

American Journal of

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# AESTHETIC

## Medicine

Advancing the Art and Science of Aesthetic Medicine

A Permanent Cure  
for Vitiligo:  
Immigration of  
Healthy Skin Cells  
to Unhealthy Sides  
of the Skin in  
Vitiligo Through a  
New Treatment

Umbilical Cord  
Wharton's  
Jelly Mesenchymal  
Stem Cells  
- The Next Future

Beauty Concepts  
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# American Journal of AESTHETIC Medicine

Advancing the Art and Science of Aesthetic Medicine



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# From the Editor-in-Chief

## **WHAT IS THE FUTURE OF AESTHETIC MEDICINE?**

Let us first define Aesthetic Medicine. It is the newest and the fastest changing field of modern medicine and it is quite literally the younger brother of the well-established specialty of plastic surgery.

Aesthetic medicine is an area of medicine, dealing with human's health in terms of: external appearance, image, aesthetics, well-being, visible skin changes and discomfort in the quality of life felt by a patient. The purpose of aesthetic medicine is to achieve patients' satisfaction, as to their requirements related to the appearance, elimination of the complexes and the restoration of self-esteem.

The global aesthetic medicine market size was valued at USD 5.9 billion in 2014 and forecasted to be worth 17.08 billion by 2023. The past decade has been instrumental in ensuring rapid growth in demand. The introduction of technically advanced products enabling minimally invasive surgeries is identified as the most influential growth driver.

Moreover, rise in disposable income has boosted the demand for cosmetic surgeries, thereby accelerating market growth.

This practice is expected to continue growing at a very fast pace due to millennials starting procedures at a much younger age and the rise in popularity of male procedures.

To keep up with the demand, the American Academy of Aesthetic Medicine has become the leader in training new doctors looking for a career in the aesthetic field. Our classes and congresses have become some of the most sought after events to attend if you are interested in the area or looking to refresh and keep up with new trends.

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**Dr Michel Delune**  
Editor-in-Chief, AJAM  
President Emeritus, AAAM

Michel Delune



# The Effects of a Low Carbohydrate Diet on Metabolic Changes in Aging

by Saad Sami AlSogair, MD

## Abstract

AGING AND AGE-RELATED diseases are rising as among the greatest burdens that are faced by most countries. Calorie restriction has been studied for many years and has been shown to increase lifespan and delay age-related diseases. However, studies have also pointed out that caloric restriction is not for everyone. Carbohydrate restriction, rather than caloric restriction, is a better option and in the aging population, a low carbohydrate diet is more effective as preserving muscle mass, decreasing inflammation and increasing longevity. This article aims to discuss metabolic changes associated with aging and how a diet low in carbohydrates yet adequate in fats, proteins and nutrients can help reverse these aging processes. Metabolic changes in aging that are discussed are inflammation, insulin, resistance, body composition changes, mitochondrial decline, and hormonal imbalance and the role of mTOR. Based on the evidence presented, carbohydrate restriction, with higher or adequate fat and higher or adequate protein intakes is beneficial in aging as it decreases inflammatory markers, enhances insulin sensitivity, triggers mitochondrial biogenesis, stimulates ATP production, lowers aging serum factors, leads to better weight control, and restricts mTOR pathway signaling. In general, the outcomes from various studies demonstrate that a low carbohydrate diet and not just a decreased caloric intake, improves metabolic changes associated with aging and increases lifespan.

## Introduction


Aging and age-related diseases are rising as among the greatest burdens that are faced by most countries. Though life expectancy has expanded drastically over the recent 100 years, this has not been joined by a comparable increase in good health life expectancy. Research that is identified with longevity has been seen with suspicion and with worries that it could prompt an increase in the elderly population and in diseases related to aging.

However, many studies in a variety of life forms have exhibited that lifespan extension leads to a decreased or reduced morbidity in most cases. Information from experimental studies in rodents have reliably demonstrated that long term dietary restriction and changes in nutrient and growth signaling pathways can expand life span by 30 to 50%. These methods can likewise bring down the prevalence of age-related loss of capacity and various illnesses, including tumors, cardiovascular diseases, and neurodegeneration<sup>1</sup>.

Calorie restriction has been studied for many years and has been shown to increase lifespan and delay age-related diseases in a variety of organisms such as rats, yeast, flies, worms and humans. It decreases metabolic rate and oxidative stress as well as improves insulin sensitivity and brings about changes in neuroendocrine and sympathetic system functioning<sup>2</sup>. However, studies have also pointed out that caloric restriction is not for everyone, especially for those with cachexia or for those who are at risk for cachexia<sup>3</sup>. Therefore, there are some claims that carbohydrate restriction, rather than caloric restriction, is a better option.

Carbohydrate restriction and caloric restriction are similar because they both reduce serum insulin levels, they increase the production of ketones and they also target the same signaling pathways. However, Klement in 2013 have noted that in persons with cachexia, there is chronic inflammation which changes the body's metabolism such that normal tissues utilize glucose differently and they rely more on fat as fuel increases<sup>3</sup>. Therefore, in these patients with inflammation, a diet restricted in carbohydrates yet not in fat may be beneficial because it provides enough energy to peripheral tissues while also interfering with aging and inflammatory pathways. It would be interesting to compare the benefits of a low carbohydrate diet versus a low-calorie diet in inflammation, cachexia and aging.





Aging is a process that is highly related to chronic inflammation. As noted by a recent study by *Sanada et al* (2018), aged people have high levels of inflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor  $\alpha$  (TNF- $\alpha$ ), which may lead to muscle atrophy and cancer through DNA damage<sup>4</sup>. A ketogenic diet, a diet that is high in fats, adequate in proteins yet low in carbohydrates has been shown to decrease inflammation. It was shown to improve mitochondrial function and decrease oxidative stress. Ketone bodies like the B-Hydroxybutyrate can reduce the production of reactive oxygen species, improve mitochondrial respiration, stimulate the body's antioxidant system and inhibit inflammatory mediators. In aging individuals, there is the loss of muscle mass known as sarcopenia<sup>5</sup>. In a study by *Merra et al* in 2016, sarcopenia risk was prevented with a very-low-calorie ketogenic diet and amino acid supplementation and not by a calorie-restricted diet. Thus, we can say that in the aging population, a low carbohydrate diet is more effective as preserving muscle mass, decreasing inflammation and increasing longevity. This article aims to discuss metabolic changes associated with aging and how a diet low in carbohydrates yet adequate in fats, proteins and nutrients can help reverse these aging processes<sup>6</sup>.

