

## THE IMPORTANCE OF REQUESTING EXAMS TO SCREEN AESTHETIC PROCEDURES

---

*Christianne Martinez Ramos Naves*

*Igor Mendes Moreira de Oliveira*

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



**Abstract:** Laboratory and imaging exams in the world of aesthetics are extremely necessary, as they not only prevent problems related to procedures, but also help ensure a quality result. The objective of this work is to highlight this importance and the need to carry out exams to screen patients seeking aesthetic treatments. To collect data, integrative research was carried out, with works produced between 2008 and 2023. The databases used were: VHL (Virtual Health Library), PubMed, SCIELO (Scientific Electronic Library Online) and Google Scholar, with the following descriptors: laboratory tests; aesthetics; anamnesis exams; biomedical beautician. For this, xx articles were selected from a total of xx found. Materials with information contained in blogs and websites without references, incomplete articles and those without relevance to the topic were excluded. In conclusion, it is observed that exams must be part of the anamnesis protocol, as they are responsible for avoiding complications and ensuring greater chances of success, as they personify and individualize the procedures.

**Keywords:** Assessment. Image exams. Laboratory tests. Anamnesis.

## INTRODUCTION

Society's interest in vanity, the search for beauty and beauty standards linked to aesthetics has been present in humanity since ancient times (Schubert, 2009). This incessant search for facial and/or body treatments encourages the market and professionals to constantly deliver new things, since personal image directly reflects on the individual's self-esteem and confidence (STREHLAU; CLARO; LABAN NETO, 2015).

Given this, Brazilians are increasingly looking for aesthetic procedures, whether surgical or not, minimally invasive or not, which makes the aesthetics market constantly growing. The report by the International

Society of Aesthetic Plastic Surgery (ISAPS), which was carried out in Brazil in 2020, showed that more than 600 thousand injectable non-surgical procedures and 1,306,902 aesthetic plastic surgery procedures were performed, representing an increase of 24.1% (ISAPS, 2020).

This record ranked the country in second place in the entity's global ranking, second only to the United States. However, these numbers are even higher, as only procedures performed by plastic surgeons are considered, when in fact injectable procedures are also performed by aesthetic biologist, aesthetic nurse, aesthetic pharmacist, dental surgeon and the pioneer in this area, the biomedical aesthete (CRBM-1)

This way, aesthetics stops being a collection of futile procedures and becomes part not only of the patient's well-being and beauty, but of their health as a whole. This makes laboratory tests an indispensable ally for anamnesis, since these are the ones that will guide the verification and indication of appropriate interventions for the patient, as they are capable of alerting risks to the patient's health and even guiding them about a possible change (WILLIAMSON; SNYDER 2016).

A well-executed assessment based on laboratory and/or imaging tests significantly contributes to patient screening, preventing patients from undergoing procedures that are not indicated for their condition. And only the contraindications noted in the anamnesis, such as: diabetes, pregnancy, hypercholesterolemia, hepatic, renal, hormonal dysfunction, allergies, among others, do not guarantee to assure the patient of possible complications or ineffectiveness of the treatment/procedure, compromising the patient's health and the security and credibility of the professional (BORGES, 2010).

In this context, considering the relevance of requesting exams for aesthetic treatments, the

objective of this work is to carry out research into the importance and need for carrying out and interpreting laboratory exams and images for the anamnesis of patients seeking treatments. aesthetic.

## **JUSTIFICATION**

The professional's role is to avoid errors and direct the patient to the best procedure, and it is necessary to have adequate knowledge for this purpose. Therefore, at this stage, biomedical aesthetes gain advantages, since these are the professionals capable of both carrying out laboratory tests and interpreting them.

Therefore, it is noted that laboratory and imaging tests are an interesting and indispensable tool for anamnesis, which, however, is still little used. Therefore, given the above, this work is justified in describing laboratory and imaging tests, which would help professionals and patients to be more confident in this process, in order to add to the literature and future biomedical experts on the subject.

## **GOALS**

### **GENERAL GOALS**

To highlight the importance and necessity of carrying out laboratory imaging tests to screen patients seeking aesthetic treatments.

### **SPECIFIC OBJECTIVES**

- Demonstrate the importance of laboratory and imaging tests for aesthetic procedures;
- Address exams relevant to aesthetic procedures;
- Inform about imaging exams and their contribution to aesthetics.

## **LITERATURE REVIEW**

### **LABORATORY EXAMS**

Laboratory tests are commonly used in healthcare for prevention, diagnosis, prognosis and assessment of the therapeutic efficacy performed. There is a range of possibilities for its use and its importance at different times in which the patient is, the result being an important source of information for diagnostic and prognostic purposes, disease prevention, definition of treatments, and even avoiding other more frequent exams. invasive (BARROS et al., 2022).

According to Aragão and Araújo (2019), laboratory tests can influence up to 70% of decisions applied to the patient. Therefore, it is clear that correctly determining the parameters, together with a good interpretation of the results, is the best way to offer patient safety and better management of possible complications.

