Japan Journal of Research

Original Article

Logical Beauty Harmony and Natural Shape zones (NSz)

Sergio Noviello[1,2*], Kostantinos Gritzalas[1], Andrea Maroni[1], Massimiliano Tocchio[1], Gualtiero Cogliandro[1], Nicola Di Benedetto[1]

[1]*Milano Estetica, Cosmetic Surgery Center, Milan, Italy*

[2]*Sergio Noviello Academy, Italy*

Correspondence

Sergio Noviello MD, FAACS

Milano Estetica, Cosmetic Surgery Center, Milan, Italy

E-mail: sergio.noviello@simoe.it

- Received Date: 13 July 2020;
- Accepted Date: 05 Aug 2020;
- Publication Date: 15 Oct 2020.

Introduction

Beauty concept

The concept of beauty in the world is certainly influenced by ethnicity [1] and cultural factors [2], but generally harmony, balance and simmetry [3] are common characteristics positively considered by every population. An oval face, defined by lines and with a moderate wide chin is universally considered attractive [4]. It is therefore possible to create harmony by optimizing the appearance of a face in this direction, lightening too prominent features, smoothing the edges or softening that surfaces of the face that could appear too flat [5] (Figure 1).

Aging process

Skin quality and elasticity: Over time the skin undergoes progressive changes [6]. Mimic muscles activity determines the appearance of wrinkles on the forehead and around eyes and mouth. The skin loses tonicity, elasticity, hydration and hyperpigmentations may appear. The folds around the mouth and nose become deeper and the skin exceeds at the level of the mandibular line and under the chin [7].

Shape and volume: As we age, the superficial and deep adipose compartments of the face are reduced in size, determining the loss of volume and roundness of the forehead, eyebrows, the periocular area, temples and cheeks [8]. The vertical sliding of the superficial adipose compartments creates a weighting of the lower third of the face, rising the double chord. This volume loss also occurs at the level of the lips and the mandibular line, where it is accompanied by loss of definition and regularity of form [9].

Structure and support: Recent scientific evidences have finally clarified and confirmed that with aging the density of the skull bones is reduced and also the entire structure undergoes a drastic retraction in an antero-

Figure 1. LBH - Aesthetic proportions of the face

Citation: Noviello S, et al. Logical beauty harmony and natural shape zones (NSz). Japan J Res. 2020;1(4):1-8.

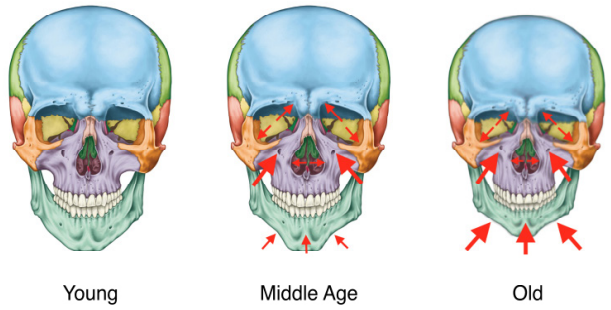

Figure 2. LBH - Facial Aging process

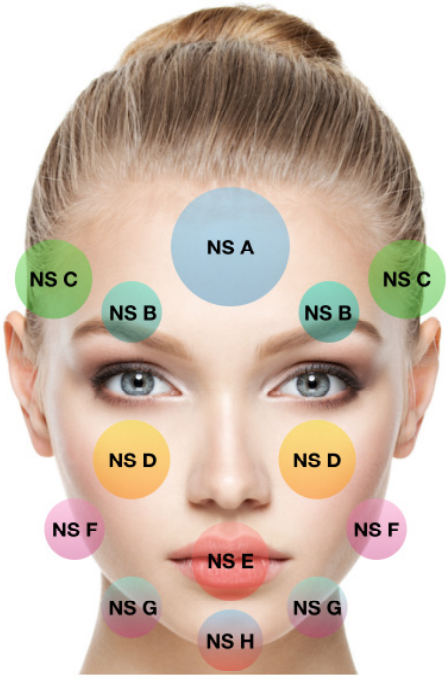

Figure 3. LBH - Natural Shape zones

posterior direction with an enlargement of the cavities and a reduction of the vertical diameters (vertex-chin distance) [10].

