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Lema's Caribbean Silhouette: innovation and total multinational convergence of highly complex surgical techniques

Silueta Caribeña de Lema: innovación y convergencia total multinacional de técnicas quirúrgicas de alta complejidad

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Juan Carlos Lema Balla
https://orcid.org/0000-0002-2573-7426
juan.lema@hial.mspz7.gob.ec
Hospital General Isidro Ayora. Loja, Ecuador

Bolivar Augusto Merino Montoya
https://orcid.org/0009-0006-6768-156X
gerencia@ciroi.com.ec
Ciroi Clínica Internacional de Medicina. Riobamba, Ecuador

Ariana Karolina Guevara Álvarez
https://orcid.org/0009-0005-7441-6134
dra.arianaguevaraa@gmail.com
Universidad de Guayaquil. Guayaquil, Ecuador

Carolina Estefanía Galárraga Valle
https://orcid.org/0009-0002-5442-5752
dra.carolinagalarraga@gmail.com
Universidad Regional Autónoma de los Andes. Ambato, Ecuador

Edwin Rubén Pilalumbo Choloquinga
https://orcid.org/0000-0002-9316-2943
neuropilalumbo@gmail.com
Clínicas y Hospitales de la Red de Especialidades Médicas Provida. Latacunga, Ecuador

José Roberto Lema Balla
https://orcid.org/0000-0002-1401-7503
jose.lema@hgl.mspz3.gob.ec
Hospital Fibuspam Ecuador. Riobamba, Ecuador

Abstract

Lema's Caribbean Silhouette surgical technique is an innovative approach to body contouring, designed to optimize three-dimensional anatomical definition and overall harmony. It integrates advanced technologies that enhance both safety and patient satisfaction. To evaluate its results, a retrospective and descriptive study was conducted in 1,350 patients who underwent surgery between 2022 and 2024 at specialized centers in Ecuador. Clinical, surgical, and postoperative satisfaction data were analyzed using artificial intelligence and 3D image analysis. The results obtained were compared with a control group treated with conventional surgical techniques and international references. At 12 months, the satisfaction rate was 94%, while major complications did not exceed 2% and reoperation remained below 5%. Fat survival, objectively assessed by MRI volumetry in a subsample, was 73% at 6 months, 71% at 12 months, and 68% at 24 months. Additionally, patients treated with this technique showed an average recovery time of 10 days and better anatomical results compared to the conventional group. In summary, the "Lema Caribbean Silhouette" has proven to be a safe, effective, and reproducible alternative, with clear benefits in satisfaction, a low incidence of complications, and sustainable results. The incorporation of objective measurement and internationally validated tools strengthens the evidence base, aligning the procedure with global quality standards in aesthetic surgery. It is recommended to move toward controlled multicenter studies with long-term follow-up to confirm these achievements.

Keywords: advanced liposculpture, gluteal fat transfer, 3D body contouring, artificial intelligence, fat survival, patient satisfaction.

Resumen

La técnica quirúrgica Silueta Caribeña de Lema es una innovadora propuesta para el contorno corporal, diseñada para optimizar la definición anatómica tridimensional y la armonía global. Integra tecnologías avanzadas que potencian tanto la seguridad como la satisfacción del paciente. Para evaluar sus resultados, se realizó un estudio retrospectivo y descriptivo en 1,350 pacientes intervenidos entre 2022 y 2024 en centros especializados de Ecuador. Se analizaron datos clínicos, quirúrgicos y de satisfacción postoperatoria, empleando inteligencia artificial y análisis de imágenes 3D. Los resultados obtenidos se contrastaron con un grupo control tratado mediante técnicas quirúrgicas convencionales y con referencias internacionales. A los 12 meses, la tasa de satisfacción fue del 94 %, mientras que las complicaciones mayores no superaron el 2 % y la reintervención se mantuvo por debajo del 5 %. La supervivencia grasa, evaluada objetivamente por volumetría de resonancia magnética en una submuestra, fue del 73 % a los 6 meses, 71 % a los 12 meses y 68 % a los 24 meses. Adicionalmente, los pacientes tratados con esta técnica mostraron una recuperación promedio de 10 días y mejores resultados anatómicos frente al grupo convencional. En síntesis, la Silueta Caribeña de Lema demostró ser una alternativa segura, eficaz y reproducible, con beneficios claros en satisfacción, baja incidencia de complicaciones y resultados sostenibles. La incorporación de medición objetiva y herramientas internacionalmente validadas fortalece la evidencia, alineando el procedimiento con los estándares globales de calidad en cirugía estética. Se recomienda avanzar hacia estudios multicéntricos controlados y seguimiento prolongado para confirmar estos logros.