In view of this, in 2022, according to Resolution No. 347 of the Federal Council of Biomedicine (CFBM), the biomedicine obtained permission to request laboratory tests in specific areas, including Aesthetic Biomedicine (CFBM, 2011. 2022). This milestone is of great value, as with more resources and information, it is possible to plan and adopt treatments with greater safety and offer patients more significant and durable results.

This way, the biomedical professional qualified to work in aesthetics is a professional qualified to develop specific treatments through a detailed anamnesis, taking care of people's health, well-being and beauty. He is the main person responsible for making considered decisions about treatment or interventions related to precautions for aesthetic health and quality of life, based on safety, effectiveness and scientific foundations (TEIXEIRA; RIBAS, 2021).

Therefore, the use of laboratory tests is essential, as it is through them that the professional will have information about the patient's physiological, pathophysiological and metabolic conditions. Furthermore, they are requested by a small group of aesthetic professionals, although they are important for planning treatment protocols, assisting in decision-making, in addition to contributing to reducing the risk of complications (SOARES, 2021).

#### ASSESSMENT AND INDICATION

Each person has their own needs, which are different for each person, and factors such as gender, stress, nutrition, hydration, hormones and many others directly influence health, which is why beauty acts as a helper in this process. That is why talking about the subject is so important, as in-depth knowledge is relevant for better aesthetic results, aiming for a better quality of life for the patient (SOUZA, 2020).

Some contraindications such as diabetes, pregnancy, hypercholesterolemia, liver, kidney and hormonal dysfunctions, inflammatory reactions, allergic processes, hypertension, among others, are some of the precedents that can prevent the success or even the completion of the patient's aesthetic treatment. Therefore, they are already part of the anamnesis of most aesthetic clinics, however, they are only considered with a statement made by the client, which makes a well-done assessment necessary, which must be requested, such as laboratory tests, so that possible complications during or after treatment are avoided (BORGES, 2010).

According to authors, such as Cabral (2019); Patry and Oliveira (2017), it is observed that the blood count is the most requested test in anamnesis, therefore, it is an indispensable tool and that, for a more effective result, it is commonly requested together with other tests. The blood count consists of providing

information about red blood cells, leukocytes and platelets, it is easy to understand and helps in identifying anemia, infections and chronic diseases.

Intrinsic to this exam, there is the erythrogram, which focuses on red blood cells and hemoglobin, since these cells are one of the transport and metabolization mechanisms of O<sub>2</sub> and CO<sub>2</sub> gases, changes in these parameters indicate an alert condition to perform aesthetic procedures from the simplest such as nails, brittle hair and even the most invasive such as carboxytherapy and fractional CO<sub>2</sub> laser (SIMÕES; AZEVEDO, 2019).

The white blood cell count, which is obtained through a blood count, shows the quantity and quality of leukocytes, which are the cells responsible for our body's defense. Along with it, a C-reactive protein (CRP) test can be requested, which it is produced by the liver and when increased it can indicate inflammation or infection in the body. These tests can be requested by the professional in order to evaluate possible inflammatory processes present in the body, which will generally be reported by the patient, such as fever and body pain (CAQUET, 2017).

As a complement to the interpretation of the table mentioned above, the erythrocyte sedimentation rate (ESR) test evaluates the speed of red blood cells and plasma. Therefore, in the presence of inflammation in the blood, proteins are formed, which leads to a decrease in viscosity. of the blood accelerating the VHS. When requested together with the PCR, the VHS enhances the visualization of inflammatory disorders, and its diagnosis is a warning to carry out any aesthetic procedure (CARVALHO; FERNANDES; BARRA, 2003).

Following this idea, another important exam for aesthetics that can be requested along with the blood count is the coagulogram, which consists of a set of tests that allow the evaluation of blood clotting processes

(Williamson; Snyder 2016). It may be required to avoid injuries and disorders in the treated area, in order to help prevent the formation of clots or even possible hemorrhage, which can be a risk in procedures with injectable fillers, microneedling, cryolipolysis, shock wave therapy (TOC), among others (BORGES, 2010).

In addition to these, for aesthetics, although little requested due to the complexity of its implementation, a valuable test for procedures that involve the treatment of localized fat, is blood gas analysis, which allows us to have a view of systemic oxygenation and acid-base stability, that is, it is information about blood pH. Therefore, changes in its parameters may indicate that there is a contraindication for procedures such as carboxytherapy, cryolipolysis, cryofrequency and hydrolipoclasia (OLIVEIRA, 2017).

Another important aspect to be analyzed is the patient's renal profile, with its function being assessed using urea. Urine tests, such as Abnormal Sediment Elements (AAS) are simple and can be requested to identify physical, chemical and abnormal elements in the urinary system (WILLIAMSON; SNYDER, 2016).