This marked loss of structural support of the face is decisive in the creation of the fall of tissues, until a few years ago considered exclusively dependent on the force of gravity; today it is mandatory to talk about "pseudoptosis" instead of ptosis. This important phenomenon redesigns the use of fillers in aesthetic medicine, indicating their more correct use at the level of the deep structures of the face with the purpose of support, structure and lifting. Deep injection is also safer and more reproducible. Attention to superficial fillings therefore plays a secondary role and with a complementary purpose.

From deep to surface: LBH is an innovative System for using filler and botulinum toxin in aesthetic medicine based on Natural Shape zones (NS zones).

These areas consist of strategic sequential injection areas that allow creating, improving or restoring adequate volumes, guaranteeing natural results and expressiveness. This protocol is adaptable to different ages, sex, target.

Starting from the recent acquisitions of Functional Anatomy, Physiology of Aging, Product Rheology and considering the objective analysis of the characteristics of harmony of each individual we have developed an approach that uses injectables in a targeted way using Support and Lifting vectors at the level of Upper, Middle and Lower Third of the face, injecting first deep and then passing to the surface.

This system allows to avoid an unnatural volumetric increase in the appearance of the face, allowing to optimize the characteristics of the patient's face in an effective, simple and individual way: reshape the forehead, the eyebrow, the temporal area, redefine the natural projection of the cheek, reshape the mandibular line, strengthen the oral commissures improving the appearance of the naso-labial folds.

Briefly, a precise and reproducible system that considers parameters, proportions, lines and ideal movements and which does not distort the features, but respects and enhances harmony and beauty of every single person, for a fresher, less tired, younger or attractive face. The initial phases of each individual treatment must consider the perception of their appearance in the individual patient in order to plan a clear and shared plan (Figure 3).

Parameters, Proportions, Lines and Ideal Movements

As cosmetic physicians and surgeons, we perfectly know that harmony and balance in the face are provided above all by the hard tissues of the skull, cheekbone, nose, jaw, and forehead regions and by the overlying fat compartments deep and superficial [11].

The tridimensional and spacial relationships of these structures form the contours and curves that blend so magically into the harmonic human face.

A definition of facial beauty based on the analysis of facial hard tissue proportions and contuors remains receding [12].

Certainly It is not the single or separate features of the face considered alone that define beauty, but the rhythm of facial proportion.

The face is divided into vertical and horizontal proportions as learned from the neoclassical Authors. Although originally conceived for the teaching and practice of art, these simply but fundamental principle of facial proportion, modified by recent anthropometric studies, have found their way into the teaching and practice of cosmetic facial medicine and surgery [13].

Logical Beauty Harmony Principles

AThe vertical facial and head height (vertex-menton) is divided into equal halves at the midcanthal point, or endocanthion (Figure 4).

The facial profile can be divided into equal anatomic thirds. The upper third, or forehead segment, extends from the hairline to the nasofrontal junction, or nasion. The middle third, or nasal segment, extends from the nasofrontal junction to the anterior nasal spine. The lower third, or jaw segment, extends from the anterior nasal spine to the most inferior point of the chin, the menton [14] (Figure 5).

The forehead is particularly important because it is difficult to modify surgically while it is easier by using fillers. In the profile view the forehead forms with the nose the nose-frontal angle, identified by two lines passing through the nasion (the most depressed point of the root of the nose): the first is tangent to the glabella, the second rests on the back of the nose. The ideal width of the angle is between 125° and 135 °. The greater

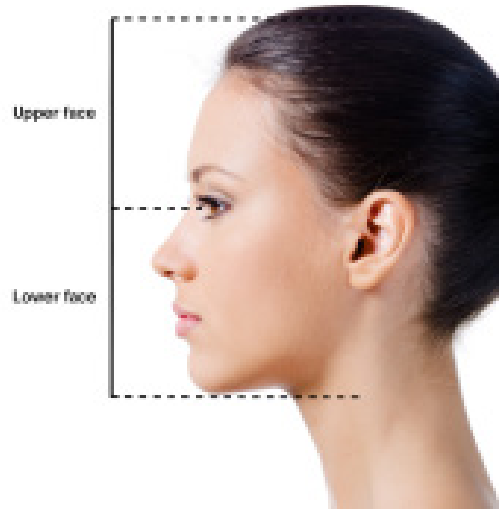

Figure 4. LBH Principle 1 - Vertical facial and head height is divided into equal halves at the midcanthal point.

