con. (Edición núm. 110) Vol. 10, No 9, Septiembre 2025, pp. 1822-1837, ISSN: 2550 - 682X

Exclusion Criteria:

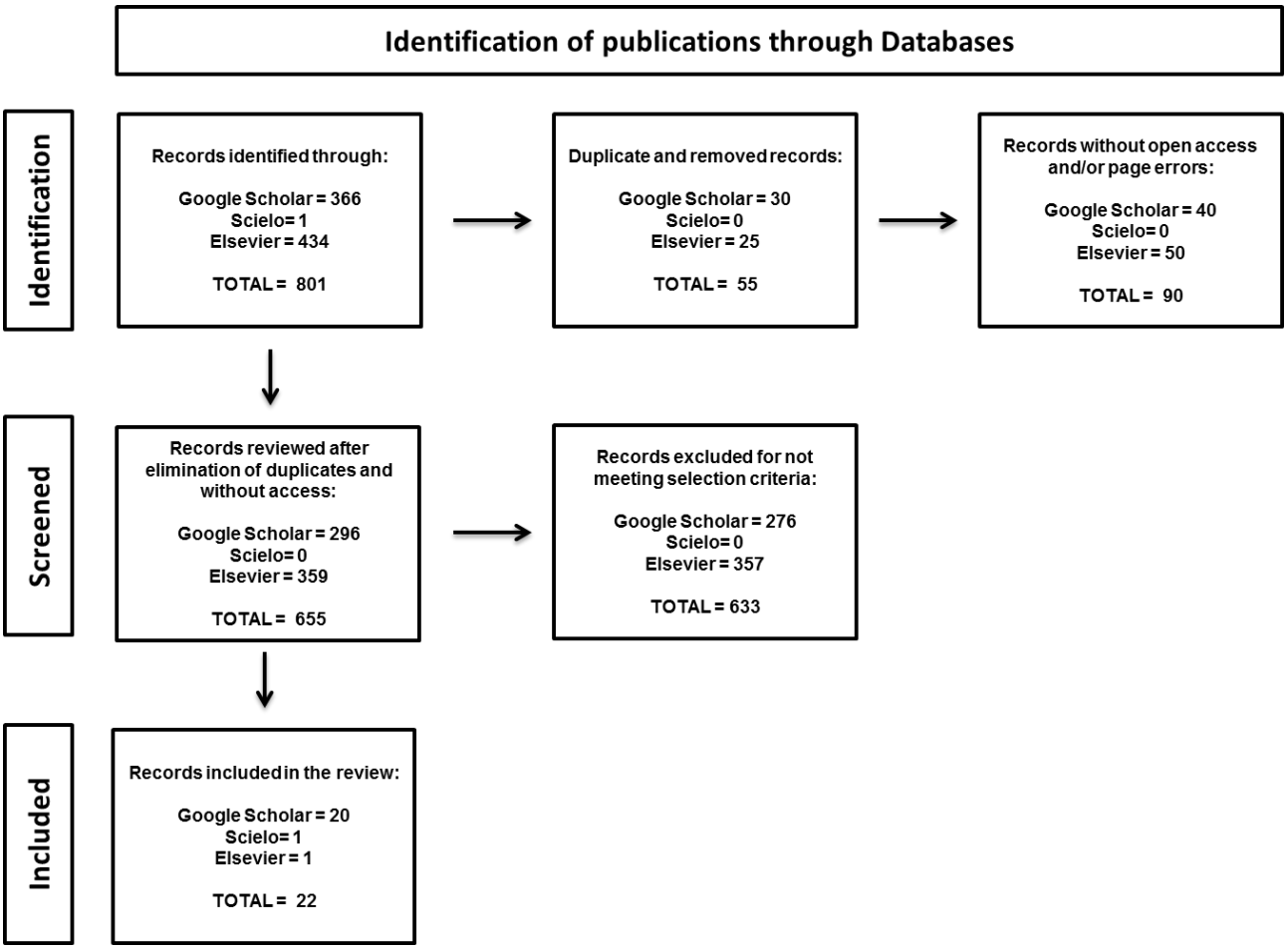
- Isolated case reports or non-human case series.
- Preclinical studies, purely theoretical studies (unless necessary to contextualize the discussion).
- Comments, editorials, letters to the editor, and opinion articles without original data.
- Studies without explicit clinical results or that did not evaluate efficacy or safety.
- Studies from time periods outside the 2015-2025 range (unless research from years earlier than the suggested range contributed to the research).