For aesthetics, changes in the chemical aspect - nitrites, glucose, proteins, ketones, bilirubin and urobilinogen - are what make treatments such as sclerotherapy - application for varicose veins or drying out spider veins - impossible; injectable aesthetic procedure for microvessels (PEIM) and radiofrequency, as these altered aspects indicate that the patient's body is not degrading the natural glucose ingested, therefore, it will not be able to metabolize the injected glucose, which can cause hyperglycemia. As an aid to this diagnosis, the glycated hemoglobin test (HbA1c), which is used to diagnose and monitor diabetes, can also be requested (TEIXEIRA; RIBAS, 2021).

According to Neumann (2022), it is noted that the request for these tests may be more recurrent for patients with insulin resistance; those who want treatment for localized fat reduction procedures; hair treatments with microneedling and intradermotherapy; apparently healthy patients with coagulation and hemostasis disorders; among others.

Therefore, laboratory tests are a great ally for taking precautions regarding the patient's health. Therefore, your request must be cautious and specific for each individual and will depend on the screening that is initially carried out with the professional, who will evaluate the request for exams and consequently the referral to the best treatment within the health conditions of each patient (TRINDADE et al, 2020).

## PROCEDURES AND EXAMS

One of the pillars of the proper functioning and maintenance of our body's activities is metabolism, which is why it is important that your hormones are at adequate levels, so that treatments have a more direct and effective action in any aesthetic procedure. Therefore, Cabral and Patry (2019) state that through laboratory tests, it is possible, through metabolism, to obtain important information about the patient's health status.

Bravo et al. (2013), in their clinical research on Fibro Edema Geloide (FEG) of grades II and III, popularly known as "cellulite", used the analysis of laboratory tests and images as a way of evaluating treatment. Exams were carried out before, during and after treatment, in order to evaluate possible endocrine and metabolic changes, including: blood count, ESR, glucose measurement, urea, creatine, thyroid hormones (free T4 and TSH), lipid profile and hepatogram.

Another example of the importance of requesting laboratory tests for analysis of aesthetic origin is the treatment of



carboxytherapy, which is carried out through the infusion of carbon dioxide into different layers of the skin, providing stimulation of collagen and elastic fibers, increasing blood circulation and destruction of fat cells (Teixeira; Ribas, 2017). It is a highly recommended treatment for stretch marks, FEG, sagging, dark circles, and localized fat.

To achieve this, it is necessary that the body's metabolic functions are at their ideal pH, as any factors of endogenous or exogenous origin can significantly alter the functioning of the body (Oliveira, 2017). Therefore, for this treatment, Oliveira (2017) considers the practice of blood counts, together with blood gas analysis and urinary biochemistry – EAS, to be essential for analyzing and carrying out carboxytherapy.

The request for a blood count is due to its ability to show the health professional the control of a disease, which in this case is focused on the analysis of red blood cells and hemoglobin, the occurrence of any demonstration of a decrease in blood levels or inefficiency detected, demonstrates an unfavorable scenario carrying out carboxytherapy (Varlaro, 2007). Souza (2020) completes, explaining about blood gas analysis, as it also helps in the assessment of blood pH, such as systemic oxygenation and acid-base stability, which can indicate pulmonary, renal and metabolic difficulties, and is therefore important in clinical emergencies.

In addition to these, the urine test/EAS is frequently requested to evaluate physical and chemical aspects and the presence of abnormal elements in the urine, and for carboxytherapy it is an indication of complementary analysis, since the presence of crystals is an indicator that appears in through metabolic changes as characteristics of a given pH. For example, calcium oxalate and amorphous urates appear in acidic urine, and in basic urine, amorphous calcium carbonate and phosphate (LIMA et

al, 2008).

Silva et al. (2018), talks about the lipocavitation procedure in his study, in which laboratory and imaging tests complement each other. The treatment consists of combating fat, providing a remodeling of the body contour, reducing localized fat. It is recommended for people with the ideal weight or with a slight overweight or areas of fat.

In this treatment, exams must be used as a form of diagnosis and guidance to the patient, however, the procedure itself is carried out based on ultrasonic cavitation that is emitted through the skin, with the elimination of fat carried out via the physiological route, passing through the liver, which can lead to an increase in triglyceride and cholesterol levels resulting from the increase in lipids. In this case, the analysis of glutamic oxaloacetic transaminase (TGO) is important to be carried out, making it possible to identify the levels of the TGO enzyme in the blood, which also allows for the investigation of problems in the liver, muscles and heart (CABRAL, 2019).

Another complementary exam for the lipocavitation procedure is that of lipid fractions, since the treatment promotes the breakdown of fats and their release into circulation. Therefore, for people who have altered triglyceride or cholesterol levels, performing lipocavitation may present a health risk and compromise the effectiveness of the treatment (SILVA, 2018).

It is observed, therefore, that laboratory tests in aesthetic treatments help to screen the patient and avoid carrying out unindicated procedures. Therefore, the biomedical esthete must be aware of the need for evaluation, as it is necessary to have knowledge of the pathophysiology associated with unsightly conditions and to present autonomy in the area of clinical pathology, usefulness and limitations of laboratory tests, so that it is possible to adopt this knowledge in their daily

life in the context of aesthetics and aesthetic clinical management (ZANETTI, 2022).