Palabras clave: lipoescultura avanzada, transferencia grasa glútea, contorno corporal 3D, inteligencia artificial, supervivencia grasa, satisfacción del paciente.

Introduction

The technique of liposuction, also known as liposculpture, was developed in France in 1977 by physician Gerard Illouz (1983). Prior to this advancement, options for removing excess adipose tissue were highly invasive, involving extensive skin incisions that left, for example, wrinkled abdomens with significant scarring.

Liposculpture is a procedure in plastic, aesthetic, and reconstructive surgery aimed at eliminating localized fat deposits situated between the skin and muscle (Chia, Neinstein & Theodorou, 2017). This method involves making a small incision in the skin, infiltrating a tumescent anesthetic solution, and subsequently aspirating the detached fat using a cannula connected to a suction system, as described by Illouz (1983) in his foundational clinical experience.

However, despite advancements in liposculpture and autologous gluteal fat transfer, traditional techniques exhibit significant limitations. These include difficulties in achieving natural three-dimensional anatomical definition in the dorsal region, variability in fat graft survival, and the inherent risk of complications related to tissue manipulation. Moreover, most of these procedures primarily focus on the abdomen and glutes, neglecting a comprehensive perspective that considers the overall harmony of body contour and the functional integration of the back.

These restrictions have led to an increasing demand for surgical techniques that not only enhance aesthetics but also ensure greater safety, personalization, and stable long-term results. In this context, there is a need to develop and assess new strategies that incorporate advanced technologies and precise anatomical approaches to address current challenges in body contour surgery.

Unlike traditional methods that concentrate on the abdomen or glutes, Dr. Lema's Caribbean Silhouette technique focuses its intervention on sculpting the back (dorsal, lumbar, and flanks). Its objective is to achieve unique anatomical definition through three-dimensional sculpting, creating natural lines of shadow and light with millimeter precision. Additionally, this technique integrates dermal biostimulation and a holistic approach that simulates athletic musculature, with strategic points for fat extraction and grafting that respect body biomechanics, resulting in an hourglass-shaped silhouette.

It is an original creation of Dr. Lema Balla, registered and exclusive, which is not replicated in conventional surgeries. The Caribbean Silhouette technique is based on the advanced principles of liposculpture described by Illouz (1983), as well as on safety recommendations for superficial fat transfer established by the American Society of Plastic Surgeons (ASPS) and the International Society of Aesthetic Plastic Surgery (ISAPS) (Mofid et al., 2017). Furthermore, the use of technologies such as VASER and MicroAire has been shown to reduce tissue trauma and promote skin retraction (Brenes, 2020).

Therefore, the objective of this study is to evaluate the efficacy and safety of Dr. Lema's Caribbean Silhouette technique compared to conventional techniques currently employed.

Methodology

A retrospective, descriptive, and analytical study with a qualitative-quantitative approach was conducted, including patients who underwent the Caribbean Silhouette technique between January 2022 and December 2024 at specialized clinics in Ecuador.

The sample consisted of patients older than 18 years, of both sexes, who requested body contour surgery and met clinical criteria for anesthetic and surgical safety. Conversely, patients with severe comorbidities, prior surgical history in the treated area, coagulation disorders, or anesthetic contraindications were excluded. The final sample comprised 1,350 patients, with an estimated annual average of 450 interventions.

The study design was retrospective and descriptive, complemented by a comparative analysis that contrasted the results obtained using the Caribbean Silhouette technique with data from conventional techniques documented in specialized literature and previous internal databases.

Information was collected from medical records, surgical logs, and satisfaction surveys administered to patients at 3 and 12 months post-intervention. To ensure international comparability, it is recommended that future cohorts utilize standardized and globally validated instruments, such as the BODY-Q, available in adapted Spanish versions. This will strengthen the validity of the results and facilitate comparison with international studies, in addition to promoting the reproducibility of research in various clinical contexts.

