CESARE BRANDI

CARBOXYTHERAPY COMBINED TREATMENTS

FACE AND BODY PROTOCOLS

Officina Editoriale Oltrarno

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By Cesare Brandi

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PREFACE

Aesthetic Medicine has evolved significantly over the years, transforming into a discipline that derives its effectiveness and safety from the integration of multiple techniques and the collaboration of various professionals. Aesthetic preferences have shifted, and while initially accessible only to those with financial means, aesthetic medicine has now become widespread across all social classes. At the same time, there has been a growing demand–albeit with some exceptions–for results that appear natural rather than excessively altering facial and body features.

In writing this volume, I chose not to simply compile a list of techniques associated with Carboxytherapy, which remains the core treatment in my practice. Instead, I focused on sharing my direct experiences, cultivated over 27 years of study and clinical application. Additionally, I invited esteemed colleagues with whom I have had the privilege of collaborating to contribute their perspectives and clinical approaches in their respective areas of expertise.

The aim of this manual is to present a structured methodology, supported by video material, that practitioners can integrate into their clinical practice.

Cesare Brandi

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A special thank you to all those who have read my previous book and participated in my courses–your engagement and enthusiasm have been a constant source of inspiration for this second publication.

I am profoundly grateful to the esteemed professionals who contributed to this manual, sharing their expertise, and to the companies that helped illustrate the technical aspects of the methods discussed. In particular, I extend my appreciation to Alessandro Tassi (DTA Medical) and Sandro Boccioli (Med Elettronica) for their technical support regarding medical electromedical equipment. I also thank Mastelli Srl, a leading Italian pharmaceutical company, for sharing its extensive research on polynucleotides.

My sincere appreciation goes to Giampaolo Fusco (CEO of Fusco Fit) for his valuable insights into the role of physical activity in aesthetics, and to Ornella Tinacci (Doctor in Dietetics, Sciences and Techniques for Well-being and Physical Image, specializing in Aesthetic Dermopigmentation and Reconstructive and Aesthetic Healthcare) for her contribution to the chapter on the microbiome and associated techniques, including LPG and microneedling. Finally, I express my gratitude to Dr. Nadia Fraone (Deputy Director of the School of Aesthetic Medicine of the Fatebenefratelli International Foundation in Rome and Advisor to the Italian Society of Aesthetic Medicine) for her contribution in sharing her experience with combined techniques.

INTRODUCTION

As everyone working in the vast field of aesthetics, aesthetic medicine, and the related functional medicine knows, there are no treatments or methods that can address even individual problems "on their own". Scientific knowledge, technology, and clinical practice constantly present us with a dilemma–what we would like to achieve versus what is realistically possible. The reality of each condition and the available therapeutic options means that different approaches must be considered. These approaches must take into account what research tells us (evidence-based medicine) and how increasingly advanced technology enables us to act.

In reading this book, we will attempt to answer the three main questions that every practitioner in the field asks themselves: when?... this question concerns making an accurate diagnosis; with what?... this focuses on researching and selecting the appropriate technologies to use; how?... this addresses not only the timing of using different technologies but also how they should be properly applied. The application technique is essential. As mentioned in my previous volume, it is not always possible to define "generally" applicable protocols. Instead, the margin for obtaining safe and effective results depends on the individual practitioner's application skills. Some methods are primarily "machine-dependent", while others, such as Carboxytherapy, are also "operator-dependent". For this reason, I thought it more useful, rather than writing a generic treatise on the various methods that can be integrated with Carboxytherapy in different protocols, to share my own many years of experience alongside the scientific evidence. I have also called upon the collaboration of other professionals. The goal of this manual is to provide a practical resource that can help integrate different techniques and technologies, used by various practitioners, into everyday clinical practice.

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CHAPTER 1
THE CONSULTATION IN AESTHETIC MEDICINE

Modern aesthetic medicine, from its establishment as a medical discipline by J.J. Legrand in 1973 to the present day, has undergone numerous transformations in both its clinical approach and its diagnostic and therapeutic direction.

My intention here is not to delve into all the diagnostic tools available today but rather to provide a starting point for reflection and, possibly, further study by medical colleagues working in this vast field. In truth, fully describing the functional and aesthetic aspects of aesthetic medicine would require an entire chapter in a comprehensive medical treatise.

What I mean is that, as the time available for patient care decreases in many disciplines–such as general medicine–the "modern" aesthetic physician often assumes the role of the primary care provider. Patients with dermatological, ophthalmological, vascular, dental, and even neurological conditions frequently turn to us before consulting a specialist.