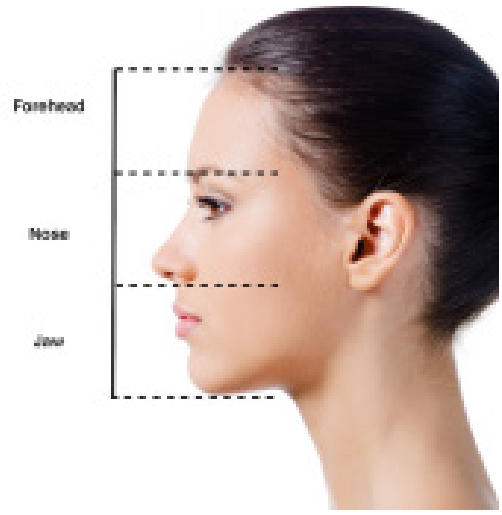

Figure 5. LBH Principle 2 - The facial profile can be divided into equal anatomic thirds.

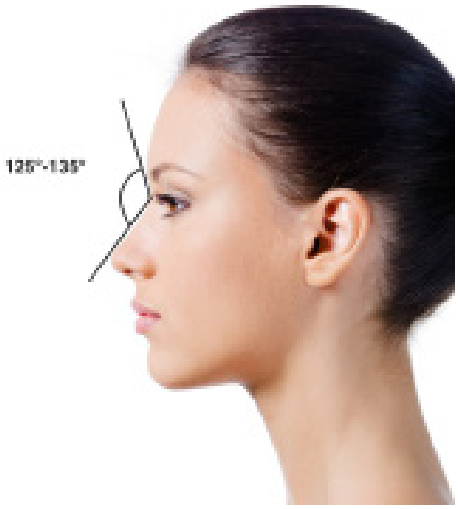

Figure 6. LBH Principle 3 - In the profile view the forehead forms with the nose the nose-frontal angle. The ideal width of the angle is between 125° and 135°.

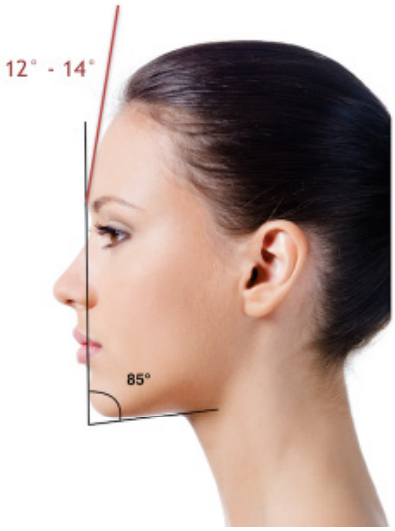

Figure 7. LBH Principle 4 - The chin-cervical angle should ideally oscillate between 80° and 95°.

Figure 8. Principle 5 - The distance between the two inner cantus must be equal to the length of the eye and the base of the nose, or rather the width of the space between the eyes equals the width of the nose at the alar base level.

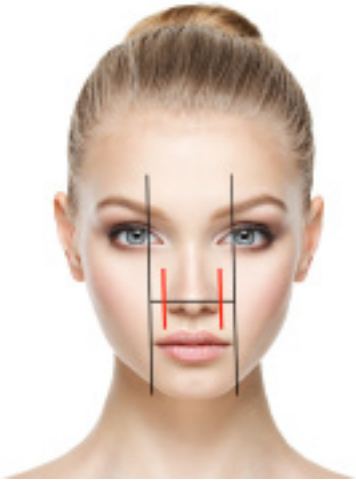

Figure 9. LBH Principle 6 - Width of the lips. The distance between the oral commissures should be equal to the medial border of the iris lines. The width of the lips equals 1.5 times the width of the nose at the alar base.