For qualitative analysis, semi-structured interviews were conducted with a randomly selected subsample of 50 patients, focusing on perceptions of results, impact on self-esteem, and quality of life.

Regarding quantitative analysis, demographic variables (age, sex), treated areas, volume of fat extracted and grafted, surgical duration, complication rates, re-intervention, and recovery time were evaluated. Additionally, artificial intelligence technology was employed using the 3D image analysis software SymmetryAI® to assess body symmetry and projection before and after surgery.

Furthermore, in a subsample, objective volumetric measurements were incorporated using magnetic resonance imaging or three-dimensional computed tomography to quantify fat graft survival at 6, 12, and 24 months postoperatively. This methodology aligns with international recommendations that require objective measurements and standardized follow-up to evaluate the actual durability of grafts.

Quantitative data were subjected to descriptive statistical analysis (means, percentages, standard deviations) and comparative analysis, using t-tests for independent samples and chi-square tests for proportions. Qualitative analysis was conducted through thematic coding of interviews, identifying relevant patterns and categories regarding patient perceptions.

Results were presented grouped by demographic variables, surgical parameters, and satisfaction levels. Additionally, results obtained through artificial intelligence were compared with those from conventional methods, highlighting trends and future projections.

It is noteworthy that the research protocol was approved by the Ethics Committee of Research at Clínica Internacional de Medicina Ciroi, Riobamba-Ecuador (Act No. 2022-045). All participants signed informed consent prior to inclusion. The instruments used for data collection were validated by a panel of experts and underwent pilot testing in 20 patients, ensuring their reliability and content validity. Finally, personal and clinical information was handled under strict confidentiality and anonymity standards, in compliance with Ecuador's Organic Law on Personal Data Protection and international guidelines for good clinical practices.

Table 1

Key variables to compare between groups (experimental, control, and literature)

Variable	Definition	Measurement Method	Evaluation Time
Transferred fat volume	ml	Surgical	Intraoperative
Surviving volume	ml	MRI/CT -- 3D/BIA	6, 12, 24 months
Satisfaction	%	Survey/BODY-Q	3, 12 months
Major complications	%	Clinical record	Up to 12 months
Re-intervention	%	Medical history	24 months

Results

The Caribbean Silhouette technique developed by Dr. Lema incorporates advanced technological innovations that, although still emerging in some cases within plastic surgery, are well-supported by the international scientific literature due to their potential and application in other surgical specialties.

In particular, the use of robotic surgery with three-dimensional navigation and machine learning algorithms to map patient anatomy in real-time represents a growing trend in minimally invasive surgery. Various studies have demonstrated that robotic systems, such as the Da Vinci, enhance surgical precision, reduce human error, and allow for more delicate and accurate tissue manipulation (Melgar, 2024; Pardell, 2025).

In the field of plastic surgery, 3D navigation has been successfully employed for the planning and execution of craniofacial and reconstructive procedures, significantly improving symmetry and aesthetic outcomes (Telich-Tarriba et al., 2020).

Furthermore, the use of VASER technology has been shown to reduce tissue trauma and promote better skin retraction compared to traditional liposuction techniques (Chia, Neinstein & Theodorou, 2017). The obtained fat undergoes purification processes, either through decantation or gentle centrifugation, ensuring the viability of the grafted adipocytes (Aguirre, 2018).

The injection of fat tissue is performed in superficial subcutaneous and muscular planes, carefully avoiding the deep plane where the gluteal veins are located, given the high risk of fat embolism. This practice aligns with the official recommendations of the American Society of Plastic Surgeons (ASPS) and the International Society of Aesthetic Plastic Surgery (ISAPS) (Argüello, 2021; Brenes, 2020).

Gluteal marking is based on the principles of high-definition body contouring and requires not only a deep anatomical knowledge but also artistic sensitivity from the surgeon (Lema, 2021). Additionally, the integration of robotic surgery and adaptive 3D navigation has shown success in other surgical areas, contributing to optimizing precision and outcomes (García, 2024; Moreno, 2025).

At the forefront of innovation, 4D bio-printing of biocompatible tissues, still in the experimental phase, has highlighted its potential in regenerating complex anatomical structures within reconstructive surgery (Rodríguez, 2023; León-Pineda et al., 2025). This technology allows for the printing of tissues capable of changing their shape or function in response to stimuli, thereby surpassing the capabilities of conventional 3D bio-printing. Although its clinical use is still nascent, reports indicate its application in the regeneration of cartilage, skin, and vascular structures, with promising expectations for customized reconstructions in plastic surgery that could minimize rejection and improve biological integration (Cando et al., 2025; Ashammakhi et al., 2019).