Our role is not to be "all-knowing" but to be physicians capable of identifying concerns, verifying the presence of a problem, and appropriately referring patients when a case falls outside our expertise. Treating a patient with malocclusion due to dental or jaw misalignment with lip fillers–without first identifying and discussing the underlying issue–risks future dissatisfaction, if not serious medical and legal consequences. Aesthetic medicine is also a field of physiological and wellness medicine. Moreover, with the increasing aging population, we find ourselves at the forefront of managing the aging process. A thorough anamnesis and behavioral assessment should include information on the patient's diet and any supplement regimens, which are particularly popular today. Many of the conditions we address are influenced by intestinal function and its potential alterations, which should be investigated, including through specific tests, as well as any previous or ongoing treatments. Lifestyle factors such as smoking, sun exposure (including the use of tanning beds), environmental conditions, and occupational hazards all have a significant impact on aesthetic concerns and related pathologies. Stress is another major factor. Additionally, the menstrual cycle must be considered–especially given that women today spend decades in post-menopause, with all the physiological changes that entails–as well as the use of hormonal or other contraceptive methods and aspects of sexual health. Sleep quality and mood are also key indicators of many underlying issues. All of these factors should be integrated into a comprehensive anamnesis, some aspects of which have been discussed in the first volume, while others will be addressed in subsequent chapters of this manual.

During a general consultation, in addition to a thorough clinical evaluation, I always conduct an assessment in front of a mirror, allowing patients to observe–often for the first time–their own facial and bodily conditions upon arrival at our clinic. Photographic and video documentation, now made easier by increasingly sophisticated and portable devices, further supports this evaluation. In-depth analyses may also be performed, including assessments of weight, body composition, and skin characteristics such as biotype, phototype, dyschromia, pigmented and non-pigmented lesions, telangiectasia, hydration, and elasticity.

The clinical and instrumental evaluation may include assessing postural alignment, conducting targeted blood tests or radiological examinations (such as X-rays or MRIs), and performing an eco-color Doppler scan. The latter can provide valuable insights into clinical conditions that often precede or accompany aesthetic concerns while also helping to prevent vascular complications–particularly in high-risk facial areas–during injection treatments.

Clinical experience demonstrates that while an aesthetic medicine procedure may sometimes take only 15 minutes, an initial consultation requires significantly more time. It is essential to communicate this to patients scheduling their first appointment, as they may mistakenly believe the process is as simple as "making a request and receiving a quick injection". Proper diagnosis, understanding the patient's concerns, and explaining the broader context in which these issues arise are crucial. This comprehensive approach enables us to develop a well-structured and appropriate treatment plan, selecting the most effective protocols and methods to achieve the desired results.

CHAPTER 2
THE DIET

INTRODUCTION

When discussing integrated therapies, it felt natural to begin with what often forms the foundation of our relationship with patients: nutrition. The term "diet" is commonly used to describe a dietary regimen undertaken for therapeutic purposes, typically understood as a temporary restriction of food intake or the elimination of certain food groups. I have emphasized the importance of a multidisciplinary approach and considered entrusting this chapter entirely to a dietitian or nutritionist. However, as I previously stated, my goal is not to provide an exhaustive list of treatments–an inevitably incomplete endeavor–but rather to present a personal, reliable, and reproducible approach to aesthetic medicine. Aside from cases where underlying pathologies necessitate specialized intervention, the topic of "diet" can often be addressed independently within our clinical practice. What I mean is that, in many cases, our patients do not suffer from significant medical conditions. They are generally in good health, even if overweight, and can be treated effectively, safely, and simply by an aesthetic physician. In aesthetics, I always adhere to the principle that "one kilo more is better than one kilo less". Ultimately, my focus is not on weight but on body shape. Our body treatment protocol, known as Carboxytherapy Remodeling Treatment (CRT), is designed with this principle in mind–our goal is remodeling, not merely reducing weight-related risk factors. Subcutaneous adipose compartments in certain areas provide structural support to the overlying tissues (such as the fat compartments of the face). When lost, they cannot truly be "replaced." In cases of uncontrolled weight loss, these compartments–particularly in the face, breasts, and buttocks–are often the first to deplete, leading to undesirable aesthetic consequences.

THE PROTEIN-AMINO-ACID DIET

Introduction

The evolution of our species has unfolded over centuries, preserving our genetic heritage virtually unchanged while significantly altering our relationship with food. The balance between food quality, quantity, and physical activity has shifted, influenced by both genetic and environmental factors. Our bodies are still biologically adapted to leave the warmth of our homes–an important consideration given the type of adipose tissue involved–and engage in activities like hunting or farming.

However, modern life has become increasingly sedentary. Mechanization, the constant availability of food, and the declining quality of nutrition–often labeled as "junk food"–have all contributed to the accumulation of fat deposits, which are distributed differently based on genetics. This has given rise to the well-known "apple" (more common in males) and "pear" (more frequent in females) fat distribution patterns.