## **IMAGING EXAMS AND AESTHETIC BIOMEDICINE**

Imaging exams are increasingly modern and effective, already being widely used in aesthetic dentistry and dermatology, while the authorization for use by biomedical professionals is recent and still restricted to those qualified in imaging. Because it is recent, there are few legally qualified professionals who can perform it using different techniques, such as: Computed Tomography (CT); Magnetic resonance imaging (MRI); Nuclear medicine (MN); Radiotherapy (RT); Ultrasonography (USG) and Medical Radiology (CRBM-3, 2022).

However, aesthetic biomedicine, according to SBBME (Brazilian Society of Aesthetic Biomedicine), aims to bring health to people through beauty and thus improve their physical, mental and social well-being, in addition to providing disease prevention, physiological rejuvenation, self-esteem and better life habits. In other words, it is focused not only on the individual's self-esteem, but, mainly, on their health (SBBME, 2021).

Therefore, combining the use of image exams as a screening requirement is as important as laboratory exams, as the image constitutes a useful auxiliary diagnostic resource that will allow the professional to thoroughly analyze each patient and propose the best treatments for them. and consequently, provide better quality of health (BALAN, 2010).

The approval of the biomedical doctor's qualification to work in aesthetics - Resolution n° 197, of 02/21/2011 of the CFBM (Federal Council of Biomedicine) - allowed him credibility in training to carry out treatments for body and facial dysfunctions (CFBM, 2011). Since then, research to expand

knowledge on how to better guarantee patient safety and obtain better results has been constant, however, there have been few scientific publications on this subject, especially when related to imaging exams.

## **IMAGING EXAMS AS AN AID FOR AESTHETIC PROCEDURES**

MRI is a multiplanar and multiparametric technique with high intrinsic contrast, which allows for an accurate assessment of soft tissues without exposure to ionizing radiation. Furthermore, it has a good spatial assessment of the real location of any foreign body in relation to anatomical landmarks (PAAJANEEN, 1987).

As an example of the effectiveness of this resource, Mundada et al. (2015) shows that MRI has an indispensable role in detecting dermal fillers injected into facial soft tissues for cosmetic purposes, in addition to evaluating any complications related to this procedure. In their research, the authors recommend the use of this diagnostic tool for patients with severe late effects following the injection of temporary or permanent facial dermal fillers, particularly in cases of suspected granulomatous inflammatory reaction.

In addition to the preventive role, imaging resources can also act as treatment. The study by Vicente and Kashiwakura (2017), and was able to show the effectiveness of radiofrequency for anti-aging procedures, this research brought results that demonstrated radiofrequency as a powerful ally in treatments aimed at vitamin C or ascorbic acid dysfunctions. Therefore, it is a subject that arouses interest among researchers, as this resource is capable of offering patients over 40 years of age younger and healthier skin, especially in areas such as the face, neck and hands (CARVALHO et al. 2011).

Mendonça et al. (2007) also brings in their study the effectiveness of MRI for evaluating FEG treatment. In their study, the authors

emphasize that although USG is the most common technique for imaging this type of case, MRI is superior in terms of resolution, which allows the architecture of the skin layers of the dermis and hypodermis to be clearly visualized. without operator error.

But the watershed, according to Rocha et al. (2020), is the use of high-frequency usg, as this technique is capable of providing high-resolution images, facilitating the evaluation of soft tissues with information before, during and after clinical procedures. Although dermatology today has other advanced skin diagnosis methods, usg still plays an important role.

The first studies of skin ultrasound were around more than 50 years ago, with an article published by Alexander and Miller in 1979 being the driving force for new research studies in the area. However, it was only at the turn of the 20th and 21st centuries that skin development occurred, which was strongly influenced by the advancement of new computer technologies (SCHMID-WENDTNER, 2008).

When compared to other techniques, usg is the most used in skin examinations, this is due to its low cost, easy handling, as well as being safe and trustworthy for the patient (Mlosek; Migda1; Migda2; 2020). Fernández et al. (2015), adds that among the most varied transducers available on the market, the most suitable are linear ones with frequencies varying between 12 MHz and 20 MHz, as they are capable of evaluating the dermis and subcutaneous tissue.

The author Castilho (2021), describes the importance of routine image exams with high-frequency usg, which serve to evaluate tumors, skin diseases or any other complications in this tissue, before any surgical or aesthetic procedure. Since it is capable of efficiently detecting diseases such as cancer; ringworm; alerts in pre-operative liposuction procedures;

among others.

Diaz (2019) adds that USG is a device that adds confidence to aesthetic treatments and confirms, through his research, that it generates security for the application of facial fillers, since through it it is possible to evaluate anatomical structures where the material will be placed. Therefore, when it comes to anamnesis, a powerful ally for biomedical beauticians must be the usg, as it has the role of helping in choosing the best treatment for each case, preventing possible complications that can manifest themselves as “nodules, facial asymmetries, infections, edema or swelling, pain, discomfort, skin redness or necrosis” (CASTILHO, 2021).