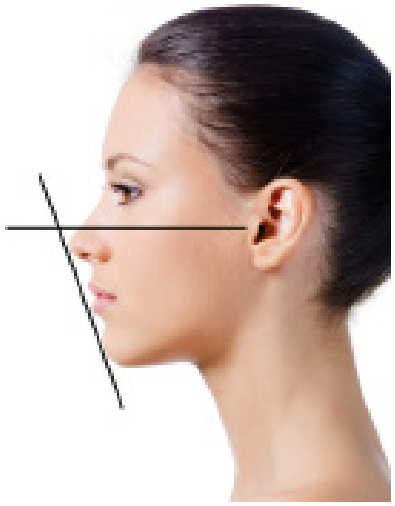

Figure 10. LBH Principle 7 - The upper lip should fall 4 mm posterior to the nasomental line while the lower lip should fall 2 mm posterior to the nasomental line. Ideal projection described by Ricketts.

Figure 11. LBH Principle 8 - The upper lip should project 1 to 2 mm forward from the lower lip.

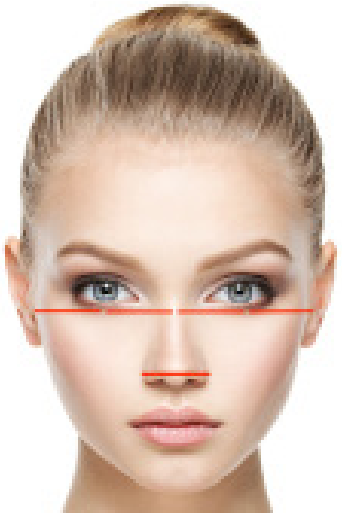

Figure 12. LBH Principle 9 - The width of the face equals four times the alar base width of the nose.

or lesser development of the frontal muscles, corrugator of the eyebrows and procerus, can affect the width of the angle (Figure 6).

Each of these features is able to have a decisive impact on the protrusion of the chin and consequently on the appearance of the face, and to condition the strategy of those who plan any injective treatment of the nose [15]. The chin, independently of articular problems of the teeth can be hypoplastic or too developed and require a correction that would accentuate the result achieved in the surgical or injective correction of the nose.

In morphological study of the lower part of the face, the chin-cervical angle is considered to have a particular importance: here are the elements to obtain it. A first line grazes the gabella and the pogonion (most anterior point of the chin), a second line starts from the cervical point (point of passage between the neck and the chin) and touches the menton (the lowest point of the chin placed on the median line): their meeting creates the chin-cervical angle which should ideally oscillate between 80° and 95° (Figure 7).

The size of the eyes as well as their prominence, interfere with the aesthetics of the face and nose in particular [16].

According to a classical scheme, the distance between the two inner cantus must be equal to the length of each individual eye and the base of the nose (Figure 8).

There are harmony rules which can support us to get the ideal lips position and projection [17]. In general, the distance between the oral commissures should be equal to the medial border of the iris lines. The width of the lips equals 1.5 times the width of the nose at the alar base (Figure 9).

The well-known golden ratio, or divine proportion (phi), is very relevant to the perioral area. Vertical vermilion show in white women is in the phi proportion of 1 for the upper lip and 1.618 for the lower lip. Black and East Asian women may have dimensions approaching 1 to 1.

There are other mathematical aspects that dictate the appearance of beauty in the perioral region [18]. Dental show on repose should be 1 to 2 mm only. The ideal width of beautiful lips should be 57 to 62 mm. The Steiner line is particularly useful and should touch the upper lip, lower lip, chin projection, and base of the columella.

The Ricketts line offers important informations on lip projection. On lateral view, the upper lip should project 1 to 2 mm forward from the lower lip (Figure. 10) and the upper lip should fall 4 mm posterior to the nasomental line while the upper lip should project 1 to 2 mm forward from the lower lip, or rather the lower lip should fall 2 mm posterior to the nasomental line (Figure. 11).

The width of the face equals four times the alar base width of the nose (Figure 12).

Face has been divided into vertical segments in order to establish the distance that the various parts must have from the midline so as to be harmonic [19]: six vertical lines ranging from helix to helix mark five equal portions, the median area includes the nose. Each segment - therefore also the nasal base - must be equal in width to the width of the eye (Figure 13).