Weight homeostasis is therefore influenced not only by increased dietary fat intake (which is clearly linked to obesity) and the aforementioned genetic and environmental factors but also by reduced energy expenditure–an issue particularly relevant in modern lifestyles. However, some theories have emerged that oversimplify these relationships, leading to misconceptions that should not be accepted uncritically. Some researchers have placed excessive emphasis on hyperalimentation (often in an attempt to correlate weight gain with "specific therapies"), yet clinical studies have shown that energy balance is not always strictly linked to caloric intake. In fact, 50-55% of obese individuals DO NOT consume more calories than lean individuals. Conversely, there is strong scientific evidence that "small, repeated dietary errors" have a cumulative effect on energy balance, significantly contributing to weight gain over time.

Endocrine disorders are often blamed for obesity–after all, almost every patient struggling with excess weight attributes it to a hormonal imbalance. However, scientific evidence suggests that endocrine alterations are more often caused by obesity rather than being its primary trigger.

Likewise, reduced energy expenditure is typically a consequence of obesity and its associated musculoskeletal damage, rather than a preexisting condition.

Another issue relevant to aesthetic medicine is the metabolic pathway our bodies follow. The primary biological objective is species survival, which means that in times of food scarcity, the body prioritizes burning stored sugars in the liver and muscles, then muscle fibers, and only partially adipose tissue. Additionally, certain fat deposits–such as localized adiposity–are genetically programmed to serve as energy reserves during food shortages and periods of physiological stress. The paradox is that in our modern era and in developed regions, these very fat deposits, which once ensured survival, are now perceived as aesthetic flaws. Yet historically–and even today, in some parts of the world–such fat distribution has not always been considered undesirable. Nonetheless, patients frequently seek our expertise to reduce or eliminate these areas of localized fat accumulation.

Clinical evaluation

There are a few essential tests and evaluations that an aesthetic doctor must perform to manage a patient's diet safely and effectively. To properly assess and, more importantly, monitor patients during fat loss–while prioritizing the preservation of lean mass–it is useful to evaluate body composition. Two commonly employed methods for this purpose are plicometry and bioelectrical impedance analysis (BIA).

Plicometry involves the use of calipers with a graduated scale to measure skinfold thickness under constant pressure (10g/mm²). Standardized landmarks, measurement techniques, and reference tables correlate sex, age, body fat percentage, and plicometry readings. Fat mass is estimated using Lohman equations, which, despite an approximate margin of error of 15%, provide a reasonable

estimate of lean mass and basal metabolic rate (BMR)–both crucial for tracking changes during treatment. While this method is not perfectly precise (as anatomic dissection would be required for absolute accuracy), it remains a valuable monitoring tool, especially when performed consistently by the same practitioner, as its reliability depends on operator consistency.

Bioelectrical Impedance Analysis (BIA) is the most widely used technique, including in my own clinical practice. It operates on the principle that water conducts electrical current well, whereas fat is an almost perfect insulator. Since Fat-Free Mass (FFM) consists primarily of water, determining total body water allows for an indirect but effective estimation of both FFM and Fat Mass (FAT).

BIA devices–whether using electrodes or a metal platform (similar to a standard scale)–measure the resistance of body tissues to a low-intensity, high-frequency current (50,000 Hz). Advanced algorithms then analyze the impedance value to determine total, intra- and extracellular water content, cellular mass, lean mass, and basal metabolism. Some devices even provide vector analysis, offering a visual representation of values and changes over time, enhancing patient assessment and progress tracking.

> 40	3rd degree overweight	**Severely Obese**
30 - 40	2nd degree overweight	**Obese**
25 - 30	1st degree overweight	**Overweight**
18.5 - 25	Normal weight	**Normal**
< 18.5	Underweight	**Lean**

Another simple yet valuable metric in clinical practice is the Body Mass Index (BMI), calculated by dividing body weight (kg) by height ^{2} (m). BMI categorizes patients into weight ranges from severe obesity to underweight, providing a quick reference point for overall weight assessment. Moreover, to accurately classify patients and define the most appropriate therapeutic pathways for metabolic diseases such as hypertension, hypercholesterolemia, diabetes, cardiovascular disease, and stroke, it is essential to evaluate abdominal fat, which is more closely linked to these conditions than overall body weight. Abdominal fat is generally considered acceptable when it falls between 10% and 18% in men and between 18% and 28% in women. The most reliable method for assessing abdominal fat today is measuring waist circumference with a tape measure approximately one centimeter above the navel.

Values below 80 centimeters in women and 94 centimeters in men are considered desirable, while exceeding these thresholds indicates an increased risk of metabolic diseases. In such cases, dietary intervention, increased physical activity, and, when necessary, bariatric therapy become the primary treatment options. to accurately classify patients and define the most appropriate therapeutic pathways for metabolic diseases such as hypertension, hypercholesterolemia, diabetes, cardiovascular disease, and stroke, it is essential to evaluate abdominal fat, which is more closely

linked to these conditions than overall body weight. Abdominal fat is generally considered acceptable when it falls between 10% and 18% in men and between 18% and 28% in women. The most reliable method for assessing abdominal fat today is measuring waist circumference with a tape measure approximately one centimeter above the navel. Values below 80 centimeters in women and 94 centimeters in men are considered desirable, while exceeding these thresholds indicates an increased risk of metabolic diseases. In such cases, dietary intervention, increased physical activity, and, when necessary, bariatric therapy become the primary treatment options.