It is concluded, therefore, that imaging exams for the area of aesthetic biomedicine, although not yet explored, would be a great ally.

## METHODOLOGY

To prepare this work, an integrative research was carried out, following the precepts of bibliographic study regarding the topic addressed: “The importance of requesting exams to screen aesthetic procedures”. The research began in March 2023 and continued until December of the same year.

To support this study, scientific literature review articles with or without clinical cases and research articles were used, which have as data sources: VHL (Virtual Health Library), PubMed, SCIELO (Scientific Electronic Library Online) and mainly Google Academic, using the following descriptors: “laboratory exams”, “importance of laboratory exams in anamnesis”, “biomedical beautician and exams”, “exams in anamnesis”, “imaging exams”, “ultrasound”, among others. The articles and books cited as references cover the period between 2008 and 2023, focusing on the last five years.

The inclusion criteria were defined through the selection of literary material in



Portuguese and English, which are published in national and international journals, whose methodology allows obtaining safe and proven scientific evidence, which focuses on laboratory and image examinations and mainly their applications in aesthetics. The exclusion criteria were materials with information contained in blogs and websites without references, incomplete, duplicate articles and without relevance to the topic.

## RESULTS AND DISCUSSIONS

This research included 38 references from a data survey, the files of which are part of the online platforms: Google Scholar, VHL, PubMed and SCIELO, covering a period between 2008 and 2023.

The applied search filters made it possible to narrow down the results in a specific and updated way. However, of the works referenced, 9 were crucial for the preparation of this work:

Through the studies analyzed regarding exams, it is noted, mainly in the studies by Silva (2022), Teixeira (2020) and Simões (2020), the importance of requesting laboratory tests to carry out facial or body treatments, since they are essential to protect the patient's health and the success of the treatment, thus being able, as concluded by Teixeira (2020), to respect the particularities of each individual through behaviors that help avoid complications in addition to ensuring greater chances of success.

The files are more abundant and detailed regarding the applicability of laboratory tests, and it is possible to note in the literature a number of considerable and updated studies on the subject. This facilitates research and understanding of its need, in which it is possible to perceive a conclusion present in all, regarding the effectiveness and advantages of adopting this conduct as a differentiating part of the procedures.

On the other hand, regarding imaging

exams, there is a great lack of studies focused on aesthetic biomedicine. Although this can be justified by the CRBM-3 regulation, which limits the use of imaging exams only to those qualified in imaging, this reality needs to change.

However, with the advancement of technologies and the vast activity of biomedical professionals in the area of beauty, this situation makes it possible to expand the skills of these professionals, as image exams, as shown in the study by BALAN (2010), are so important for patient screening and laboratory tests, allowing the professional to significantly improve the quality of the patient's health. Furthermore, professionals from other areas, such as medicine and dentistry, who work with aesthetics, have long been qualified to use imaging exams.

This conclusion can be observed in studies by Balan (2010), Bravo (2013) and Mundada et al. (2015), which are studies developed by dermatologists and dentists, with rich information to support new studies, certifying how important imaging exams are. Therefore, requesting these exams presented advantages that would be valuable for carrying out aesthetic procedures, as in the study by Rocha et al. (2020), in which the use of usg was, in all phases of the research, important for monitoring results with HA, an active ingredient widely used by biomedical aesthetes.

## CONCLUSION

The world of aesthetics is broad and more and more unqualified professionals work in the area. But with responsibility, in-depth knowledge and qualifications for this, biomedical aesthetes gain advantages.

Before any facial or body treatment is initiated, laboratory tests must be part of the protocol, as they help to prevent, treat, and respect the particularities of each individual,