### Metabolic Changes in Aging

Aging is said to be the major contributor to metabolic decline and diseases such as cardiovascular disease, Type 2 diabetes mellitus and stroke. To know how aging brings about decline and demise, we should review first the metabolic changes during aging before we discuss how caloric restriction can target these metabolic changes.

### Inflammation, Insulin Resistance and High Glucose Load

Aging is associated with increases in pro-inflammatory cytokines that can affect insulin function, further leading to insulin resistance. These cytokines are produced from age-accumulated fat and senescent cells. Insulin resistance is also a risk-factor for age-related diseases, so to extend lifespan, various ways of inducing insulin sensitivity should be done<sup>7</sup>.

Insulin resistance gives rise to hyperglycemia which also hastens aging. Similarly, Increased glucose intake hastens aging in a few animal models, including yeast and *Caenorhabditis elegans*. Diets that are rich in glucose have been found to decrease the lifespan of *C. elegans* by the downregulation of the life-extending proteins, including AMP-actuated protein kinase and glyoxalase<sup>8</sup>.

Aging is associated with increases in pro-inflammatory cytokines that can affect insulin function, further leading to insulin resistance. These cytokines are produced from age-accumulated fat and senescent cells. Insulin resistance is also a risk-factor for age-related diseases, so to extend lifespan, various ways of inducing insulin sensitivity should be done<sup>7</sup>.





In aging, there is increased fat accumulation that will usually occur from age 30 to age 70, which will either increase, decrease or remain unchanged afterwards. As age increases there may be decreased subcutaneous fat and increased visceral fat or the fat inside the abdominal cavity. The increase in visceral fat is related to insulin resistance and is also a risk factor for cardiovascular disease, stroke and death.<sup>7</sup>

The consumption of glucose diminishes FOXO activity, which is an important life extension factor in the insulin or insulin-like growth factor-1 (IGF-1) signaling pathways. When FOXO activity is decreased, there is downregulation of the aquaporin-1/glycerol channel. This further attenuates glycerol levels to decrease longevity. Glucose-rich diets likewise lead to the increase methylglyoxal, an advanced glycation end (AGE) product that is created during glucose metabolism by non-enzymatic reactions, and this thus diminishes longevity<sup>8</sup>.

In addition, ongoing studies demonstrate that the impact of glucose on the lifespan of *C. elegans* is modulated by a glucose transporter and genes apoptotic qualities. In this way, high levels of glucose in the diet seems to diminish the lifespan of *C. elegans* by affecting various proteins that direct lifespan and metabolism. The ways through which glucose influences these proteins is still unclear<sup>8</sup>.

Amounts of glucose are inversely proportional to the lifespan of budding and fission yeasts. Glucose restriction, which is like dietary restriction, increases lifespan of the yeast *Saccharomyces cerevisiae*. High glucose levels diminish their lifespan through growth-promoting signaling proteins such as Tor<sup>1</sup> and Ras<sup>8</sup>.

The G-protein-coupled receptor Git3p, which can detect glucose levels, affects the life-shortening effects of glucose in yeasts. According to genetic studies, glucose can activate Git3p to diminish lifespan. This is made possible through the activation of G $\alpha$  and by down streaming Ras-cAMP/PKA signaling. Therefore, the Ras pathway, one of the main

signaling pathways to be involved in the control of yeast lifespan, seems to assume a major role in the impact of glucose on lifespan<sup>8</sup>.

Glucose may likewise hasten aging in mammals, albeit evidence is little. High amounts of glucose in media can enhance aging in cultured human cells. This aging impact of glucose is related to lessened expression of sirtuins, including SIRT3/sirtuin 3, a nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylase. Furthermore, shRNA-controlled knockdown of SIRT3 hastens aging, though overexpression of SIRT3 hinders glucose induced cell aging<sup>8</sup>.

### **Body Composition Changes**

In aging, there is increased fat accumulation that will usually occur from age 30 to age 70, which will either increase, decrease or remain unchanged afterwards. As age increases there may be decreased subcutaneous fat and increased visceral fat or the fat inside the abdominal cavity. The increase in visceral fat is related to insulin resistance and is also a risk factor for cardiovascular disease, stroke and death<sup>7</sup>.

Visceral fat can further encourage the secretion of inflammatory markers such as interleukin-6, tumor necrosis factor-alpha and leptin which can also enhance aging. Sarcopenia is another body composition change observed with aging, in the form of skeletal muscle loss. This further leads to frailty, decreased mobility and debilitation among older adults and is also linked to decreased energy expenditure. There are many factors that are associated with



this, but noteworthy factors are a proinflammatory state and insulin resistance. Insulin resistance is related to muscle quantity and quality decline as well as reduced skeletal muscle strength, decreased protein synthesis, and enhanced skeletal muscle loss<sup>7</sup>.

### **Mitochondrial Decline**

In aging, there is a progressive loss of mitochondrial function, including in the skeletal muscle cells. The mitochondria of the cell are a source of reactive oxygen species which can further lead to oxidative damage of macromolecules such as DNA. A decrease in mitochondrial oxidative capacity and a decrease in ATP synthesis also leads to insulin resistance. Thus, it is believed that metabolic decline in aging can also be reversed by increasing mitochondrial biogenesis through exercise<sup>7</sup>.

Although high levels of reactive oxygen species from the mitochondria are considered harmful, new studies have shown that modest levels can actually stimulate biological processes such as immunity, proliferation of cells and differentiation. Mitohormesis is a process wherein moderate levels of mitochondrial reactive oxygen species can enhance the upregulation of the mitochondria and antioxidant defense to protect against age-related disorders. A diet high in fat and low in carbohydrates can shift energy metabolism towards ketogenesis and fatty acid oxidation, can rely on mitochondrial respiration and can therefore induce mitohormesis<sup>9</sup>.