Recent studies conducted in the United States have suggested that subcutaneous fat–not only visceral fat–may also play a role in the onset of metabolic disorders such as stroke, cardiovascular disease, type 2 diabetes, and vascular disease. Patients who have undergone surgical procedures to reduce subcutaneous adipose tissue, such as liposuction or abdominoplasty, have shown significant reductions in triglycerides and leukocytes, indicating a possible systemic metabolic improvement.

Further research is needed to confirm these findings. However, if validated, they would strengthen the idea that treatments traditionally considered purely aesthetic may also have a significant functional impact, reinforcing the concept of aesthetic medicine as part of a broader "wellness therapy" approach, as previously discussed.

Contraindications

When prescribing tests for this type of diet, I have found it more practical in clinical practice to relate them to absolute and relative contraindications. Standard tests, such as a complete blood count with differential, electrolytes, triglycerides, cholesterol, and urinalysis, along with any additional tests deemed necessary based on the patient's medical history, clinical evaluation, and diagnostic findings, must be prescribed. However, to ensure both safety and effectiveness, certain parameters require particular attention. Starting with absolute contraindications, insulin-dependent diabetes is the primary exclusion criterion due to the biochemical mechanisms of an amino acid-based diet. For the same reason, in the rare cases where this dietary approach fails, an evaluation of insulin resistance should be conducted using tests such as the insulin curve or the Homeostasis Model Assessment (HOMA) test.

Liver and kidney function must always be assessed. Severe renal failure must be ruled out through tests including blood urea nitrogen (BUN), creatinine, sodium, potassium, chloride, calcium, phosphorus, uric acid, and urinalysis. Similarly, liver failure must be excluded through the evaluation of transaminases, bilirubin, gamma-glutamyl transferase (GGT), lactate dehydrogenase (LDH), and alkaline phosphatase levels. It is also essential to investigate and exclude the presence of severe cardiac or cerebrovascular conditions, such as recent myocardial infarction, heart failure, or unstable angina. As with any dietary intervention, patients with eating disorders (such as anorexia or bulimia), behavioral disorders, psychosis, alcoholism, or drug addiction must also be excluded.

In clinical practice, it is evident that most of our patients are generally healthy, as we operate within the broad scope of aesthetic medicine. However, special attention and specific monitoring are required for patients who, despite not having absolute contraindications, present with conditions such as cholelithiasis, nephrolithiasis, non-insulin-resistant diabetes, or hypertension. Additionally, those with allergies to specific components (such as egg whites, milk, soy, gluten, or aspartame) must be carefully evaluated to ensure a safe and tailored approach.

The diet

Through the consumption of food, we introduce macronutrients such as proteins, lipids (both animal and vegetable), and carbohydrates (simple and complex). The first two macronutrients provide us with amino acids and fatty acids, some of which are essential–meaning they cannot be synthesized sufficiently or autonomously by the body and must therefore be obtained through diet. This is not the case for glucose, which, as a crucial energy source, can be derived from the transformation of amino acids and glycerol, and is supported by the intake of proteins and triglycerides.

A diet must be compatible with a person's lifestyle, aligned with their goals, and sustainable over time. It should provide an adequate energy reserve, utilizing triglycerides (from white adipose tissue), glycogen (from muscles and liver), glucose (from biological fluids), and proteins (from muscles). In line with the goal of preserving as much lean mass as possible, it is important to note that this is especially relevant for low-calorie diets that are balanced in the intake of sugars, fats, and proteins. However, it is also worth considering that such diets can lead to an increase in hunger, mood disturbances, and a decrease in basal metabolism.

The choice of a protein-amino acid diet is not focused on calorie control but on the metabolism of foods based on their quality. It considers the average protein requirements for females (0.80g/kg/day) and males (1.07g/kg/day). The composition of the diet, which varies depending on the chosen formulation, includes proteins, lipids, fibers, and small quantities of carbohydrates and glucose. The foundation of this diet is a purified protein intake, which must meet the daily requirements through a balanced selection of amino acids. This approach aims to preserve lean mass as much as possible, avoid overloading the kidneys and liver, and maintain basal metabolism (which is primarily supported by lean mass, accounting for more than 70%). If basal metabolism is reduced, it can lead to the yo-yo effect on body weight when normal eating habits are resumed.