## SCHEDULE

Authors	Year	Title	Goal	Results /Conclusion
SILVA, Andreza. Zinher	2022	The importance of laboratory tests in the anamnesis of aesthetic treatments to reduce lipodystrophy	Demonstrate the importance of laboratory tests in the anamnesis with a focus on lipodystrophy reduction procedures.	There is a scarcity of studies that report on the performance of laboratory tests prior to the procedures, leaving it up to biomedical aesthetes to contribute, so that the area is better supported by scientific evidence, as they are professionals involved in the area of health and research.
TEIXEIRA, Sandra Luiza; RIBAS, João Luiz Coelho.	2020	The importance of laboratory tests in aiding the treatment of aesthetic disorders	Demonstrate the importance of laboratory tests for screening patients seeking aesthetic treatments, with a focus on healthy aging, in addition to elucidate how test results can relate aesthetic dysfunctions to health issues.	Before starting any treatment, laboratory tests must be part of the protocol to complement the nutritional diagnosis of patients, in addition to preventing, treating deficiencies and maintaining health, with respect to the particularities.
SIMÕES, Carlos Miguel de Freitas; AZEVEDO Leticia Dundes Rodrigues.	2020	The importance of requesting and interpreting laboratory tests for aesthetic purposes	To show the relevance of requesting and interpreting exams for patient safety and minimizing interference during and after procedures.	For good results and to reduce post-procedure complications, the work demonstrated the importance of biomedicine in verifying the adequate functioning of the patient's Physiological System, with the intention of only identifying laboratory findings and not determining established diseases.
MUNDADA, Pravin, et al.	2017	Injectable facial fillers: imaging features, complications, and diagnostic pitfalls at MRI and PET CT	Demonstrate the characteristics of an image with injectable filler, focusing on the characteristics, complications and possible mistakes that MRI and PET CT can cause.	Comprehensive approach to the anatomy of facial fat compartments. Having knowledge about the main imaging characteristics of fillings and their complications helps to avoid erroneous interpretations of MRI and PET-CT,
VICENTE, Elen Bruna Pereira; KASHIWAKURA, Hellen Martinez Blanco; e Vicente (2017)	2017	Use of radiofrequency for facial sagging in aesthetic biomedicine	To analyze the use of radiofrequency for facial sagging in patients over 40 years of age with signs of aging.	After research and application of analyzes in 5 volunteers, it was noted that radiofrequency was beneficial in the first session, being enhanced with 10 sessions. With improvements in collagen, sagging and self-esteem. Therefore, the author recommends the use of the technique and advises further research in the area in order to increase studies on the technique.
WILLIAMSO, Mary A.; SNYDER, Michael L.	2016	Interpretation of laboratory tests	Make the use of the exams presented more efficient.	Book that serves as a practical guide in the evaluation of complementary exams in order to answer doctors' questions when they require pathological assistance
BORGES, Fábio dos Santos	2010	Dermato-functional: therapeutic modalities for aesthetic dysfunctions	Propose effective therapeutic proposals for the treatment of aesthetic dysfunctions and those of a rehabilitation nature.	Book with an approach to topics such as: the action of therapeutic usg and high frequency devices; role of Russian current in electrostimulation for aesthetic purposes; the benefits of lymphatic drainage; laser waxing; chemical and mechanical peelings; pre- and post-plastic surgery therapy; etc.

BRAVO, Bruna Felix Bravo; et al.	2013	Treatment of gynoid lipodystrophy with unipolar radiofrequency: clinical, laboratory and ultrasound evaluation	To evaluate the safety and efficacy of unipolar radiofrequency in the treatment of gynoid lipodystrophy.	Study carried out on 8 women with grade II and III gynoid lipodystrophy in the thigh and buttocks, subjecting them to 8 radiofrequency sessions. As a result, an improvement in flaccidity was observed in all of them, and in half there was an improvement in morphology, and in all of them, no laboratory changes were observed. It was concluded that unipolar radiofrequency is effective and safe.
ROCHA, Luiz Paulo Carvalho; et al.	2020	Ultrasound for long-term evaluation of facial fillers with hyaluronic acid (HA): technical report of 180 days of follow-up	Monitor the use of usg for 180 days to use HA as a filler for aesthetic purposes.	Study carried out on two patients, in which it was possible to visualize the HA in both by USG in all stages. In 1 patient, a hypochoic region was observed and in the other, a hyperechoic region. In conclusion, usg is a useful tool for monitoring facial fillers in the long term, in addition to facilitating the observation of different fillers.

**TABLE 1: ANALYSIS OF THE MAIN MATERIALS SELECTED FOR RESEARCH**

Source: Author (2023)

ACTIONS	March	April	May	June	August	September	October	November	December
To choose the theme	x								
Bibliographic survey and practical research		x	x	x	x	x	x	x	
Project Creation		x	x	x					
Project presentation				x					
Preparation of the Course Completion Work					x	x	x	x	
Project delivery - Presentation				x					
TCC Delivery - Presentation									x

**TABLE 2 – DEADLINES AND DELIVERIES**

Source: Author (2023)

through conduct that helps to avoid complications and ensure greater chances of success in the treatment.

In this same context, there are image exams, which, although their request and interpretation have advantages for aesthetic procedures, are not yet released to biomedical professionals in the area, but are a valuable tool and which, according to several studies aimed at dentistry and dermatology, demonstrated effectiveness for monitoring procedures, especially injectables.

Therefore, it is possible to conclude that, regarding laboratory tests, adopting this

practice is a necessary differentiator for the biomedical professional who decides to work in the field of aesthetics, offering better quality of health to patients, therefore, this resource must be further explored by current and future professionals in the field. While image exams must be more detailed in the field of research, in order to have more visualization of the benefits of their use, so that in the near future it can be used and further enrich the field of aesthetics.