### **Hormonal Imbalance**

In aging, there may also be declines in hormone production. In studies concerning postmenopausal women, hormonal treatment in the form of estrogen and progesterone replacement lowers cardiovascular disease, cognitive decline and stroke risk by decreasing the release of inflammatory cytokines and the breakdown of senescent cells. In hyperthyroidism, there may be increased reactive oxygen species generation and oxidative damage<sup>7</sup>.

### **mTOR and Aging**

The mammalian (or mechanistic) target of rapamycin (mTOR) is a transformative moderated serine-threonine kinase that senses and incorporates a various arrangement of environmental and intracellular signals, for example, growth factors and nutrients to coordinate cell and organismal reactions. The name TOR (target of rapamycin) is from its inhibitor rapamycin, which was at first identified in the 1970s from a bacterium on the soil of Rapa Nui (Easter Island). Rapamycin, otherwise called sirolimus, creates a complex with FK506-binding protein 12 (FKBP12) and this hinders the movement of mTOR<sup>10</sup>.

The mTOR pathway has been connected to lifespan in a few noteworthy model organisms and species. For example, lessened mTOR signaling through genetic or pharmacological methods prompts life extension in yeast, worms, flies, and mice, and studies are presently being done in primates and people<sup>1</sup>.

In this manner, mTOR signaling is a noteworthy candidate for focused interventions. The mTOR kinase exists in two complexes: mTORC1 and mTORC2. Most investigations demonstrate that diminished mTORC1 signaling increases life span. However, exclusively reducing either mTORC1 or mTORC2 signaling expands worm lifespan<sup>1</sup>.

In addition to being receptive to insulin/IGF signaling, mTORC1 is enacted by amino acids through the RAG GTPase complex and suppressed by stress signals or energy inadequacy. To put it plainly, mTORC1 activation prompts protein translation and cell growth, while its inhibition inhibits growth and incites stress reaction pathways, like autophagy<sup>1</sup>.

A significant number of interventions that lengthen lifespan in organisms have the impact of diminishing mTORC1 signaling. These include protein and calorie or dietary restriction and diminished insulin or IGF signaling, and in addition, activation of AMP kinase and of sirtuins, bringing up the issue of whether the advantages of these interventions are, in any event, subject to their impacts on mTORC1<sup>1</sup>.

In aging, there may also be declines in hormone production. In studies concerning postmenopausal women, hormonal treatment in the form of estrogen and progesterone replacement lowers cardiovascular disease, cognitive decline and stroke risk by decreasing the release of inflammatory cytokines and the breakdown of senescent cells. In hyperthyroidism, there may be increased reactive oxygen species generation and oxidative damage<sup>7</sup>.

The ability of this diet to bring down these parameters, particularly triglycerides and body weight, appears to run counter to expectations, considering that this involved ingestion of fats. A possible explanation for this is that the resultant lower leptin and insulin was demonstrative of increased leptin and insulin sensitivity, bringing about increased  $\beta$ -oxidation, hypothalamic-mediated increase in satiety, and perhaps subconscious lower caloric intake<sup>14</sup>.

### Low Carbohydrate Diets and the Metabolic Changes in Aging

A low carbohydrate diet differs from a low-calorie diet in that it lowers the amount of carbohydrates but preserves the adequacy of proteins and fats. A ketogenic diet is one example of a low carbohydrate diet that is high in fat and adequate in protein.

Studies have shown that there are many benefits of the low carbohydrate diet with regards to metabolic changes in aging. Let us examine these benefits one by one.

#### Inflammation

It was previously mentioned that aging is due to an increase in inflammatory markers that also bring about insulin resistance. A diet that is low in carbohydrates but adequate or high in fats can suppress the expression of inflammatory cytokines by the inhibition of the NLRP3 inflammasome by the beta-hydroxybutyrate produced, in a manner that is not related to starvation-induced mechanisms such as AMPK, autophagy, or glycolytic inhibition<sup>11</sup>. The NLRP3 inflammasome is the one that is responsible for the activation of the cytokines IL-1 $\beta$  and IL-18. When inhibited, it prevents the generation of IL-1 $\beta$  and IL-18 and their effects<sup>12</sup>.

#### Body Composition Changes

Aging gives rise to an increase in visceral fat, a decrease in subcutaneous fat and a decrease in skeletal muscle mass or sarcopenia. Sarcopenia risk can be prevented with a very-low-calorie ketogenic diet and amino acid supplementation and not by a calorie-restricted diet. An adequate protein intake coupled with low carbohydrate intake can encourage weight loss but no further loss in muscle because it increases anabolic hormones while also controlling appetite. Healthy proteins such as whey protein can actually regulate body weight and lower blood glucose due to the effect of incretins. There is increased muscle protein synthesis which can be beneficial to aging individuals<sup>6</sup>.

#### Mitochondrial Decline

Rat studies have shown that a low-carbohydrate high fat diet can trigger mitochondrial biogenesis. Though the mechanism

is still unknown, it is believed that the PGC1 $\alpha$  transcriptional coactivators are involved, which promote transcription factors such as NRF-1, NRF-2, and ERR<sup>13</sup>. It also stimulates ATP production which may be due to the reduction of oxidative stress by an increase in uncoupling protein activity in the mitochondria. The ketone beta-hydroxybutyrate also affects histone deacetylases such as HDAC1, HDAC3, and HDAC4, while acetoacetate inhibits class I and class IIa HDACs. This further increases the transcription of genes that lead the expression of the antioxidant enzymes mitochondrial superoxide dismutase and catalase<sup>11</sup>.

#### Hormonal Imbalance

Rosedal et al in 2009 evaluated the effects of a nutritious program intended to lessen the correlates of aging. This is a retrospective review of patients going to an outpatient program that involved consuming a high-fat, adequate-protein, low-carbohydrate diet with nourishing. Results measured at baseline and follow-up included body weight, fasting serum glucose, insulin, leptin, lipids, and thyroid hormone<sup>14</sup>.