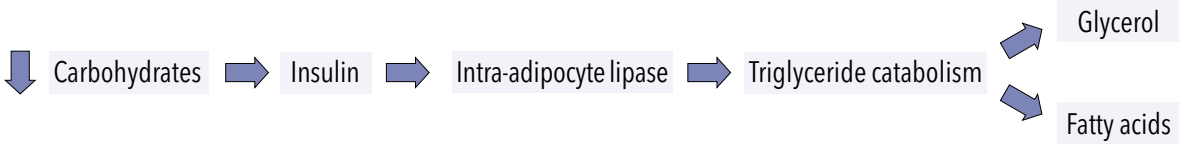
The protein-amino acid Very Low Ketogenic Diet (VLCKD) is based on the use of pre-prepared, well-balanced products that provide a normal daily intake of proteins, lipids, few carbohydrates, vitamins, minerals, omega-3 fatty acids, and hydration (2 liters), totaling less than 800 calories per day. These products are designed according to the specific phase or step the patient is in.

Typically, the diet is divided into five phases/steps, with the first two being ketogenic. The first phase includes 4-5 meals based on the patient's weight (which may vary depending on the company providing the diet). This phase includes breakfast, a snack, lunch, another snack, and dinner.

As mentioned, dedicated products are used, ranging from liquids to ready-made or ready-to-prepare meals, in combination with vegetables (as previously indicated) and supplements (see above). Although this approach can be skipped, it is certainly the fastest in achieving results. Even though it may initially seem difficult to follow, in my experience, it ultimately becomes easy to maintain and, given the positive outcomes, is highly motivating for patients. It is important to remember that reaching ketosis and experiencing its benefits (especially hunger suppression) typically takes 2-3 days, and this should be clearly communicated to patients.

The second step/phase is similar to the previous one but with the inclusion of animal proteins, and thus a protein-based meal (which is very social, allowing you to go out to eat, although with obvious limitations) that does not take you out of ketosis (or will put those who skip the first phase into ketosis). I always tell patients that this diet works like an antibiotic: it's used in the presence of an issue (in this case, overweight) and you stop once the desired result is achieved.

The duration of the first and second phases is similar, and I do not consider either to be less than 20 to 30 days. It's important to ensure that there are no holidays, special occasions, trips, or any other reasons that might cause a break in therapy during this period. The selective and progressive reintroduction of foods starts in the later phases, continuing through to the fifth and final phase, which consists of a balanced diet to follow.



Mechanism of action

The reduction of carbohydrates in the diet leads to a decrease in blood insulin levels, which in turn triggers the catabolism of stored triglycerides. Through the action of intra-adipocyte lipases, these triglycerides undergo hydrolysis, breaking down into glycerol and fatty acids. Approximately 10% of the glycerol is oxidized in the liver and converted into **glucose** via gluconeogenesis, while the remaining 90% is utilized by the muscles. Meanwhile, 60% of the free fatty acids undergo hepatic beta-oxidation, resulting in the formation of **ketone bodies** (acetone, hydroxybutyric acid, and acetoacetic acid), while the remaining 40% is converted into energy by the muscles.

In the presence of insulin–provided the pancreas functions efficiently–and glucose derived from gluconeogenesis, **ketone bodies** recondense into Acetyl-CoA, which then enters the Krebs cycle to generate cellular energy. Additionally, proteins stimulate serotonin and norepinephrine activity, modulating the centers responsible for satiety and fatigue, thereby promoting a sustained **feeling of fullness**.

This process induces a lipolytic effect, enabling rapid and selective weight loss in areas of localized adiposity while significantly preserving lean mass.

A correct protein intake is also associated with the preservation of fibroblast metabolism, particularly in the production of collagen and elastic fibers, as well as the protection of skin appendages, ensuring skin elasticity and hair trophism. This type of diet can be followed for an extended period, and scientific data demonstrate good maintenance of results after its conclusion.

Diet management

The choice of product type must take into account specific characteristics. We are essentially "flipping a switch" to shift the body's energy production away from its normal pathway and toward a mechanism that relies on ketone bodies. To safeguard vital organs such as the liver and kidneys, it is essential to prevent an excess accumulation of these metabolites and ensure that the diet is not "high in protein". For this reason, certain factors related to the formulation of commercially available products must be considered. One such factor is the Chemical Index (I.C.), which assesses the balanced intake of amino acids to meet daily requirements and must exceed this threshold (typically set at 110). The standard reference is egg albumin, which has an I.C. of 100. To this must be added the Digestive Use Coefficient (D.U.C.), which evaluates the digestibility of the proteins consumed, excluding those derived from basal metabolism, catabolism, and endogenous synthesis. A high D.U.C. value (>90%) is essential to ensure minimal waste of nitrogenous materials. Correlating these two parameters is the Chemical Index for Digestibility (DI-SCO Index), which determines the percentage of total amino acids effectively utilized by the body, with an average of 93%.

In addition to micronutrients (K, NaCl, Ca, Mg, trace elements, vitamins, Omega-3, etc.), these diets incorporate vegetables and extra virgin olive oil, varying in quality, quantity, and cooking methods depending on the formulation. This approach allows for effective action–without hunger, fatigue, or medication–on both localized adiposity and so-called cellulite. In my experience, potential side effects such as acetonic breath, constipation or diarrhea, cramps, nausea, hunger (often more related to cravings than actual need), and hypotension can be easily managed with specific products. Generally, all manufacturers follow a structured program that includes a gradual reintroduction of food after the initial two ketogenic phases.