Study selection process

The study selection process was carried out in two phases. In the first phase, two independent reviewers examined the titles and abstracts of all identified articles from the search strategy. Duplicates and articles that did not meet the preliminary inclusion criteria were eliminated. In the second phase, the reviewers evaluated the full text of the articles selected in the first phase. Any disagreement between the reviewers was resolved through discussion and consensus with a third senior reviewer. The studies that were finally included in the qualitative synthesis were those that met all the inclusion criteria.

Study selection process and PRISMA flowchart The selection process, illustrated in the PRISMA flowchart below, began with an initial identification of records in the databases. The search results were consolidated, and duplicate articles were removed to obtain a list of unique articles for screening.

Figure 2. *PRISMA flowchart.*



Results

Incidence, prevalence, and population indicators

A recent study indicates that breast reconstruction is performed in approximately 28.1% of patients undergoing a mastectomy. The median age for patients undergoing this procedure is 48 years, with prevalent comorbidities such as hypertension (18.6%), hypothyroidism (10.3%), and diabetes mellitus (2.4%). Most reconstructions are performed immediately after the mastectomy (64.6%) and are unilateral (92.9%) (1).

Eligibility for the DIEP flap is not limited to the cancer diagnosis but involves a comprehensive evaluation of the patient's clinical profile. The ideal candidate for this technique is a woman who has enough tissue in the lower abdomen to create a breast of the desired size (9). Additionally, it's

crucial that she hasn't had previous abdominal surgeries, such as a laparotomy or an abdominoplasty, which could compromise the tissue's vascularization (7). A critical factor is the assessment of the abdominal wall's integrity, which makes young, athletic patients or those who are particularly concerned with maintaining their abdominal strength ideal candidates (9).

The analysis also highlights that certain risk factors can increase the likelihood of complications. Patients are recommended to stop smoking for a minimum of six weeks before the intervention (10). Obesity, defined by a body mass index (BMI) greater than 30 kg/m^2, is another identified risk factor that increases flap complications (7). Therefore, the selection process is a close collaboration between the oncological surgeon and the plastic surgeon, who must coordinate to determine the optimal timing and reconstruction technique that best suits the patient's medical and anatomical conditions (2).

Anatomy, physiology, and preoperative planning

Figure 3. *Before and after deferred bilateral DIEP flap reconstruction.*

Source: Uscher (10).

The DIEP flap is based on the anatomy of the deep inferior epigastric artery and vein, which are branches of the external iliac artery and vein. The success of this microsurgical technique depends on the precise dissection of the perforator vessels, which are the small blood vessels that pass

through the rectus abdominis muscle to supply the overlying skin and fat. The main advantage of this approach is that it preserves the entire rectus muscle, which prevents damage and weakness of the abdominal wall (10).

Preoperative planning is a fundamental pillar for the success of the procedure. To identify and map the most suitable perforator vessels, advanced imaging techniques such as CT angiography and color Doppler are used (11). This detailed mapping allows the surgeon to identify the dominant perforators and plan the dissection to maximize the flap's viability. The irrigation of the flap is a complex process, where the perforator vessels communicate with each other through a network of communicating vessels, which allows for large flaps to be lifted with a single perforator (12).

Once the flap is transferred to the chest, the deep inferior epigastric vessels are anastomosed to new recipient vessels to reestablish blood flow. The most commonly used recipient vessels are the internal mammary artery and vein, located in the intercostal space lateral to the sternum (2). The choice of these vessels is a critical component that influences the flap's viability (13). The success of this surgery is not a binary result, but the culmination of a process of anatomical and microsurgical optimization that minimizes the risks of ischemia and necrosis.