This low carbohydrate diet prompted to improvements in serum factors that are related to the aging process. It showed decreases in metabolic mediators such as insulin, leptin, glucose, triglycerides, and free T3<sup>14</sup>.

In addition, the patient group lost significant weight even though they were not taught to decrease caloric intake. These findings are consistent with different studies demonstrating weight reduction and decreases in fasting serum insulin with a low carbohydrate diet. The ability of this diet to bring down these parameters, particularly triglycerides and body weight, appears to run counter to expectations, considering that this involved ingestion of fats. A possible explanation for this is that the resultant lower leptin and insulin was demonstrative of increased leptin and insulin sensitivity, bringing about increased  $\beta$ -oxidation, hypothalamic-mediated increase in satiety, and perhaps subconscious lower caloric intake<sup>14</sup>.

Various investigations have shown that lessened glucose or carbohydrates substrates in the diet can hinder hepatic de novo fat biosynthesis, triglyceride creation, and triglyceride



secretion, while upgrading hepatic, fat, and skeletal muscle fat oxidation<sup>14</sup>.

A low carbohydrate and high protein diet have been shown to slow down cancer growth and forestall cancer improvement. Furthermore, the mice fed with a low carbohydrate-diet displayed lower blood glucose, insulin, and lactate levels<sup>15</sup>.

### mTOR

A low carbohydrate diet restrains mTOR pathway signaling in the brain and liver of rats, most probably due to diminished Akt signaling in the two regions, and additionally increased AMPK signaling in the liver. This diet has already been studied to diminish insulin levels in rodents, and a decrease in insulin is expected to repress pAkt and also mTOR signaling. In this manner, lower insulin levels with this diet may trigger the observed decrease in pAkt and pS6<sup>16</sup>.

### Conclusion

In general, the outcomes from various studies demonstrate that a low carbohydrate diet and not just a decreased caloric intake, improves metabolic changes associated with aging and increases lifespan. A low carbohydrate diet is more efficacious with regards to increasing lifespan. It is not just caloric restriction that also includes protein restriction, which can also bring about decreased viability. Carbohydrate restriction affects lifespan by affecting some metabolic pathways in tissues and organs, which are still being studied today.

It should likewise to be considered that although carbohydrate restriction can be a more practical dietary regimen than extreme caloric restriction, the pharmacological search for caloric restriction mimetics has created a lot of drugs that are being tested now in clinical trials on people and that will open another road toward an increased lifespan. Be as it may, carbohydrate restriction versus a high carbohydrate diet in middle aged individuals may assist them to adapt better to many age-related diseases and dysfunctions. **A**



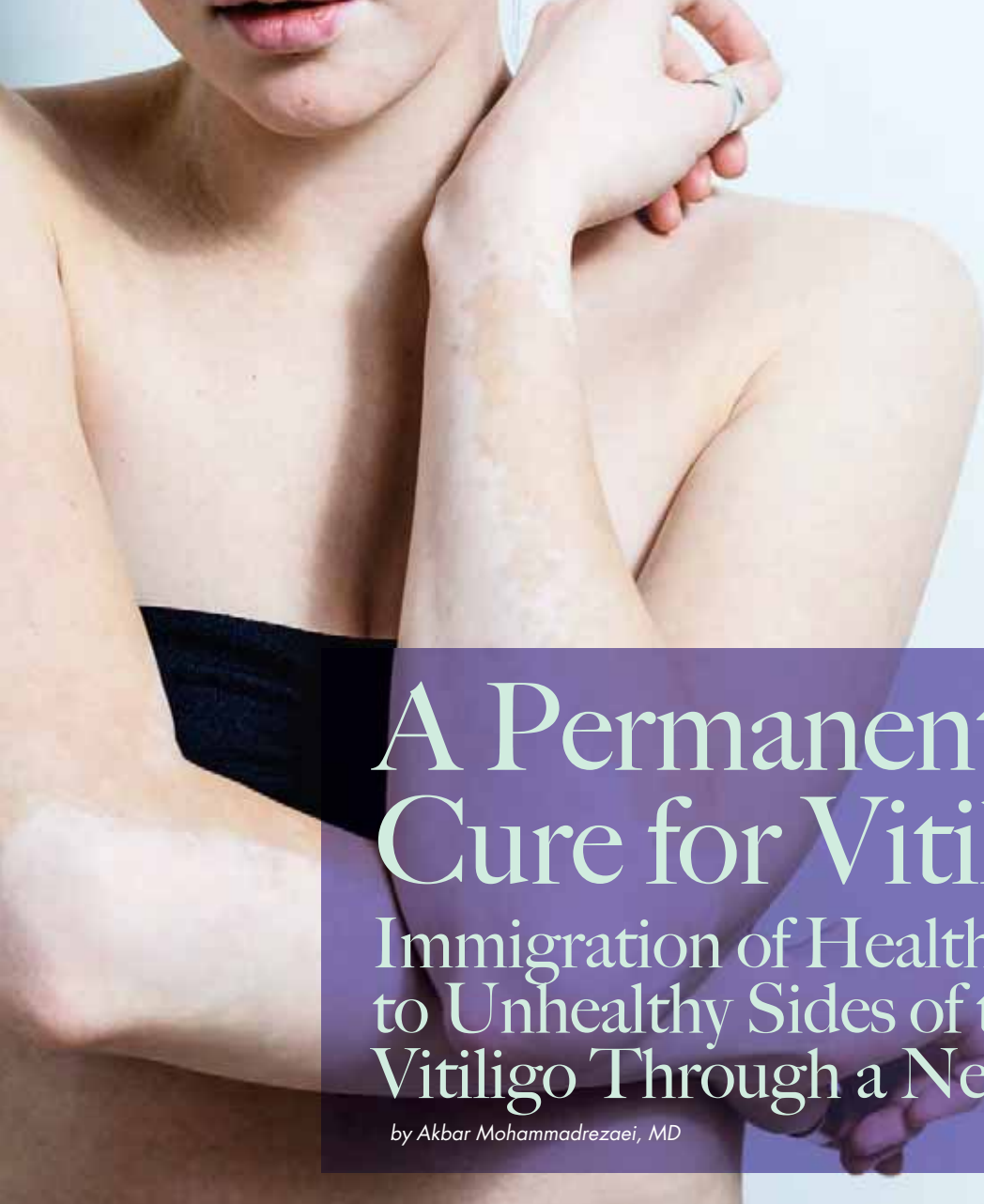
Dr. Saad Sami Al Sogair, a Board certified Dermatologist and active speaking member of multiple international Aesthetic and Anti Aging societies and academies. Including the Saudi Society of Dermatology and Dermatologic Surgery, the American Academy of Aesthetic Medicine and the American Academy of Anti Aging Medicine. Dr. Sogair has quickly established himself as an expert in Dermatology and Aesthetic Medicine and he is especially knowledgeable about Anti Aging practices and Preventative Medicine.