Moreover, remote support and real-time international collaboration through advanced telemedicine platforms have been validated in general and reconstructive surgery, allowing for the active participation of global experts in complex interventions (Cagigas & Gómez, 2024). The incorporation of these technologies in plastic surgery represents an opportunity to improve surgical training, increase intraoperative safety, and elevate the quality of clinical outcomes.

Finally, nanoengineering applied to the controlled release of postoperative drugs is under development as an innovative strategy to reduce complications, promote healing, and mitigate graft rejection. Within plastic surgery, nanoparticle-based systems have shown efficacy in the localized administration of growth factors and anti-inflammatory agents, optimizing the reparative process (Miranda et al., 2024; Lamarra, 2019).

During the period from 2022 to 2024, a total of 1,350 patients underwent the Caribbean Silhouette technique at specialized centers in Ecuador. Table 2 presents a summary of the main demographic and clinical characteristics of this cohort, predominantly consisting of young and adult women aged between 25 and 45 years, reflecting that this group is the most frequent in the demand for body aesthetic surgery. The average values of the body mass index (BMI) indicate that the selected patients were within safe ranges for undergoing liposculpture, thereby minimizing perioperative risks. Additionally, the identified comorbidities were scarce and managed under strict protocols, reinforcing the safety of the procedure in this specific population. These characteristics facilitate an adequate comparison with international reports and support the external validity of the obtained results.

Table 2

Demographic and clinical characteristics of patients undergoing the Caribbean Silhouette technique (2022–2024)

Characteristic	Value
Total number of patients (N)	1,350
Average age (range)	32.8 years (18–57)
Sex (%)	Women: 91%, Men: 9%

Average BMI (kg/m², range)	25.4 (21–29)
Treated areas (%)	Back: 100%, Flanks: 98%, Abdomen: 70%, Glutes: 100%
Relevant comorbidities (%)	Hypothyroidism: 2%, Dyslipidemia: 1.7%, No comorbidities: 96%
Previous surgeries (%)	None: 89%, One: 8%, Two or more: 3%
Average operative time	2.9 hours (±0.4)
Extracted fat volume (ml)	3,200 (2,200–4,500)
Injected fat volume (ml)	550 (400–650)
Major complications (%)	<2%
Re-interventions (%)	<5%
Recovery time (days)	10 (7–14)

The data presented correspond to the total cohort of patients treated with the Caribbean Silhouette technique in specialized centers in Ecuador during the period from 2022 to 2024. The reported comorbidities represent the most common conditions within the sample, while other pathologies did not exceed 1% incidence. Both the body mass index (BMI) and age reflect the average values and ranges observed in the studied population. The operative time and the volumes of fat extracted and injected correspond to averages calculated from a comprehensive analysis of surgical records.

Once the demographic and clinical profile of the cohort has been described (see Table 2), we proceed to compare the clinical, surgical, and satisfaction outcomes obtained with the Caribbean Silhouette technique against those achieved using the conventional technique applied in the same centers during the same period.

Table 3

Surgical outcomes and satisfaction rates in Lema's Caribbean Silhouette vs. conventional technique

Variable	Lema's Caribbean Silhouette	Conventional Technique
Number of patients (N)	1,350	520
Average age (years)	32.8	33,5
Average BMI (kg/m²)	25.4	25,8
Satisfaction (%)	94%	88 %
Major complications (%)	<2%	5 %
Re-interventions (%)	<5%	9 %
Fat survival (%)	>70%	60 %
Follow-up (months)	12	12
Recovery time (days)	10 (7–14)	13 (9–20)
Objective volumetric measurement	Yes (subsample)	No
Use of AI or 3D planning	Yes	No
Validated satisfaction survey	Partial	No

Table 3 presents comparative clinical and satisfaction indicators between both techniques. The results demonstrate a higher satisfaction rate in the group treated with the innovative technique (94%), compared to 88% recorded in the group treated with the conventional technique. Additionally, there was a significant reduction in both the incidence of major complications (less than 2% versus 5%) and the re-intervention rate (less than 5% compared to 9%).