Comparison of reconstruction techniques

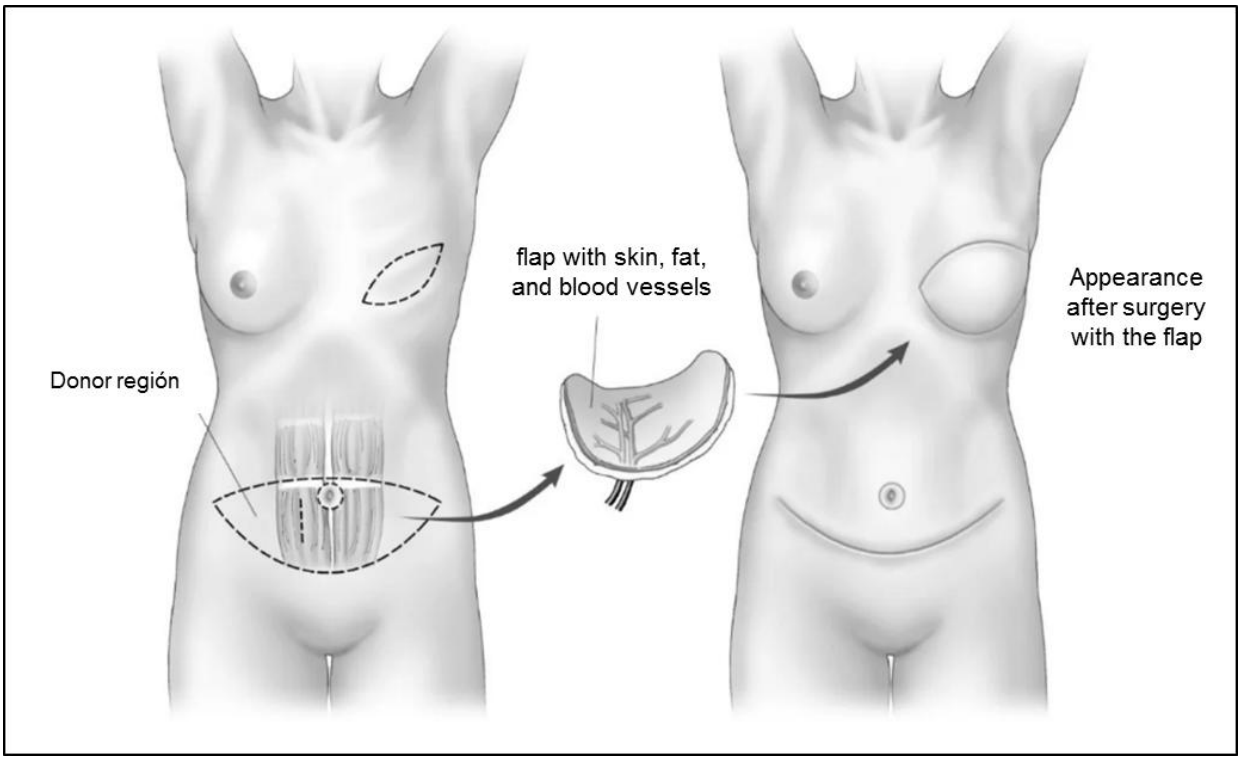
The DIEP flap has emerged as the gold standard in autologous reconstruction due to its favorable morbidity profile compared to older techniques like the TRAM and with implants. The table below summarizes the main differences between these options.

Table 1. *Comparison of morbidity and outcomes in breast reconstruction.*

Characteristic	DIEP Flap	TRAM Flap	Implants
Abdominal muscle integrity	Preserved	Partially or completely sacrificed	Not applicable
Risk of hernias and bulges	Reduced (RR 0.43 and 0.80 vs. TRAM)	High	Not applicable
Aesthetic results	Natural, stable, and durable	Less natural, with risk of abdominal contour distortion	Less natural, different to the touch
Durability	Permanent, evolves with the body	Permanent	Requires replacement every 10-15 years 27
Need for revisions	Low	Low	High (30% at 5 years)

Soure: Adapted from Egeberg et al; Hamdi Sakarya; Instituto Nacional del Cáncer; Lagares-Borrego et al; MD Anderson Hospiten (2,6,8,14,15).

Figure 4. *Deep inferior epigastric artery perforator flap or DIEP flap.*



Source: Adapted from American Cancer Society (16).