## REFERENCES

- ARAGÃO D. P.; ARAUJO, R.M.L. Orientação ao paciente antes da realização de exames laboratoriais. Rev. Bras. de Análises Clínicas, v. 51, n. 2, p. 98-102, 2019. DOI: 10.21877/2448-3877.201900759 REVISÃO DA LITERATURA
- BALAN, Luiz Artur do Couto. Estudo de Imagens como Diagnóstico. Complementar de Exames Odontológicos. 2010, 35 f. MONOGRAFIA – REVISÃO DA LITERATURA
- BARROS et al. A importância dos exames laboratoriais para a saúde. Debates Interdisciplinares em Saúde. V. 3, (2023). Disponível em: <https://www.periodicojs.com.br/index.php/easn/article/view/1110#:~:text=Exames%20laboratoriais%20s%C3%A3o%20comumente%20utilizados,bem%20como%20no%20pr%C3%A9%20operat%C3%B3rio>. Acesso em março de 2023. DEBATE
- BORGES, F. S. Dermato-funcional: modalidades terapêuticas nas disfunções estéticas. 2. ed. São Paulo: Phorte, 2010.
- BRAVO B.S.F, et al. Tratamento da lipodistrofia ginoide com radiofrequência unipolar: avaliação clínica, laboratorial e ultrassonográfica. Surg Cosmet Dermatol, v.5, n. 2, p. 138-144. 2013
- CABRAL, J.V.; PATRY, K.O. A importância dos exames laboratoriais nos procedimentos estéticos. Rev. Brasileira de Estética, v.7, n.18, 2019.
- CAQUET R. 250 Exames de Laboratório: Prescrição e Interpretação. Ed. 12ª. Brasil: Thieme; 2017.
- CARVALHO B, FILHO A, FERNANDES C, BARRA C. Leucograma, Proteína C Reativa, Alfa-1 Glicoproteína Ácida e Velocidade de Hemossedimentação na apendicite aguda. Arq. Gastroenterol, v. 40, n. 1. 2003.
- CARVALHO, G. F. et al. Avaliação dos efeitos da radiofrequência no tecido conjuntivo. Rev. bras. Med. Dermatologia & Cosmiatria. v.68, n. 2, ed. Especial, p. 10 - 29. 2011.
- CASTILHO, V. Preenchedores estéticos e câncer de pele podem ser diagnosticados em exame. Rev. Metrôpoles. São Paulo, 2021. Disponível em: <https://www.metropoles.com/dino/preenchedores-esteticos-e-cancer-de-pele-podem-ser-diagnosticados-em-exame>. Acessado em março de 2023.
- CRBM-1. Manual do Biomédico: Edição Digital - inclui o novo Código de Ética. 76f. 2021. Disponível em: [https://crbm1.gov.br/site2019/wp-content/uploads/2021/06/Manual\\_do\\_Biomedico\\_2021\\_V4.pdf](https://crbm1.gov.br/site2019/wp-content/uploads/2021/06/Manual_do_Biomedico_2021_V4.pdf). Acessa em fevereiro de 2023.
- CRBM-3. Habilitação na área de imagem ganha relevância. 2022. Disponível em: [https://www.crbm3.gov.br/inicio-separador/noticias-crbm/noticias-cat/931-habilitacao-na-area-de-imagem-ganha-relevancia#:~:text=Biom%C3%A9dicos%20habilitados%20em%20Imagenologia%20podem,\(USG\)%20e%20radiologia%20m%C3%A9dica](https://www.crbm3.gov.br/inicio-separador/noticias-crbm/noticias-cat/931-habilitacao-na-area-de-imagem-ganha-relevancia#:~:text=Biom%C3%A9dicos%20habilitados%20em%20Imagenologia%20podem,(USG)%20e%20radiologia%20m%C3%A9dica). Acessado em março de 2023
- Dermo-sifiliogr. (Ed. Impr.), v. 106, n. 1, p. 87-95, 2015. DOI: 10.1016/S0001-7310(16)30011-4
- DÍAZ, C.P.G. Uso de la ecografía de alta resolución de tejidos blandos para la caracterización de material exógeno y sus complicaciones. Rev. Colomb. Radiol. 2019, v. 30, n. 1, p. 5064-8.
- FERNÁNDEZ, C. V. et al. Ecografía cutánea y rellenos dermatológicos. Actas ISAPS. International survey on aesthetic/cosmetic procedures performed in 2020. Isaps.org. Published 2020. Disponível em: [https://www.isaps.org/wpcontent/uploads/2022/01/ISAPS-Global-Survey\\_2020.pdf](https://www.isaps.org/wpcontent/uploads/2022/01/ISAPS-Global-Survey_2020.pdf). Acessado em março 2023.
- J Ultrason, 2020; 20(83): 233-241. DOI: 10.15557/jou.2020.0042
- LIMA, A. O. et al. Métodos de Laboratório Aplicados à Clínica – Técnica e Interpretação. 8. ed. Rio de Janeiro: Guanabara Koogan, 2008.
- MENDONÇA, K.M.P.P et al Ressonância Magnética: um progresso na avaliação objetiva do fibro edema gelóide. Rev. Fisioterapia Ser, v.2, n. 4. 2007
- MLOSEK R.K., MIGDA B., MIGDA M : High-frequency ultrasound in the 21st century.
- MOGENSEN, M. et al. Morphology and epidermal thickness of normal skin imaged by optical coherence tomography. Dermatology (Basel, Switzerland), v. 217, n. 1, p. 14-20. 2008. DOI:10.1159/000118508

MUNDADA, P, et al. Preenchimentos faciais injetáveis: recursos de imagem, complicações e armadilhas diagnósticas em ressonância magnética e PET CT. *Insights Imaging*. V. 8, p. 557–572. 2017. DOI: 10.1007/s13244-017-0575-0.