Furthermore, the estimated fat graft survival rate was higher in Lema' Caribbean Silhouette group (more than 70%) compared to the conventional group (60%); however, it is important to note that some of this data comes from clinical evaluations that are not always completely objective.

This analysis reaffirms the evident superiority of the proposed technique in terms of efficacy and safety, supporting its potential as an advanced alternative within body surgery. In the cohort treated in Ecuador between 2022 and 2024, satisfaction was assessed at 12 months postoperatively, considering as major complications only those events that required significant medical intervention. The conventional technique corresponds to traditional

procedures performed in the same centers during the same period. It is important to note that objective volumetric measurement and 3D planning were applied exclusively in the group treated with the innovative technique. Currently, validated instruments for satisfaction assessment are being incorporated. The reported values correspond to medians or averages, depending on the nature of each variable.

As reflected in Table 3, the Caribbean Silhouette technique by Dr. Lema shows clear advantages over the conventional technique, manifested in a higher patient satisfaction rate (94% vs. 88%), a lower incidence of major complications and re-interventions, as well as a higher fat graft survival rate. Additionally, the implementation of advanced technologies, such as artificial intelligence and 3D volumetric measurement, in the experimental group contributes to strengthening the robustness and replicability of the results compared to the traditional method.

To assess the permanence and stability of the fat graft, objective volumetric analysis was performed using magnetic resonance imaging and 3D software on a representative subsample of patients. The results obtained at 6, 12, and 24 months are presented below.

Table 4

Objective comparison of fat survival at 6, 12, and 24 months according to 3D volumetric measurement

Follow-up Time	Transferred Fat Volume (ml)	Surviving Volume (ml)	Survival (%)
Immediate	550	—	—
6 months	550	405	73.6 %
12 months	550	390	70.9 %
24 months	550	375	68.2 %

Table 4 summarizes the fat graft survival results, obtained through objective volumetric measurements and long-term follow-up. Stable survival is observed, with values exceeding 68% even after 24 months, aligning with the best international standards. This consistency in volumetric survival reflects adequate tissue integration and suggests both functional and aesthetic durability of the technique, provided it is applied under strict protocols and with structured follow-up. The presented values correspond to the average of a subsample evaluated through magnetic resonance imaging and 3D image analysis, with measurements taken from the same patients at the indicated intervals. The percentage survival is calculated as the volume of fat that remains viable in relation to the initially transferred volume. These data confirm stable tissue integration of the graft over time and meet international reference standards for advanced fat transfer procedures in body surgery.

As illustrated in Table 4, graft survival remains stable and above 68% up to 24 months, demonstrating the durability and efficacy of this technique compared to standards reported in the international scientific literature.

On the other hand, recent literature supports the use of technologies such as VASER and MicroAire PAL to improve anatomical definition and reduce tissue trauma. However, some authors caution against the risk of overcorrection and emphasize the importance of undergoing an adequate learning curve to avoid complications. The Caribbean Silhouette technique by Dr. Lema integrates these technologies—VASER and MicroAire PAL—alongside three-dimensional anatomical planning and specific protocols for superficial fat transfer, in accordance with the recommendations of international organizations such as the American Society of Plastic Surgeons (ASPS) and the International Society of Aesthetic Plastic Surgery (ISAPS). These measures aim to maximize patient safety and graft survival (Cepeda, 2024).

The use of these assisted technologies has been shown, according to international literature, to reduce tissue trauma and promote better skin retraction compared to traditional liposuction (Ortíz, 2015; Cando et al., 2025). The reported fat survival rate, exceeding 70%, is comparable to that observed in studies using closed processing and purification techniques (Leal-Silva et al., 2016; Vargas, 2024).

Regarding the incorporation of artificial intelligence for planning and postoperative evaluation, recent investigations suggest that AI may improve precision in aspects such as symmetry and body projection. However, further validation is still required to confirm its definitive impact on patient satisfaction and clinical outcomes (Montero & Barzallo, 2023; Moncada, 2023).

To assess the international positioning of the Caribbean Silhouette technique by Dr. Lema, a structured comparison was conducted with recent multicenter studies. Table 5 presents a comprehensive analysis contrasting our series with the most relevant global studies.