A comparative analysis with the TRAM flap shows a clear benefit in donor site morbidity. A meta-analysis indicates that the risk of hernias in patients with a DIEP flap is approximately half that of patients with a TRAM. Similarly, a 20% reduction in the risk of abdominal bulging is observed, especially when evaluated by clinical examination. However, a notable finding is that this difference is not detected when the evaluation is based on patient perception surveys, suggesting that bulging may not be perceived as a significant complication by patients (8).

Other flaps such as the SIEA (Superficial Inferior Epigastric Artery), the PAP (Profunda Artery Perforator), the TUG (Transverse Upper Gracilis), and the GAP (Gluteal Artery Perforator) offer alternatives when abdominal tissue is not viable (16). The SIEA flap, for example, completely respects the rectus abdominis muscle, but its use is limited by the anatomical variability of its

vessels (17). For their part, gluteal and thigh flaps, although they avoid using the abdomen, can leave aesthetic sequelae at the donor site such as visible scars or changes in contour (16).

Clinical outcomes and complications

The safety and clinical outcomes of the DIEP flap have been well-documented. The incidence of serious complications is low. The rate of complete flap necrosis, a severe complication, ranges from 1.82% to 3%. Partial necrosis has been reported in a range of 2.6% to 5.45% (18). Additionally, fat necrosis, a minor complication that can leave firm lumps, has been found to occur in approximately 8.2% of flaps (10).

The main risk factors that increase the likelihood of complications are smoking, obesity (BMI > 30 kg/m^2), and previous radiotherapy in the flap area (7).

Below is a table summarizing the surgical variables and complication rates in documented case series.

Table 2. *Surgical variables and complications in DIEP case series.*

Variable	Incidence/Range
Complete flap necrosis	1.82% (1/55 cases)
Partial flap necrosis	5.45% (3/55 cases)
Fat necrosis	8.2% (308/3746 flaps)
Hospital stay	3-4 days
Operating time	4-6 hours or more

Source: Adapted from Casado Sánchez et al; ChristianaCare; Uscher (7,9,10).

A point of interest in the analysis of complications is the discrepancy between clinical and patient perception. For example, in the case of hernias or abdominal bulges, a meta-analysis showed a reduction in risk according to clinical examination, but no significant difference was found when patients were asked in satisfaction surveys (8). This dichotomy suggests that patients may not perceive these clinical findings as a significant problem in their daily lives, which underscores the importance of communication and expectation management in the shared decision-making process between the doctor and the patient.

Impact on quality of life and cost-effectiveness

Breast reconstruction with a DIEP flap is strongly associated with an improvement in patients' psychological well-being, quality of life, and body image (3). Satisfaction studies indicate high levels in patients reconstructed with DIEP, with a positive evaluation of the breast's shape, volume, texture, and symmetry (19). A recent meta-analysis by Santosa et al. (2018) and other more recent studies (Kuiper et al., 2023; Roy et al., 2023) suggest that flaps, particularly DIEP, are associated with higher levels of aesthetic satisfaction and better body perception compared to implants (20).

The functional recovery from a DIEP flap requires a considerable amount of time. Patients typically remain hospitalized for 3 to 4 days, and full recovery to return to work or daily activities can take 3 to 6 weeks, depending on the type of work (9).

Regarding cost-effectiveness, the analysis of a retrospective study in Spain offers an interesting perspective (14).

Table 3. *Cost-Effectiveness Analysis between DIEP and Implants.*

Variable	DIEP Reconstruction	Implant Reconstruction	p-value
Inferred total cost	18,857.77 €	20,502.08 €	p = 0.899
Cost of reoperations	5,837.98 €	4,278.10 €	p = 0.897
Number of surgeries	Higher for aesthetic touch-ups	Higher for complications	Not available
Reconstruction time	20.13 months	26.89 months	Not available

Although the inferred total cost of DIEP flap reconstruction is not statistically different from that of implant reconstruction in the analyzed cohort, the study highlights a crucial finding (21). The apparent parity in total costs hides a paradox: implant reconstruction often requires costly revision surgeries to manage long-term complications such as capsular contracture, infection, or prosthesis wear (14). In contrast, the DIEP flap, once successfully established, offers a permanent and stable result that naturally evolves with the patient's body (22).

This long-term durability makes the DIEP technique considerably more cost-effective over the patient's life cycle, especially in young women with a high life expectancy, as it avoids the costs associated with multiple reinterventions (14). Therefore, the higher initial cost of the DIEP is amortized over time, making this option a more solid investment from a public health perspective.