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### Keyword:

aging, metabolism, low carbohydrate diet, caloric restriction, ketogenic diet



Vitiligo may exacerbate with factors such as malnutrition, sunburn, skin trauma, stress, psychological tension, pregnancy and long term contact with chemical combinations used in painting.

# A Permanent Cure for Vitiligo:

## Immigration of Healthy Skin Cells to Unhealthy Sides of the Skin in Vitiligo Through a New Treatment

by Akbar Mohammadrezaei, MD

### Abstract

THIS ARTICLE IS about a skin disorder which manifests itself as white patches (pigment destruction) in different locations of the body. There are many classifications for this disorder such as segmented, focal, generalized and universal vitiligo. In my article, I have mentioned some of the current methods used in the treatment such as UV rooms. However, there are many risks and long term side effects to this treatment. Besides at the end of the treatment, the patient leaves the clinic in disappointment and without being treated. I was suffering from the same disorder for 14 years, so I can feel how deep is the depression and suffering of those vitiligo patients. My motivation behind the discovery of this treatment was me, myself. I was suffering from the same disorder. It was so painful to be out in the society where everybody gazed at me and some were even afraid to talk to me. Because of my economic issues, I did not have access to labs and research

center. Consequently, my only opportunity was to do self-study and broadened my understanding and knowledge about human body and biology. Thanks to those studies, I cured myself in 5 months and then many more patients from England, Iran, Turkey and Azerbaijan. In my article, I have written about some blood tests the patients have to take. I have also mentioned the vitamins, pills and the creams they should use (different for kids and adults). My only intention for writing this article is to let all my dermatologist colleagues know about the new treatment. Moreover, the whole treatment takes 5 months or so and is affordable by everybody. If the patients follow the simple advice mentioned in the article, the disorder will not come back. I would kindly ask you to go through my article and read it deep. I have treated myself and many others, so I can replicate the treatment on the cases given by you. The treatment and progress is visible from the first month.



## Introduction

### **Vitiligo: Treatment with a New Method and Quick Recovery**

Vitiligo is a disease in which the pigment cells of the skin are destroyed in some areas. The symptoms include loss of skin color, manifesting itself as white patches and macules in different locations in the body. However, repigmentation or its sudden and spontaneous recovery is very rare. In the half of the cases reported, the disease begins to advance in the skin before the age of 20. Unfortunately, these people face psychological pressure in important stages of their lives, such as job opportunities, marriage and studying, specially if it is conjugated with some other disease such as hypothyroidism, diabetes, mellitus and rheumatism. Vitiligo may exacerbate with factors such as malnutrition, sunburn, skin trauma, stress, psychological tension, pregnancy and long term contact with chemical combinations used in painting.

There are three ways to prevent melanin production:

- To stop the activity of tyrosinase enzyme
- To prevent the process of transferring of melanosomes to keratinocytes
- To destroy melanin or melanocytes

## Materials and Methods

In different resources, based on clinical evaluations, there are various distinctions for this disease. As written in Autoimmune Melanocyte Destruction in Vitiligo, "clinical presentations include, (a) segmental vitiligo; characterized by lesions that occur in a dermatomal, symmetric distribution (of limited clinical significance); (b) focal vitiligo, characterized by a limited number of small lesions; (c) generalized vitiligo, the most common type of vitiligo, where lesions occur with bilateral, symmetrical distribution and (d) universal vitiligo, indicating complete or almost complete depigmentation" (81, 1061–1068, 2001).

Many theories regarding the causes of this disease have been introduced. One of them in Function Blocking Autoantibodies to the Melanin is as follows,

- The theory of neuro chemical, ie, the release of toxin from the end or tail of the nerves, decrease in melanin production and consequently destruction of melanocytes.
- The theory of biochemical, ie, increase in the synthesis inductor productions of melanin toxic, decrease in the number of defensive free radicals, mounting production of prooxidant hydrogen, and consequently spontaneous destruction of the pigments.
- Autoimmune disease due to the production of antibodies against melanocytes (86, 781–784, 2006).

Other theories involve the amount of iron and copper in the body. One of these theories has been mentioned in an

Iranian Medical Magazine as, "there is a close connection between the activity of the cells and the amount of the copper and zinc ions, and in a lower degree the amount of cobalt, nickel and vanadium in nerve cells. Copper ions have a role as co-factor of dopamine beta-hydroxylase enzyme and are important in regulating the metabolism of monoamines. They also have a minor role in the function of tyrosinase enzyme. Accumulation of neurotoxic amyloid neuropeptides causes an increase in the ionic level of calcium inside the neuron and this consequently damages the functions of neurons. The increase in the level of zinc ion can act as a factor to accelerate the accumulation of peptide beta amyloid and the disorder in calcium dependent potassium channels can lead to an increase in the amount of zinc ion" (43, 2003).

Current introduced and applied treatments, such as using oxsoralen combinations, UV rooms, local cellular culture and injection lead to weakness in immune system and haven't been able to produce acceptable clinical results. Unfortunately, I didn't have access to laboratory and research centers, so based on my own clinical observations and self studies, I discovered more about the pathobiology of this disorder. Relying on those studies and my findings, I cured many people suffering from vitiligo. However, at the beginning days of treatment procedure, I didn't record my patients' names. I also didn't take their before-after pictures to make an organized list. However, I have attached some of the pictures I took later on. As time passed, and I saw that the treatment is working and people are cured, I decided to introduce this treatment to the world. Since 15 April, 2018 I have started to register my patients' names, age, involved areas of the skin, the time span of affliction, their phone numbers and photos.