The face on frontal view can be divided, as facial profile, into equal anatomic thirds. The upper third, or forehead segment, extends from the hairline to the nasofrontal junction, or nasion. The middle third, or nasal segment, extends from the nasofrontal junction to the anterior nasal spine. The lower third, or jaw segment, extends from the anterior nasal spine to the most inferior point of the chin, the menton. The distance

Figure 13. LBH Principle 10 - The width of the face on frontal view, included the helix profile, equals five times the alar base width of the nose.

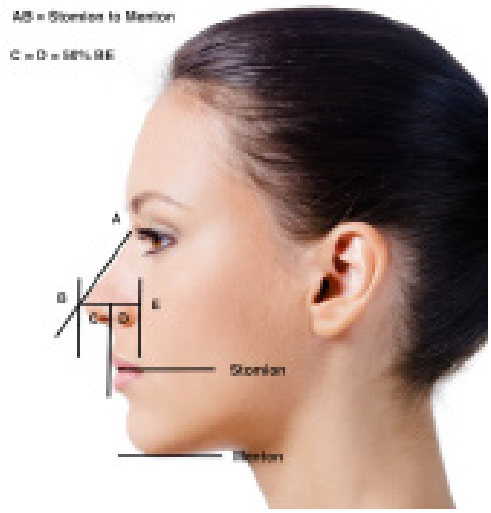

Figure 16. LBH Principle 13 - The nasal length should be equal to the distance between the stomion and mentum

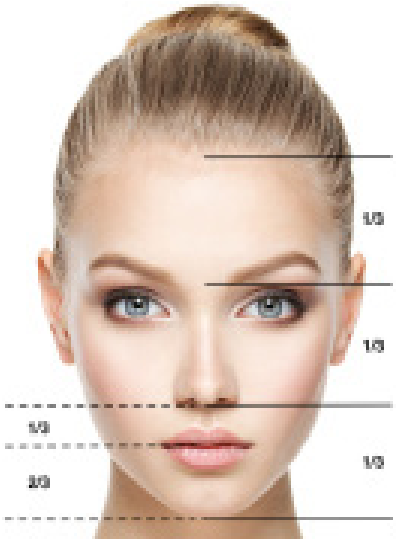

Figure 14. LBH Principle 11 - The face on frontal view can be divided into equal anatomic thirds. The distance between the nasal spine and the menton can be divided in equal thirds.

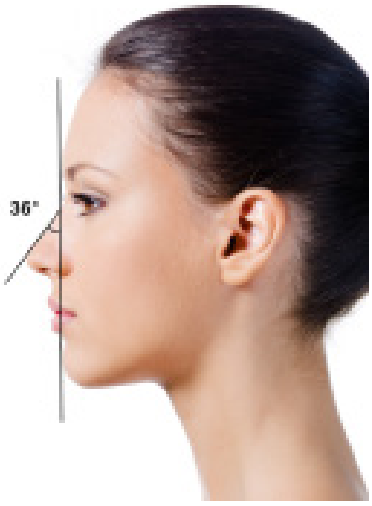

Figure 17. LBH Principle 14 - The nose-facial angle measures the prominence of the nose and oscillates between 30° and 40°.

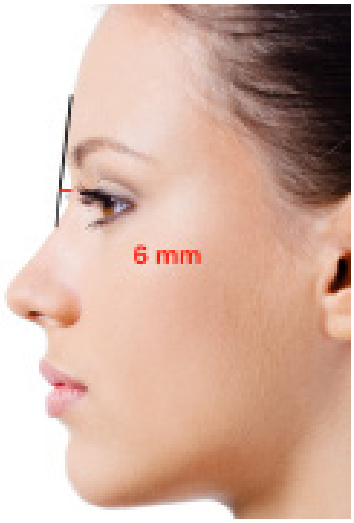

Figure 15. LBH Principle 12 - Radix can be evaluated in the context of a level difference or a step in reference to the forehead plane. This distance typically should be 6 mm deep in females and 4 mm in males.