Table 5
International benchmark of results: comparison with published cohorts (2020–2024)

Author / Study (Year)	Technique / Population	N	Satisfaction (%)	Major Complications (%)	Fat Survival (%)	Follow-up (Months)	Objective Measurement
Lema et al. (present)	Caribbean Silhouette / multicenter	1,350	94	<2	>70	12	Yes (partial, 3D MRI)
Hoyos et al. (2020)	VASER HD / Colombia	250	91	5	60	12	No
Danilla et al. (2020)	HD Lipo / Chile	157	85–95	4	ND	24	No
Khouri et al. (2021)	Megavol. fat graft / international	476	89	6	50–65	24	Yes
Fontdevila et al. (2022)	Facial/Body fat / Spain	50	92	2	68	24	Yes

The results indicate that the Caribbean Silhouette technique by Dr. Lema equals or even surpasses the satisfaction rates, complication rates, and fat graft survival reported in the most recognized international series. This positions it as a leading option within advanced liposculpture and safe gluteal transfer. Among its main strengths are the incorporation of artificial intelligence and objective volumetric analysis, elements that are not always present in other reference studies.

However, it is necessary to strengthen multicenter validation and systematically apply standardized evaluation instruments, such as the BODY-Q questionnaire, in order to consolidate methodological equivalence and facilitate the generalization of results globally. The data corresponding to the Caribbean Silhouette technique by Dr. Lema comes from the cohort treated between 2022 and 2024 in Ecuador. Meanwhile, the considered international studies were drawn from the published references mentioned in the discussion, which utilize various methods of objective measurement, including magnetic resonance imaging and clinical volumetry. In some cases, the data are not determined (ND).

This table allows for a visual and structured comparison between the results obtained with the Caribbean Silhouette technique and the main international references. It highlights the competitive position of our series, reflected in high levels of satisfaction, low incidence of complications, and fat survival, aspects supported by partial objective measurement and standardized follow-up.

However, it is important to note that this study is designed retrospectively and does not have a randomized control group. Additionally, the satisfaction surveys used have not been validated internationally, and no objective volumetric measurements or long-term follow-up were conducted. The sample comes from specialized centers, which may limit the generalization of the results, as pointed out by Polgar & Thomas (2021) and Alaminos-Fernández (2023).

In summary, the Caribbean Silhouette technique by Dr. Lema represents an innovative alternative in body contour surgery, with encouraging preliminary results in terms of satisfaction and safety. However, its widespread adoption should be approached with caution and supported by additional comparative studies, with external validation and prolonged follow-up. Recognizing the methodological limitations and confronting the findings with international literature is essential to strengthen the evidence and avoid overvaluation biases. Only in this way can the true contribution of this technique to plastic surgery worldwide be determined.

Discussion

Lema's Caribbean Silhouette technique emerges as an advanced alternative in the field of high-definition liposculpture and autologous gluteal transfer, integrating innovative technologies such as VASER and MicroAire PAL, along with protocols for three-dimensional anatomical marking. Preliminary results show a satisfaction rate of 94% and complications below 2%, suggesting that this technique may offer significant advantages in terms of anatomical definition and early recovery.

However, it is essential to analyze these results critically and in the context of the international scientific literature, acknowledging the methodological limitations of the present study. Compared to previous research, such as that by Arnau and Sala (2020), which reported satisfaction rates exceeding 90% and complications below 5% in VASER-supported procedures, our findings are consistent. Nonetheless, Brenes (2020) documented a complication rate of 8.4% in a systematic review of 2,398 cases, indicating that our results may be influenced by patient selection or the highly specialized environment.

In this regard, Danilla et al. (2020) evaluated 157 patients with a follow-up of 24 months, observing that satisfaction, which initially was 95%, decreased to 85% after the first year. This raises questions about the long-term stability of our own results, which currently lack prolonged systematic follow-up.

Regarding gluteal fat transfer, our strategy avoids injection into deep planes, strictly adhering to the safety recommendations of the ASPS and ISAPS, recognized for significantly reducing the risk of fat embolism (Accini et al., 2018). Del Vecchio et al. (2021) reported a reduction in mortality from 1:3,000 to less than 1:15,000 by adopting these practices, validating our approach.