I don't completely agree with biochemical theory and this is because of the many stressful processes the patient undergoes, such as psychological pressure, traumatic stress, stress caused by malnutrition, contact with chemical combinations used in farming and painting. Furthermore, the balance of micro-elements such as copper and zinc- in the locations where melanins and neurons are connected- is distracted and the amount of micro circulation and oxygen accessible to the cells reduces. Consequently, the body produces and releases metabolites unknown to the immune system. The body's weak immune system in confronting free radicals, begins to damage toxic element producing cells, and this leads to gradual decrease, stop and destruction of melanocytes in that area. The triggering element of these chain like reactions is the declaring factor of the type, intensity and time span needed for the treatment.

Now, if we try to balance all micro elements in the whole body- with more emphasis on the micro elements of the involved areas- and to increase the amount of oxygen

crucial and needed for the cells and to motivate the healthy neighbouring cells to immigrate (move) to keratinocyte of the involved and afflicted areas, we will witness the recovery. However, in patients above 55% affliction and also those who come to start the treatment after a long time of their affliction, the best way will be to create micro element balance, to better micro circulation and to eliminate the healthy melanocytes in order to achieve an even skin tone without any color contrast.

## Treatment in Practice

Firstly, I ask them to do these examinations:

1. CBC with diff- FBS and HbA1C- AST and ALT
2. BUN and Crea- TSH and FT4 and Free- T3 and Ferritine

Secondly, having checked the results of these two examinations, if there is a concurrent disorder, I treat that disorder before I start the treatment related to vitiligo. What I prescribe to my patients are:

- Capsul para amino benzoic acid. This capsul should be taken daily- until the last day of the recovery. According to Daroyab Website, "Paba with the formula,  $H_2NC_6H_2CO_2H$  is an important inductor product of building folat and is easily absorbed by the small intestine. PABA, causes the consumption of cellular oxygen and also, through interference of mono amino oxidase, increases the decomposition of serotonin or hydroxytryptamine. Serotonin is a kind of neurotic transmitter from the group of amino acid biologic and one of the derivatives of triptofan" (G4538). It can be found in liver, brewers yeast, kidney, molasses, mushrooms, whole grains and unfiltered beer.
- Multi- vitamin capsules for 1 month. From the second month, I add body cleansing capsules, the patient takes it for 1 month. After the third month, until the last day of the recovery, I prescribe spirulina capsul one in a day.
- Furthermore, I prescribe chlordiazepoxide pill, two times a day. This totally depends on the living conditions of the patient. If they are living in circumstances surrounded by stress, I prescribe it to them. However, depending on the patients decision, I might also not prescribe it.
- Hypiran edible herbal drop. The patient- every 8 hour, takes 12 drops of it. This will continue to the last day of the recovery. This herbal drop is made from the extract of

a plant called *Hypericum perforatum* and includes 25% hypercin. Through regulating mono amino oxid enzyme, it has a role as an anti stress and soothing element.

- The most important part of the treatment process is the pharmaceutical combination of a pill from the family of psoralenes and a cream from the family of corticostroides. This mixture and its percentage depend on the intensity of the afflicted areas on skin. Based on my own findings and studies, I believe, contrary to the current treatment methods, the lotion or solution mode of the pill must not be used. Moreover, the afflicted areas being treated must not be exposed to sun light or UV lamps and absolutely must be protected by sunscreens above 50 SPF. The mixture should be externally applied on afflicted areas on skin before bedtime. The next day, in the morning, immediately after waking up, the cream must be washed off with shea butter soap.

Corticostroids steroids with entering the core of the cell can change the process of RNA transcription. They can also change, motivate or stop the synthesis of some particular proteins. Moreover, by preventing the accumulation of inflamed cells, they stop phagocytosis. They also cause the release of enzymes responsible for inflammation. The pill derived from psoralen, stabilizes epiderm cells and increases the activity of tyrosinase in the cells which produce melanin (In order to produce melanin from the oxidation of tyrosine, we need the enzyme tyrosinase).

- Shea butter soap. For morning wash of the areas involved. The patients apply it to the afflicted areas, wait for 2 minutes and then rinse it off with water.
- They mix powder of two herbs, a mineral edible substance (500mg for adults and 250 mg for children between 3 and 12) and honey in a glass of warm water and drink it half an hour before breakfast.

Shea butter is extracted from the seed of shea butter and its original name is *Butyraspermum Parkii*. It is native to East Africa and lives for 200 years. Shea butter extract includes unsaturated, non soap oils, essential fatty acids, phytoestrogens, vitamin E and D, provitamins and allantoin. Its effects on skin are as following:

- It stimulates external micro circulation of the skin

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Moreover, by preventing the accumulation of inflamed cells, they stop phagocytosis. They also cause the release of enzymes responsible for inflammation. The pill derived from psoralen, stabilizes epiderm cells and increases the activity of tyrosinase in the cells which produce melanin (In order to produce melanin from the oxidation of tyrosine, we need the enzyme tyrosinase).



- It increases skin resistance against environmental pollution
- It protects the skin from UV rays
- It renovates the skin and stimulates collagen production
- It has anti inflammation effects
- With its anti oxydant features, it prevents and reduces wrinkles in the skin
- Emphasized use of sunscreen, specifically on the areas affected by vitiligo and the areas on which pharmaceutical combination is applied (from the first day of treatment until the last day of recovery, a sunscreen with SPF above 50)
- Vitamin C cream, with the form of liposomal

1 month and a half after the first visit, I ask my patients to come again so that I can check the amount and the speed of the recovery. At this time, the patients can observe the movement of the cells of the healthy areas toward the afflicted parts of the skin. This is visible as brown spots in hypopigmented areas. If I can't see the track of recovery at this time, I change the intensity of the pharmaceutical combination I prescribe. However, in the majority of my patients there is no need for this change. 3 months after the second visit, the recovery is very obvious and visible to the patients.