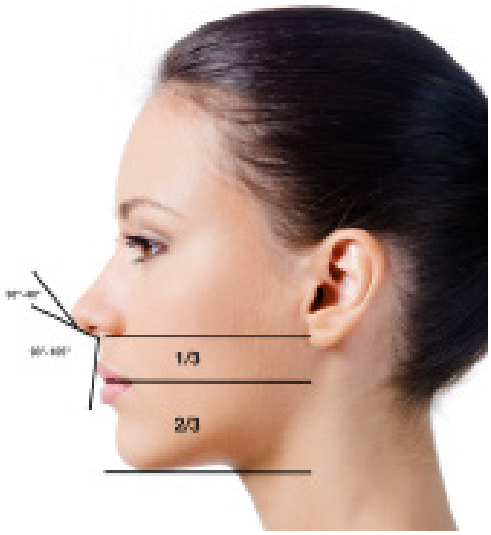

Figure 18. LBH Principle 15 - The nose-facial angle measures the prominence of the nose and oscillates between 30° and 40°.

between the nasal spine and the menton can be divided in equal thirds. The upper third extends from the nasal spine to the stomion, or rather the point of junction of the upper and lower lip (Figure 14).

The radix is the area where the forehead connects with the nasal dorsum through a soft, concave curve. On the profile view and with the eyes in the neutral horizontal position, the apex and the radix should lie between the supratarsal fold and the upper lid eyelashes [20].

Alternatively, this region (the radix) can be evaluated in the context of a level difference or a step in reference to the forehead plane. This distance typically should be 6 mm deep in females and 4 mm in males (Figure 15).

Other important reference measurements from this view include the nasion corneal plane distance which should be approximately 11 mm and the nasion-medial canthal distance which is approximately 15 mm.

The height of the root of the nose is very important for the aesthetics of the eyes. If during an injection of filler, or a surgical procedure as the rhinoplasty, the root is augmented or lowered too much the eyes can appear far or close together.

The aesthetic nasal dorsum should be 2 mm behind and parallel to a line from the radix to tip-defining points in women and 1 mm in men. A slight supratip break or depression is considered aesthetic in a female nose. The nasal length is the distance between the radix and tip defining points and should be equal to the distance between the stomion and mentum (Figure 16).

There are three parameters that allow us to define the proportions of a nose: the length, the width of the base, the height of the tip. To these values must be added, due to their particular aesthetic importance, the dimensions and the characteristics of the ala-lobulo-columella complex.

Compared to the Caucasian nose the width of the base must ideally be equal to 70% of the length. The width of the base must be equal to the distance between the two inner cantus of the eyes. To be harmonic a nasal base must be included in an equilateral triangle, whose inner side divides the columella in half.

The nose-facial angle measures the prominence of the nose and oscillates between 30° and 40°. This angle is created by a vertical line that touches the forehead (glabella) and the chin (pogonion) and a second that grazes the nasal dorsum (Figure 17).

Considering a lateral view of the Ala-Lobulo-Columella complex, columella must be 3-5 mm under the nostril; ideal ratio lobulo-ala is 1:1. The excess of the lobule is more acceptable than the excess of the ala.

The nasolabial angle is very important, it measures the inclination of the columella in relation to the position of the upper lip, which is obviously conditioned by the situation of the dental joint.

Optimum could be between 90° and 120°. The lines that identify the nasolabial angle intersect at the sub-nasal point. The upper one passes through the most protruding point of the columella, and the lower one grazes the cutaneous-mucosa line of the upper lip. The point where these lines converge is the sub-nasal point (Figure 18).

Discussion

The series of data that can be detected by applying the previous parameters offers the chance of identify the variants that the face can present, so as to make eventually those changes that lead closer to the ideal model [21].

In planning the treatment, the study of the different parameters, proportions, lines, ideal movements and angles linked to the comparison of the measurements of the different parts of the face will be more useful in determining type and extent of the corrections to be made. All this is valid considering that geometric calculations must absolutely not affect the experience that the physician or the surgeon has acquired over many years of cosmetic medicine or surgery, nor suffocate his sensitivity.