Conclusions

The literature review indicates that the DIEP flap has consolidated its position as the gold standard in post-mastectomy autologous breast reconstruction. This microsurgical technique offers superior and durable results compared to implants and older flaps, such as the TRAM. Its main advantage lies in the preservation of the abdominal wall's muscular integrity, which translates into significantly less morbidity at the donor site and a faster functional recovery.

The selection of the reconstruction technique should be an individualized and deliberate process. The use of decision algorithms based on clinical and anatomical criteria, such as the availability of abdominal tissue, history of previous surgeries, and the state of the perforator vessels, is crucial for optimizing the procedure's success. Coordination between oncology and plastic surgery teams is indispensable for proper treatment planning.

One of the main limitations identified in the available literature is the scarcity of detailed and quantifiable evidence on the return to work and sexual activity of postoperative patients. While an improvement in quality of life and self-image can be inferred, the absence of direct data on the long-term functional impact represents a clear need for future research. This knowledge gap must be addressed to provide a more complete understanding of the integral benefit of this technique.

Finally, although the complexity of the DIEP flap requires specific training and experience in microsurgery, its widespread adoption is of utmost importance. Investing in the training of surgeons and the availability of this technique in healthcare systems can significantly improve patients' long-term quality of life, proving to be both a clinically and economically superior option.

Bibliography.

1. Correa Patiño D, Villa Villarreal AF, Gallego Gónima S. Características epidemiológicas de pacientes sometidas a reconstrucción mamaria: estudio de corte transversal en una institución de referencia-Epidemiological characteristics of patients undergoing breast reconstruction: cross-sectional study in a refer. Rev Colomb Cirugía Plástica y Reconstr. 2022;28(2).

2. MD Anderson Hospiten. Reconstrucción mamaria con colgajo DIEP [Internet]. [cited 2025 Sep 15]. Available from: https://mdandersonhospiten.es/elhospital/cuadromedico/serviciosmedicos/reconstruccion-mamaria-con-colgajo-diep

3. Rincón Fernández M., Pérez San Gregorio M., Borda Más M, Martín Rodríguez A. Diferencias psicológicas en pacientes con cáncer de mama según el tipo de cirugía mamaria. Cir plást iberolatinoam. 2010;36(4).

4. Mayo Clinic. Reconstrucción mamaria mediante cirugía con colgajos [Internet]. 2025. Available from: https://www.mayoclinic.org/es/tests-procedures/breast-reconstruction-flap/about/pac-20384937

5. Mayo Clinic. Reconstrucción mamaria con implantes [Internet]. 2025. Available from: https://www.mayoclinic.org/es/tests-procedures/breast-reconstruction-implants/about/pac-20384934

6. Instituto Nacional del Cáncer. Reconstrucción del seno después de una mastectomía [Internet]. 2017. Available from: https://www.cancer.gov/espanol/tipos/seno/hoja-informativa-reconstruccion

7. Casado Sánchez C, Cabrera Sánchez E, Redondo Camacho A, Rioja Torrejón LF. Análisis de controversias en reconstrucción mamaria con colgajo DIEP. Cir.plást iberolatinoam. 2008;34(4).

8. Egeberg A, Rasmussen MK, Ahm Sørensen J. Comparing the donor-site morbidity using DIEP, SIEA or MS-TRAM flaps for breast reconstructive surgery: A meta-analysis. J Plast Reconstr Aesthetic Surg [Internet]. 2012 Nov;65(11):1474–80. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1748681512003853

9. ChristianaCare. Colgajo DIEP [Internet]. [cited 2025 Sep 15]. Available from: https://christianacare.org/us/es/care/surgical-care/reconstructive-surgery/center-for-breast-reconstruction/diep-flap

10. Uscher J. Procedimiento de reconstrucción con colgajo DIEP [Internet]. 2025. Available from: https://www.breastcancer.org/es/tratamiento/cirugia/reconstruccion-mamaria/tipos/colgajo-autogeno/diep