Considering the generalized type of vitiligo (above 55%), I prescribe body cleansing capsul one daily for a period of 1 month, along with spirulina capsul one daily for a period of 3 months. After the second month, I add supplus meds capsuls and zinc plus, one from each daily for a period of 1 month. Concurrently, I prescribe the pharmaceutical combination for external use, 2 times a day, in the mornings and evenings. They apply this cream on healthy looking areas of the skin (the reason is that these healthy looking parts of the skin have been exposed to unhealthy skin cells. The result of this damaging exposure might manifest itself years later). Regular daily shower with shea butter soap is another important factor affecting the process of treatment and recovery. Through pulstherapy, it accelerates the process of recovery. Some patients complain about slight itchiness or wrinkled areas of skin. I just ask them to be more patient as it won't do any serious harm and won't affect the process of recovery negatively.

I should emphasize that during the time the patients are wearing the combination cream, they shouldn't wear sunscreen (If the sunlight is not very strong). The reason is that if they wear it on their skin, exposure to light and weak sunlight will stimulate the motivation of melanocytes and this consequently leads to better absorbment of the cream and progress in treatment.

The whole treatment period takes a time between 4 and 5.5 months. Even after the recovery, the patients should wear

sunscreen. They will also continue wearing combined cream for 3 months after being recovered, once in a week. The reason is that some melanocytes might be in silent mode (off mode) and might suddenly become active after a short while after the recovery period and cause some hyperpigmentation areas. The patients do not have to continue taking any pills or any other creams. Some of the patients ask about the change in the hair color of the areas where they apply combined cream. I can firmly inform them that the hair color won't change. They also ask questions about the recovery time period. Considering focal type, it might take more than a year and a half and the generalized type will take less than 5 months and a half. They also pose questions like: Will vitiligo come back? I tell them if you follow these, it will never return.

- Sunlight through the eyes or skin will have a negative effect. Patients should wear sunscreen, and sunglasses UV 400 or photo chromic 60%. Usually, vitiligo advances faster in summer and spring. This is because the color contrast in the margin of the vitiligo spots increases a lot at this time of the year. Also the sunlight is absorbed and eyes retina delivers stimulated electric puls through vision neurons. This increases the activity of Pineal in brain, melatonin production, abnormal and toxic inductors in body
- Stay away from stressful environments
- Have early night sleep and follow circadian rhythm
- Use green vegetables in your diet more, such as geonia, cori andrum stavium, parsely, petroselinum crispum, vigna mungo
- No alcoholic drinks

## Conclusion

Contrary to the current methods, the technique I use is safe and permanent. The current introduced theories have long lasting physical and psychological side effects. In my treatment, I try to create a balance in microelements neighbouring the melanocytes. I also try to improve microcirculation and increase the cellular oxynazation. All of the patients who have referred to me have totally recovered, including 2 citizens from England, some more from Turkey, Azerbaijan and many more from Iran. I hope, with the help of dermatology centers and organizations, I can develop this technique and the medicine to be produced as one pill and one cream. As for now, I use some vitamins, creams and pills (I take different ingredients needed for the treatment from different vitamins, drugs and creams). With your help and support, I can take the needed ingredients, put them all in one or two pills and combine all the creams to make just one, easily applicable and affordable to everyone suffering from it.

All my patients, desperately, asked me to introduce the treatment to the world, to all those suffering from it, as they

### Patient 1



Before



After

### Patient 2



Before



After

### Patient 3



Before



After



Akbar Mohammadrezaei

#### Note from the Translator

Translating this article was an all encompassing and time consuming project and benefited from the input of many individuals. I would love to offer my sincere appreciation to all those who were of great help and motivation to me. First of all, I would like to thank my parents who taught me honesty, love of humanity and hope for a better life for every single individual. Secondly, I would love to thank my dear soulmate, Burak Ramazan Gungor, who brought happiness into my life. Finally, I would like to present my respect to one of the most hardworking women I have ever known in my life, who could achieve great goals in spite of all the limitations faced in the Middle East countries, a woman with great achievements... Gulsen Baykal.

— Nooshin Mohammadiasl

have tasted the pain of this disorder and the suffering to the last bit. They were the real motivation behind this article and my interest in informing other dermatologists about this treatment. I have the before and after pictures of my patients from April 15, 2018. Pictures belonging to dates before the mentioned day are not available, as I was not thinking of publishing my treatment officially. If you dear colleagues are interested in my treatment, I can even replicate it on the cases offered from you in your company and under your observation. 2 months will be enough for the recovery to be visible.

I believe patients out there need us desperately, they need your support of this treatment. Their prayers are with us, and maybe this treatment is an answer to their prayers. They are hopeful, they hope for it every second. We should hear them. Now we have found the cure and it is our humanitarian responsibility to let everyone know about that. We should assist them to beat the disorder and say hello to a happier life.

### Acknowledgment

For years and years, I suffered from vitiligo disorder. I was feeling embarrassed when I walked in the street. I had a more terrible feeling when I went to my children's school to pick them or when I attended the parents meeting. My children Ali and Maryam and more than them, my true love and wife, Fatemeh treated me so nicely. They were with me during those bitter years. I would love to thank them all for their patience and long lasting love toward me. They were by my side during those years and during the treatment. They blew hope to my heart and backed me in all those desperate moments of my life. I am fine now but I want to let them know that I will not forget their sacrifice, love, patience and devotion. I would love to thank Nooshin Mohammadiasl, the translator. If it had not been to her resistant and insistant efforts to contact different centers and send different emails to almost all dermatology centers in the world, I could not have been able to introduce this treatment to you, my colleagues and to vitiligo patients. **A**