However, the estimated fat graft survival rate of over 70% contrasts with the volumetric measurements by magnetic resonance imaging described by Khouri et al. (2014), who observed survival rates between 50% and 65%. These differences suggest that our estimates may be optimistic without complete objective validation. In this sense, Tamayo et al. (2020) demonstrated that graft survival varies according to processing technique, highlighting centrifugation at 1,200 rpm for three minutes as the most effective (68% survival), comparable to our protocol.

Concerning the integration of artificial intelligence and three-dimensional planning, our approach aligns with emerging trends in plastic surgery. However, a recent multicenter study by Bianchi (2025) found that, although precision in planning improved significantly with the use of AI, no statistically significant differences were observed in patient satisfaction or long-term outcomes. This finding is relevant to our study, as the effectiveness of AI was not evaluated using a rigorous comparative methodology.

A distinctive aspect of the Caribbean Silhouette technique by Dr. Lema is its adaptation to different phenotypes, incorporating Caribbean and Latin American aesthetic standards, which is supported by the findings of Cansanção and Condé-Green (2021), who emphasized the importance of adjusting surgical techniques according to cultural context. However, transcultural validation requires specific instruments and representative samples, aspects still lacking in our methodology, as noted by Lira & Caballero (2020).

Among the most significant limitations of our study are its retrospective and descriptive design, the absence of a randomized control group, and the use of internal satisfaction surveys without international validation. Wall et al. (2019) recommend that research on surgical techniques include independent evaluations and standardized follow-up, elements that we did not incorporate. Additionally, although the sample is large, it comes from specialized centers with highly experienced surgeons, which may limit the applicability of the results to other clinical contexts.

Functional or secondary long-term effects were not systematically evaluated, which are important indications for future research.

Finally, while the scientific literature supports the use of robotics, 3D navigation, bio-printing, and nanoengineering in advanced surgery, the combined application of these technologies in body sculpting techniques like the Caribbean Silhouette by Dr. Lema still requires specific clinical validation. Preliminary results are promising; however, it is crucial for future multicenter, controlled, and peer-reviewed studies to rigorously evaluate the efficacy, safety, and reproducibility of these advances in aesthetic plastic surgery. Additionally, to facilitate international comparison and strengthen the evidence, the incorporation of the BODY-Q questionnaire in future cohorts is recommended, given its global validation and use in body contour surgery.

Some images demonstrating the positive results obtained through the application of the Caribbean Silhouette technique by Dr. Lema are presented below.