The LBH protocol exploits the Natural Shape Zones, strategic areas of sequential injection that allow to create, improve or restore adequate volumes guaranteeing natural results and expressiveness. The doctor systematically assigns a value from 1 to 10 to the eight Natural Shape Zones. Starting from the upper third areas, to move to the middle and lower thirds. This evaluation allows to analyze all the features of the face correcting in the event only those that have real needs, or those that have obtained low values in the analysis phase, or enhancing some areas to obtain specific results in line with the wishes of the patients.

Moreover the values obtained allow to precisely identifies the need in term of quantity. For example if a Natural Shape Zone obtains 5 it means that the quantity needed in this specific area is 0.5 ml. If a Natural Shape Zone obtains 2 it means that the quantity needed in this specific area is 0.8 ml. If a Natural Shape Zone obtains 8 it means that the quantity needed in this specific area is only 0.2 ml. No filling matherial is needed if a Natural Shape Zone obtains 10.

9 treatment protocols for the face have been precisely established.

Areas of Treatment

Upper Third	
Shape and height of forehead	NS A
Position of eyebrow	NS B
Temple depression	NS C
Fontal wrinkles	
Corrugator wrinkles	
Periocular wrinkles	
Shape of eyebrow	
Middle Third	
Superficial and deep adipose compartments	NS D
Median, middle, lateral	
Inferior periorbital region	
Inferior palpebral fat compartments	
Projection of cheekbone	
Appearance of cheeck	
Shape of the nose	
Inferior Third	
Lip definition	NS E
Lip projection	
Lip volume	
Vertical perioral wrinkles	

Mandibular line	NS F
Mandibular angle	
Jowls	
Marionette lines	NS G
Projection of chin	
Shape of chin	NS H
Superficial and deep adipose compartments	
Median, middle, lateral	
Neck and décolleté	
Vertical platismatic bands	
Trasversal wrinkles	
Double chin	

Quality of the skin

- Dehydration
- Surface irregularities
- Fine wrinkles
- Shadows and depressions

Treatment modalities

- Mitigate the wrinkles of forehead, corrugator, periocular and perioral area
- Raise eyebrows and increase projection
- Volumize forehead and temples
- Redefine the lower orbital area, cheekbones, cheeks and lips enhancing the structure
- Optimize the chin and mandibular edge area reducing shadows and grooves including nasogenienum wrinkles, marionette wrinkles and double chin visibility
- Improve the quality of the skin on the face, neck, décolleté and hands

Protocols

Fresh and rested face

Raise eyebrows and increase projection (NSzB)

Redefine the lower orbital area, cheekbones, and cheeks (NSzD)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area

Improve the quality of the skin on the face, neck, decollete' and hands.

Sinuous face

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the area of the chin and the mandibular border, reducing shadows and furrows, including nasolabial folds (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area

Smiling face

Raise eyebrows and increase projection (NSzB)

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the chin and mandibular edge area reducing shadows and grooves including nasolabial folds, marionette wrinkles and double chin visibility (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area

Raised face

Raise eyebrows and increase projection (NSzB)

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the chin and mandibular edge area reducing shadows and grooves including nasolabial folds, marionette wrinkles and double chin visibility (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area Improve the quality of the skin of face, neck, décolleté and hands

Young face

Raise eyebrows and increase projection (NSzB)

Volumize forhead and temple (NSzA - NSzC)

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the chin and mandibular edge area reducing shadows and grooves including nasolabial folds, marionette wrinkles and double chin visibility (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area Improve the quality of the skin of face, neck, décolleté and hands

Sensual face

Raise eyebrows and increase projection (NSzB)

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area

Tonic face

Redefine the lower orbital area, cheekbones, and cheeks (NSzD)

Optimize the chin and mandibular edge area reducing shadows and grooves including nasolabial folds, marionette wrinkles and double chin visibility (NSzF - NSzG - NSzH)

Feminine face

Raise eyebrows and increase projection (NSzB)

Volumize forhead and temple((NSzA - NSzC)

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the chin and mandibular edge area reducing shadows and grooves including nasolabial folds, marionette wrinkles and double chin visibility (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area Improve the quality of the skin of face, neck, décolleté and hands

Male patient

Redefine the lower orbital area, the cheekbones, cheeks and lips enhancing the structure (NSzD - NSzE)