Author's Notes

In my practice, having decided to personally follow only patients who do not have particular problems (I always avail myself of the collaboration of dieticians/nutritionists to whom I send patients who I do not consider to be of my specific expertise) and who need to lose a moderate amount of weight (hardly more than 20 kg), I have placed more importance on the first two phases, which may be alternated and repeated over time. I have made use of some products from the first two phases as "hunger suppressants", selecting them based on the patients' preferences, type of work, and physical activity. I have always continued with aesthetic treatments, both for the body and face, to ensure a remodeling effect in addition to the reduction effect (CRT protocol).

THE MICROBIOTA

The gut and brain have always been engaged in a continuous, bidirectional dialogue, as they are intricately interconnected. Within this relationship, the microbiota plays a crucial role. When disrupted by poor nutrition, an imbalanced microbiota can produce molecules that may be harmful to our body. Each of us carries a unique microbiota–a mix of beneficial and harmful bacteria–shaped by our genetics, birth conditions, personal history, and daily diet. The microbiota evolves alongside our dietary habits, demonstrating an impressive ability to adapt swiftly to new environmental and nutritional conditions. An imbalanced microbiota does not remain confined to the intestine. Through anatomical connections or the circulatory system, it can influence other organs and tissues. A disrupted microbiota can release inflammatory molecules into the bloodstream, leading to neuroinflammation and deficiencies in essential substances such as tryptophan, serotonin, and zinc–key components for mental health. These deficiencies may contribute to mood swings and psychological distress.

Modern preventive medicine focuses on combating adiposity, a major risk factor for numerous chronic diseases. Hypertrophic adipocytes produce cytokines–systemic inflammatory proteins–that contribute to overall decay. Given the strong connection between intestinal health, premature aging, and disease, maintaining gut balance is a primary objective. Chronic inflammation is often considered the root cause of many diseases, making its prevention essential. An imbalanced microbiota loses its ability to regulate intestinal equilibrium, leading to dysbiosis and extraintestinal complications. Since the intestine functions as a central control hub, addressing imbalances is crucial. Restoring gut health requires detoxification, strengthening of the intestinal mucosa, and repopulation of beneficial bacteria to re-establish eubiosis. Achieving this balance necessitates intestinal rest, dietary adjustments, proper hydration, and the strategic use of nutraceuticals.

Our daily plate is essential medicine, continuously modulating our microbiota at every stage of life. At the same time, proper breathing and aerobic movement help ensure that the cells of the entire organism receive an adequate supply of oxygen. An important consideration is that, in the past, the human microbiota remained largely unchanged for long periods, passed down from generation to generation. However, numerous scientific studies now show that the microbiota has undergone a significant transformation in recent times. This change is largely due to the substantial modification of the modern diet, particularly the reduced availability of carbohydrates necessary for microbial nourishment–specifically, undigested carbohydrates that resist digestion and absorption by our system.

The increasing consumption of industrial foods–highly refined, heavily processed, and nutritionally depleted–along with the overuse of antibiotics, widespread environmental sanitization, and exposure to antimicrobial chemicals, is irreversibly altering the human species.

Perhaps, from this perspective, the future lies in looking to the past. Today, the science of longevity encourages us to consider aging long before it begins, emphasizing personalized prevention, the maintenance of optimal health, and long-term well-being.

The aging process is influenced by both genetics and a range of external and internal factors that interact with our bodies–nutrition, pollution, stress, harmful radiation, the microbiome, systemic inflammation, oxidative stress, and hormonal balance. These elements, in turn, influence our genes and may contribute to the development of disease.

In today's fast-paced society, it is not easy to prioritize conscious eating, mindful hydration, regular physical activity, controlled breathing, or even meditation. Nor is it always possible to distance ourselves from polluted environments or sources of stress. However, making every possible effort to safeguard our health and well-being is already a meaningful step forward.

What should a proper diet include?

What we know for certain is that a healthy diet should be primarily plant-based. Shifting from an animal-based diet to a plant-based one can help reduce intestinal inflammation, replenish beneficial commensal bacteria, promote greater microbial diversity, and decrease harmful metabolites and inflammatory markers.

A good practice is to start the day with a large glass of water with lemon. Throughout the day, it is preferable to drink warm beverages or herbal teas. The diet should be rich in vegetables, legumes, whole grains, fresh fruit, and nuts. Prioritize alternative grains such as basmati rice, red rice, Venus rice, buckwheat, amaranth, millet, quinoa, spelt, rye, and barley.

Incorporate a variety of vegetables, including mushrooms, which can be enjoyed as appetizers, in broths, soups, or purées. Include legumes such as lentils, peas, chickpeas, and all varieties of beans. Opt for probiotic-rich foods like plain low-fat yogurt or kefir, preferably homemade.