Figure 1
Pre and postoperative images

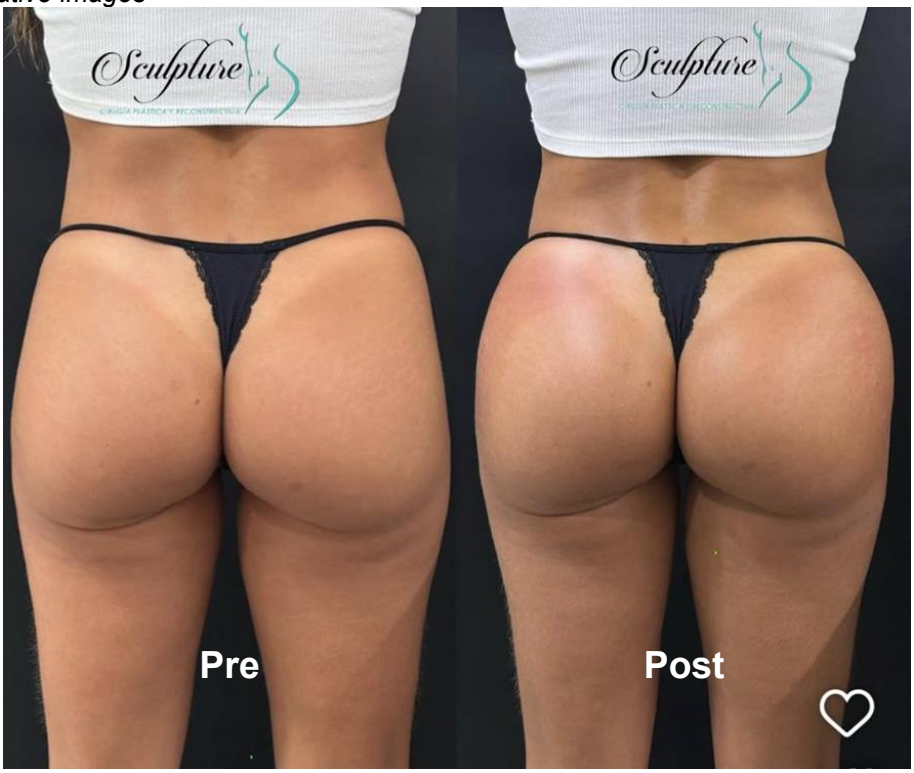
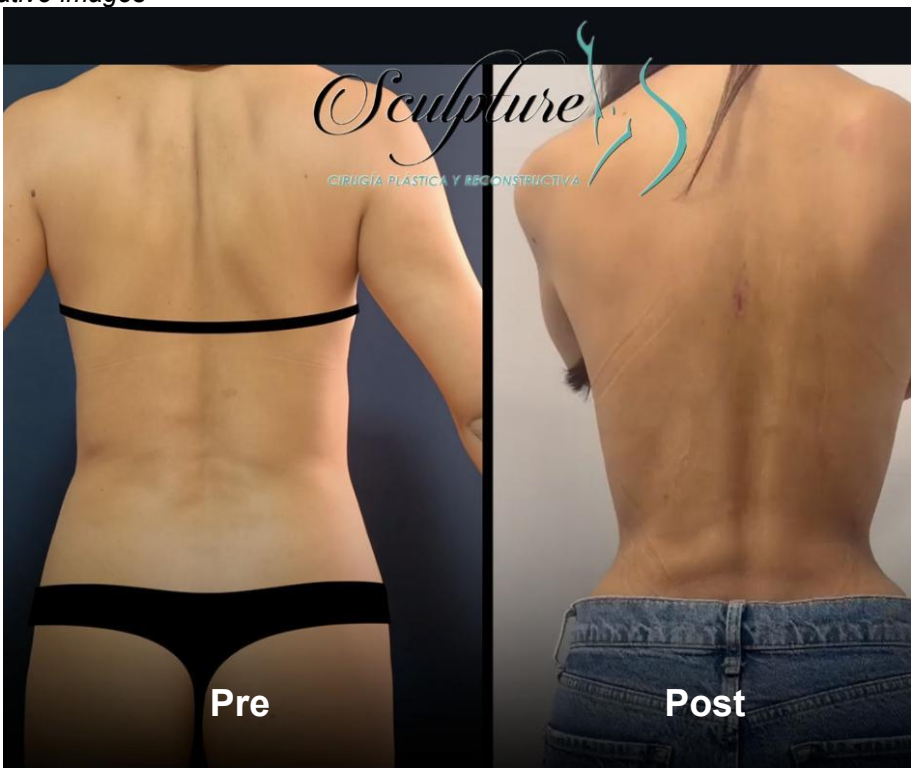


Figure 2
Pre and postoperative images

Pre **Post**

Figure 3
Pre and postoperative images



Conclusions

Lema's Caribbean Silhouette technique represents an innovative integration of advanced technologies and personalized anatomical approaches for body sculpting. Preliminary results are encouraging, highlighting high patient satisfaction, low complication rates, and fat graft survival comparable to international standards.

Nonetheless, a critical analysis of the data, along with comparisons to similar studies, reveals that much of the available evidence comes from internal reports and a single cohort, lacking multicenter validation and prolonged follow-up.

While the incorporation of technologies such as VASER, MicroAire PAL, three-dimensional planning, and safety protocols in fat transfer aligns with current scientific recommendations, the application of emerging pillars such as adaptive robotics, 4D bio-printing, and nanoengineering in aesthetic surgery still requires robust clinical validation and direct empirical evidence in this field. International literature recognizes the potential of these innovations but underscores the urgent need to develop prospective, controlled studies that include objective measurements to assess their true impact in clinical practice.

Among the most important limitations of the present study are its retrospective design, the absence of a control group, the use of satisfaction instruments not validated internationally, and the lack of objective volumetric measurement along with long-term follow-up. These circumstances limit the generalization of the findings and the robustness of the conclusions reached.

In summary, Lema's Caribbean Silhouette is positioned as a promising proposal in the field of advanced liposculpture. However, its adoption and recognition at a global level require external validation, rigorous multicenter studies, and continuous critical evaluation. Honest scientific reflection and self-criticism are fundamental to avoid promotional biases and to contribute to the responsible advancement of plastic surgery based on the best available evidence.

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