Optimize the area of the chin and the mandibular edge, especially the angle and the region of projection of the masseter, reducing shadows and grooves including nasolabial folds, marionette wrinkles and the visibility of the double chin (NSzF - NSzG - NSzH)

Mitigate the wrinkles of forehead, corrugator, periocular and perioral area Improve the quality of the skin of face, neck, décolleté and hands

References

1. Hashim PW, Nia JK, Taliercio M, Goldenberg G. Ideals of facial beauty. Cutis. 2017;100(4):222–224.
2. Kim S, Lee Y. Why do women want to be beautiful? A qualitative study proposing a new "human beauty values" concept. PLoS One. 2018;13(8):e0201347.
3. Shamban A. The signature featureTM : A new concept in beauty. J Cosmet Dermatol. 2019;18(3):692–699.
4. Zeki S, Chén OY, Romaya JP. The Biological Basis of Mathematical Beauty [published correction appears in Front Hum Neurosci. 2019 Sep 20;13:325]. Front Hum Neurosci. 2018;12:467.
5. Lecocq G, Truong Tan Trung L. Smile esthetics: calculated beauty?. Int Orthod. 2014;12(2):149–170.
6. Weinkle S, Saco M. Approach to the Mature Cosmetic Patient: Aging Gracefully. J Drugs Dermatol. 2017;16(6):s84–s86.
7. Ilankovan V. Anatomy of ageing face. Br J Oral Maxillofac Surg. 2014;52(3):195–202.
8. Sjerobabski-Masnec I, Situm M. Skin aging. Acta Clin Croat. 2010;49(4):515–518.
9. Kahn DM, Shaw RB. Overview of current thoughts on facial volume and aging. Facial Plast Surg. 2010;26(5):350–355.
10. Cotofana S, Fratila AA, Schenck TL, Redka-Swoboda W, Zilinsky I, Pavicic T. The Anatomy of the Aging Face: A Review. Facial Plast Surg. 2016;32(3):253–260.
11. Li D, Xu H, Xu L, Huang X, Yuan J, Wei M. The aesthetic proportion index of facial contour surgery [published correction appears in J Craniofac Surg. 2015 Jul;26(5):e466]. J Craniofac Surg. 2015;26(2):586–589.
12. Shahbazi Z, Ardalani H, Maleki M. Aesthetics of Numerical Proportions in Human Cosmetic Surgery. World J Plast Surg. 2019;8(1):78–84.
13. Goodman GJ. The Oval Female Facial Shape--A Study in Beauty. Dermatol Surg. 2015;41(12):1375–1383.
14. Broer PN, Juran S, Liu YJ, et al. The impact of geographic, ethnic, and demographic dynamics on the perception of beauty. J Craniofac Surg. 2014;25(2):e157–e161.
15. Mahajan AY, Shafiei M, Marcus BC. Analysis of patient-determined preoperative computer imaging. Arch Facial Plast Surg. 2009;11(5):290–295.
16. Leong SC, White PS. A comparison of aesthetic proportions between the Oriental and Caucasian nose. Clin Otolaryngol Allied Sci. 2004;29(6):672–676.
17. Gu JT, Avilla D, Devcic Z, Karimi K, Wong BJF. Association of Frontal and Lateral Facial Attractiveness. JAMA Facial Plast Surg. 2018;20(1):19–23.
18. Narurkar VA, Cohen JL, Dayan S, et al. A Comprehensive Approach to Multimodal Facial Aesthetic Treatment: Injection Techniques and Treatment Characteristics From the HARMONY Study [published correction appears in Dermatol Surg. 2016 Nov;42(11):1311]. Dermatol Surg. 2016;42 Suppl 2:S177–S191.
19. Beylot C. Vieillissement cutané – Vieillissement facial global : orientation thérapeutique [Skin ageing-General features of facial ageing and therapeutic choices]. Ann Dermatol Venereol. 2019;146(1):41–74.
20. Rossi AM, Fitzgerald R, Humphrey S. Facial Soft Tissue Augmentation in Males: An Anatomical and Practical Approach. Dermatol Surg. 2017;43 Suppl 2:S131–S139.
21. Jang YJ, Yoo SH. Dorsal Augmentation in Facial Profiloplasty. Facial Plast Surg. 2019;35(5):492–498.