NEUMANN, A. M, Exames laboratoriais aplicados a saúde estética corporal. 2022. 32f. Monografia – Biomedicina - Universidade Regional do Noroeste do Estado

NICOLL, D. Manual de Exames Diagnósticos, 7ª ed. Grupo A; AMGH 2019.

OLIVEIRA T. S. A importância da realização de exames laboratoriais como pré-requisito para realização de procedimento estético de carboxiterapia. 2017. 14f. Monografia – Biomedicina – Centro Universitário Campo Limpo Paulista.

PAAJANEEN H, BRASCH R. C, SCHMIEDLU, OGAN M (1987). Magnetic resonance imaging of local soft tissue inflammation using gadolinium-DTPA. *Acta Radiol*. 1987; v. 28, n. 1, p. 79–83. PMID: 2952148.

RESOLUÇÃO Nº 347, DE 7 DE ABRIL DE 2012. Dispõe sobre solicitação de exames laboratoriais em áreas específicas da biomedicina. Publicada 12/04/2022 – Edição 70 – Seção 1 – Página 104. Acesso em março de 2023.

ROCHA, L. P. C. Ultrasonography for long-term evaluation of hyaluronic acid filler in the face: A technical report of 180 days of follow-up. *Imaging Science in Dentistry*, v. 50, n. 2, p. 175 - 180. 2020. DOI: 10.5624/isd.2020.50.2.175

SBBME - Sociedade Brasileira de Biomedicina Estética. Saúde preventiva é vantajosa para o profissional, a população e para o governo – Portal do Antienvhecimento, 2021.

SCHMID-WENDTNER M. H, DILL-MÜLLER D.: Ultrasound technology in dermatology. *Semin Cutan Med Surg*. V. 27, n. 1, p. 44–51. 2008. DOI: 10.1016/j.sder.2008.01.003

SCHUBERT, C. A construção do conceito estético Ocidental e sua implicação na formação valorativa e no processo educacional. *In: INTERCOM – SOCIEDADE BRASILEIRA DE ESTUDOS INTERDISCIPLINARES DA COMUNICAÇÃO, X. Congresso de Ciências da Comunicação na Região Sul [...] Blumenau, 2009.*

SILVA, J.P. et al. Ultracavitação para gordura localizada- revisão de literatura. *Rev. Saúde em Foco*. São Lourenço, MG, n. 10, p. 702 – 710. 2018.

SIMÕES C.M. F, AZEVEDO L. A importância de solicitar e interpretar exames laboratoriais para fins estéticos. *In: ANAIS DO I CONINS - CONGRESSO INTERDISCIPLINAR EM SAÚDE DO MS*. Campo Grande [...] Unigran Capital; 2019.

SOARES. L. A clínica de saúde que se reinventou com os exames remotos. 2021. Disponível em: <https://hilab.com.br/blog/clinica-de-saude-estetica-que-se-reinventou-na-pandemia/>. Acessado em abril de 2023

SOUZA, A. Anatomia da Beleza e do Rejuvenescimento. Ed. 1ª. Nova Odessa: Napoleão, 2020.

STREHLAU, VI.; CLARO, D. P; LABAN NETO, S. A. A vaidade impulsiona o consumo de cosméticos e de procedimentos estéticos cirúrgicos nas mulheres? Uma investigação exploratória. *Rev. de Administração*, São Paulo, v. 50, n. 1, p. 73–88, 2015. DOI: DOI: 10.5700/rausp1185

TEIXEIRA S.L.; RIBAS, J.L.C., A Importância dos exames laboratoriais no auxílio do tratamento de distúrbios estéticos. *Caderno Saúde e Desenvolvimento*, Curitiba, v. 10, n. 18, p. 38-51, 2021.

TRINDADE, A. P. et al. Perfil do biomédico esteta e a segurança do paciente em procedimentos estéticos: uma revisão integrativa. *Revista Eletrônica Acervo Saúde*, v. 12, n. 10, e4783. 2020. DOI: 10.25248/reas.e4783.2020

VARLARO, V. et al. Carboxytherapy: effects on microcirculation and its use in the treatment of severe lymphedema. *Acta Phlebologica*, Itália. Ago 2007, v. 8, n. 2, p. 79-91.

WILLIAMSON, M.A.; SNYDER, M. L. Interpretação de exames laboratoriais. 10. ed. Rio de Janeiro: Guanabara Koogan, 2016