Add healthy fats and nutrients with almonds, hazelnuts, pine nuts, and mixed seeds.

Choose high-quality protein sources, such as free-range eggs and homemade bread made with whole grain flours and sourdough.

Use raw extra virgin olive oil as a staple fat source.

Limit animal protein consumption to a few times a week, opting for blue fish, free-range meat, and goat products.

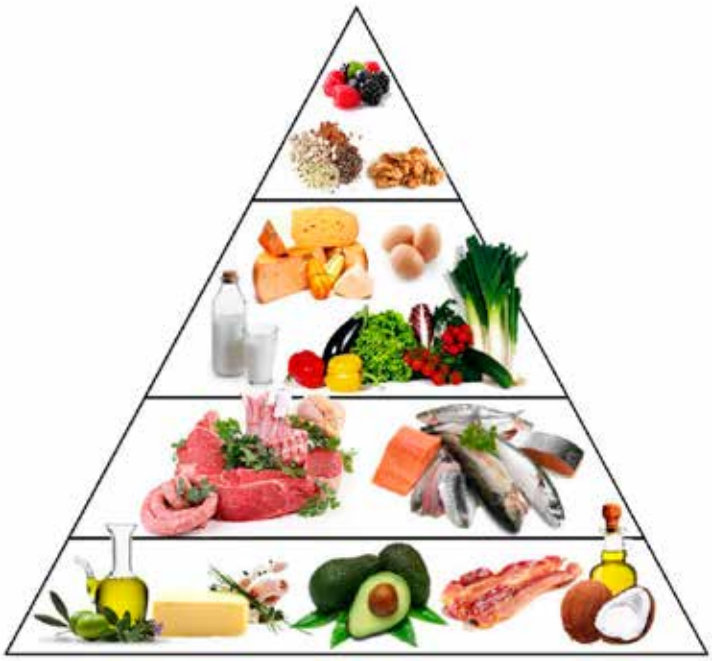
Eat little fruit, no more than once a day, even in the form of juice or extracts.

Consider incorporating aromatic herbs and spices, which not only enhance flavor and aroma but also promote well-being. Black pepper, chili pepper, and garlic are excellent sensory stimulators. Black pepper, rich in iron and calcium, promotes thermogenesis and aids digestion. Chili pepper, packed with vitamin C, trace elements, and flavonoids, supports intestinal transit and has antibacterial and antifungal properties. Garlic helps regulate blood pressure, manage dyslipidemia, and combat intestinal parasites.

Other beneficial spices include curry, known for its intestinal anti-inflammatory effects, and turmeric, which aids digestion, reduces inflammation, stimulates insulin secretion, and offers cardioprotective and hepatoprotective benefits. A well-balanced diet that includes the right amount of herbs and spices can also help reduce sodium intake. Excessive consumption of table salt is associated with water retention and high blood pressure.

A simple, unprocessed diet is recommended, focusing on cooking methods such as steaming, oven baking, foil cooking, or using non-stick pans. It's best to prefer raw oil and avoid fatty condiments.

Your well-being is in your hands–and on your plate–and it is reflected in our cells, tissues, and organs. It manifests in our overall health, both physical and mental, as well as in our beauty and bioluminescence.



Ketogenic Diet

SECTION 1

A.R.P.A. PROTOCOL

THE FACE

CHAPTER 3. PRECISION AESTHETIC MEDICINE

CHAPTER 4. BIOREVITALIZATION

CHAPTER 5. COMBINED TREATMENTS

CHAPTER 6. ALOPECIA

CHAPTER 3
PRECISION AESTHETIC MEDICINE

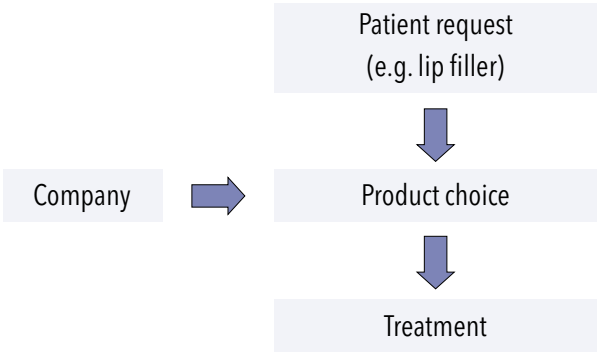
PRECISION AESTHETIC MEDICINE

The growing demand for treatments aimed at addressing facial concerns is steadily increasing. Several factors contribute to this trend, including the longer duration of "active life" (work, social, and sexual activities), the influence of media in shaping societal models, and the evolving aesthetic preferences over time. It is this last aspect that is driving a potential shift in the approach and attitude of professionals in this field.

While there remains a strong desire for alterations to resemble idealized reference models (such as actors, singers, and models), there is a noticeable, recent trend toward requesting more "natural" treatments. These are aimed at supporting the aging process, rather than attempting to create an artificial rejuvenation that may result in grotesque or even harmful outcomes.