11. Manuel Sanchis García J, Rengel Ruiz M, Nersesyan - N, Guijarro Rosaleny J, Gil Romero J. Utilidad de la Angio-TC en la planificación preoperatoria de la reconstrucción mamaria microquirúrgica mediante colgajo pediculado con ramas perforantes de arteria epigástrica inferior (DIEP). Revisión de la experiencia en el Hospital Clínico Universitari. Seram

[Internet]. 2018 Apr 28;2(1 SE-Vascular e Intervencionismo). Available from: https://piper.espacio-seram.com/index.php/seram/article/view/7056

12. CORREA BERNAL DIANA, Garcìa H, LORDUY MÁRQUEZ CAROLINA, Rodriguez JP, Terán DF, Torres T, et al. Colgajos de perforantes principios básicos y aplicaciones clínicas. Rev Med. 2012;20(1):42–51.

13. Jaramillo-del Río AE, Noreña-Atehortua JC, Carvajal-Forero C, Aljure-Díaz MF, Larrarte-Arenas D, Jaramillo-del Río AE, et al. Cuidados perioperatorios en pacientes con colgajos libres: experiencia institucional. Cirugía Plástica Ibero-Latinoamericana [Internet]. 2024 [cited 2025 Sep 15];50(1):43–52. Available from: https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0376-78922024000100011&lng=es&nrm=iso&tlng=es

14. Lagares-Borrego A, Gacto-Sánchez P, Infante-Cossío P, Barrera-Pulido F, Sicilia-Castro D, Gómez-Cía T. Coste preciso de la reconstrucción mamaria con colgajo DIEP e implantes en un hospital público del sistema sanitario español. Cir plást iberolatinoam. 2015;41(4).

15. Hamdi Sakarya A. Cirugía de Reconstrucción Mamaria Con Colgajo DIEP [Internet]. [cited 2025 Sep 15]. Available from: https://careinturkey.com/es/reconstruccion-mamaria-con-colgajo-diep

16. American Cancer Society. Reconstrucción del seno con su propio tejido (procedimiento de colgajo) [Internet]. 2021. Available from: https://www.cancer.org/es/cancer/tipos/cancer-de-seno/cirugia-reconstructiva/opciones-de-reconstruccion-del-seno/reconstruccion-del-seno-usando-sus-propios-tejidos.html

17. Capitán del Río I, Rodríguez Cano M, Cámara Pérez J, Fierro Aguilar A, Sánchez Andújar M. Breast reconstruction in breast cancer: update. Cirugía Andaluza [Internet]. 2021 May 7;32(2):160–7. Available from: https://www.asacirujanos.com/revista/2021/32/2/10

18. Varela R, Landín L, Bonastre J, Bolado P, Díez J, Díaz B, et al. Seguridad y complicaciones en reconstrucción mamaria autóloga con colgajo DIEP: una revisión sistemática. Rev Senol y Patol Mamar [Internet]. 2017 Jul;30(3):119–29. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0214158217300567

19. Cabrera Sánchez E, Redondo Camacho A, Dean Ferrer A, Benítez i Gomá JR, Torre Beltrami C, De Piero Belmonte G, et al. Cirugía plástica ibero-latinoamericana. Cirugía Plástica Ibero-Latinoamericana [Internet]. 2006 [cited 2025 Sep 15];32(3):169–79. Available from: https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0376-78922006000300003&lng=es&nrm=iso&tlng=es

20. Sánchez Knupflemacher D, Sánchez Garcia XA, Camacho Escárcega M, Laureles Sebastián SS, Garcia Covarrubias D, Ramírez Basilio MJ. Reconstrucción Mamaria Postmastectomía con Colgajos versus Implantes: Revisión Sistemática de Resultados Estéticos, Funcionales y Calidad de Vida. Cienc Lat Rev Científica Multidiscip [Internet]. 2025 Jul 30;9(3):9469–84. Available from: https://ciencialatina.org/index.php/cienciala/article/view/18601

21. Borrego AL. Análisis del coste-efectividad de la reconstrucción mamaria con implantes versus reconstrucción con colgajo de perforantes de la arteria epigástrica inferior profunda. Universidad de Sevilla; 2015.

22. Mayo Clinic. Breast reconstruction with flap surgery [Internet]. 2025. Available from: https://www.mayoclinic.org/tests-procedures/breast-reconstruction-flap/about/pac-20384937