The aesthetic doctor, particularly in the realm of facial treatments, plays a key role by utilizing scientific research and evidence-based medicine to answer important questions: When should action be taken (diagnosis)? With what tools (technology)? And how should the treatments be applied (method)?

In this context, a new approach to aesthetic medicine is being proposed. For many years, and unfortunately still at times, the "classic" approach has been used:



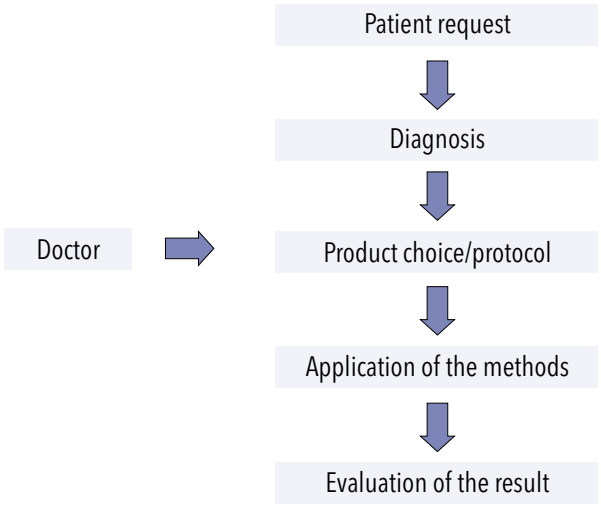
This treatment plan presents some critical issues, including:

- The request for certain types of treatments by patients, who may be influenced by various factors, leading to the treatment of individuals who do not actually need "that" modification.
- The push from companies producing products and equipment that "have to sell", sometimes proposing treatments that are "directed" in a specific way–sometimes even using the same compositions for different purposes.
- The push for an uncritical attitude from practitioners who, in an effort not to lose a patient or, worse, because they have been "taught that way", treat according to requests, skipping the phases dedicated to clinical evaluation and not considering the final outcome of their work.

I believe that an aesthetic doctor is, first and foremost, a doctor, and is therefore required to consider not only the immediate effects but also the long-term consequences of the treatments applied, as well as the method and methodology used. The foundation of our work lies in a thorough understanding of what we are doing. It is essential to evaluate the anatomical and physiological characteristics of the areas involved, the type of products and equipment being used, and to consider the expected outcomes—both immediate and long-term—on the tissues being treated. Some methods will tend to stimulate, for example:

a) a different type of collagen, such as regenerative or cicatricial collagen)

b) the effect of the presence of a foreign body (like a filler), which will always induce a reaction. Depending on factors such as location, composition, quantity, and other variables, this can lead to changes or complications.



In this approach, there are many moments where the professional is responsible for their choices. The foundation of everything is the **diagnosis**, which must allow us to understand the underlying problems, determine the cause of the imperfection reported by the patient, and understand the dynamics at play in order to choose the most appropriate methods and how these should be applied to achieve the goal decided and planned with the patient. I have already mentioned some general concepts previously, and, regarding the face (the same applies to other areas), it is important to emphasize some of them. I believe it is essential to perform the clinical evaluation of our patients in front of a mirror.

In most cases, the patient's attention is not focused on the entire face, but on a single detail (which is what brought them to us!). Our job is not to treat a wrinkle or furrow but to manage the entire face. This alone requires a different attitude, one that must be clearly communicated and understood by the patient.

I always say that if we treat a single window, even if damaged, on the facade of a building without addressing the whole structure, we risk creating a paradoxical and sometimes unaesthetic effect.

Furthermore, much of the litigation arises from the fact that, after undergoing treatment, patients begin to look at themselves "more closely" and discover issues that existed prior to our work.

Photographic or video documentation alone is not enough; it is essential to first evaluate, together with the patient, the starting situation. The soft tissues adapt, reshape, and are modified over time by the underlying hard tissues, as well as by the behavior of the adipose areas and the structures that contain them. No face is perfectly symmetrical (just as there is no symmetry in other structures such as the upper and lower limbs, or breasts), and there may also be skin lesions. What the patient perceives as a wrinkle may actually be caused by a shifting of the tissues due to various factors (such as furrows), and these situations must be highlighted and discussed with the patient.

If the condition requires treatment by specialists outside our expertise (such as maxillofacial surgeons, ophthalmologists, dentists, dermatologists, ENT specialists, plastic surgeons, etc.), once the problem is identified, it is necessary to decide, in agreement with the patient, whether to consult them as part of the overall treatment strategy.

At the time of diagnosis, it may also be appropriate to use radiological tests. If there have been any traumas (whether accidental or surgical), an echocolor Doppler evaluation can provide valuable information regarding potentially dangerous areas of the face. Similarly, an ultrasound or MRI can indicate the presence of materials from previous injection treatments. These are just examples, but the key concept is that the visit–during which sufficient time must be dedicated–should allow us to understand, plan, and help the patient fully comprehend their "real" clinical situation.