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# Changes in the Intraocular and Systemic Blood Pressures during Intravenous Sedation with Propofol before Oculoplastic Surgery

by Alejandro Espaillat, MD

## Abstract

1. **Purpose:** To investigate the effects on the intraocular and the systemic blood pressure of low dose intravenous sedation with propofol prior to oculoplastic eyelid surgery.
2. **Design:** Prospective, consecutive, interventional case series in a single specialty ambulatory surgery center.
3. **Participants:** A total of two hundred (200) isolated oculoplastic procedures, performed by two surgeons, under intravenous sedation with periocular anesthetic from January 1st, 2017 to October 31st, 2017.
4. **Methods:** Prospective data collection on patient demographics, history of glaucoma, intravenous sedative, and blood pressure levels. Standard local anesthetic was used in all of the cases, but the intravenous sedation was at the discretion of the attending nurse anesthetist.
5. **Main outcome measures:** Bilateral intraocular and systemic blood pressure measurements before periocular local anesthesia; same measurements after intravenous injection, 1 mg/kg, of propofol induction used for sedation in non-premedicated patients, but before injection of periocular anesthesia; and same measurements after the injection of periocular anesthesia during general oculoplastic surgery.
6. **Results:** Compared with the preinduction baseline, there was a 29% decrease in the intraocular pressure, 13% decrease in the mean systolic blood pressure, and 10% decrease in the mean diastolic pressure from baseline after propofol induction.
7. **Conclusions:** A therapeutic dose injection bolus of propofol used for induction prior to periocular local anesthetic injection during general oculoplastic surgery caused a moderate temporary reduction in the intraocular and systemic blood pressures without significant side effects.

## Introduction

Systemic anesthetics coupled with topical or local anesthesia can alleviate patients' pain, fear, and anxiety about undergoing ophthalmic surgery and can improve outcomes.<sup>1</sup> Propofol is a non-barbiturate intravenously administered hypnotic/sedative commonly used as a monitored anesthesia care (MAC) agent and for short term sedation, owing to its favorable pharmacokinetic properties, rapid induction, low incidence of side effects, and smooth anesthesia recovery.<sup>2</sup>

Before oculoplastic surgery, intravenous sedation can be used to allow the surgeon to give local anesthesia to the eyelids and periorbital region, as well as facial nerve blocks. Local anesthetics have the advantage of having lower risks of morbidity and mortality, lower monetary costs, and less recovery time after outpatient day surgery when compared to general anesthesia.<sup>1-2</sup> A major disadvantage of local anesthetic administration with intradermal or subcutaneous lidocaine infiltration is that it is associated with discomfort due to the needle skin prick, acidic medium of the medication, and occasional improper injection technique. The level of pain felt during surgery is of highest importance and has a significant impact on the patient's overall surgical experience. The number of injections, needle size, type of anesthetic, and level of patient anxiety are all important factors which contribute to pain during local injection of anesthesia; therefore a number of techniques, and different anesthetic concentrations, have been tested in order to reduce the pain from the injection.<sup>3</sup>

Propofol can be used to sedate the patient so that the local block may be given with minimal patient discomfort, minimal patient movement, and significant amnesia from receiving the local block. Studies have determined that propofol may be superior to other agents in providing adequate sedation and amnesia for peribulbar block.<sup>4</sup>



Elevated intraocular pressure before intraocular surgery is associated with an increased risk of surgical complications;<sup>5</sup> therefore a normal to slightly lower than normal intraocular pressure is desirable before and during ophthalmic surgery. To minimize these risks the agent used for intravenous sedation should not raise the intraocular pressure; and any cardiovascular risk factors must be under control prior to surgery to prevent vascular occlusions following ophthalmic procedures.<sup>6</sup> Since propofol can be administered before intraocular surgery to help reduce the pain during local injection of anesthesia, it is important to know the effect of low dose sedation with propofol on the intraocular pressure.

Previous studies on the changes in intraocular pressure during low dose intravenous sedation with propofol before intraocular surgery showed that a low dose bolus of propofol used for sedation before cataract surgery caused a moderate reduction in the intraocular pressure with minimal, and easily managed side effects.<sup>7</sup>

The aim of this study was therefore to investigate if the effects on the intraocular pressure of a single low dose propofol bolus, used for sedation in patients during oculoplastic surgery, were the same as previously reported on patients during cataract surgery.

## Methods

The study was conducted as a prospective, consecutive, interventional case series in the setting of a single specialty ambulatory surgery center. Institutional review board (IRB) and Ethics Committee approvals were obtained as a HIPAA compliant prospective audit. An informed consent was collected from all study participants prior to patients undergoing oculoplastic surgery under local anesthetic with intravenous sedation over a ten (10) month period from January 1st, 2017 to October 31st, 2017. The study excluded patients less than eighteen years of age, anyone with history of glaucoma, allergies to propofol, undergoing repeated oculoplastic procedures, receiving general anesthesia, and undergoing minor procedures without receiving intravenous sedation. Typical cases involved in the study included eyelid operations such as ectropion, entropion, ptosis repairs, as well as upper and lower eyelid blepharoplasties. All patients were positioned supine with their head flat on the operating table, receiving two (2) litres of supplemental oxygen by nasal cannula. Patients had standard cardiac and pulse oximetry monitoring during sedation and surgery. The choice of intravenous sedative was left to the discretion of the attending nurse anesthetist involved in our study who placed an intravenous catheter in the patient's hand or arm, and administered a single mean dose, 1 mg/kg, of propofol over five (5) to ten (10) seconds for sedation and induction. The local anesthetic was

administered by the attending surgeon starting within the first minute after the patient reached adequate levels of sedation, as determined by the nurse anesthetist. The local anesthetic consisted of 5 cc of lidocaine 2% mixed with epinephrine 1:100,000, at room temperature, administered through a 1-inch, 25-gauge needle.

The mean outcome measures included checking the bilateral intraocular, and systemic blood pressure levels before periocular local anesthesia; same measurements after one (1) minute of intravenous injection, 1 mg/kg, of propofol induction used for sedation in non-premedicated patients, but before injection of periocular anesthesia; and same measurements five (5) minutes after the injection of periocular anesthesia for general oculoplastic surgery. Prior to checking the intraocular pressures, the eyes were anesthetized with one drop of sterile tetracaine hydrochloride 0.5% ophthalmic solution. All intraocular pressure measurements were performed by the same surgeon investigator, with the patient in a supine position using a factory recommended calibrated hand held applanation tonometer (Tonopen XL BioRad™). The systolic and diastolic blood pressures were measured with a non-invasive blood pressure monitor (Welch Allyn Atlas Monitor 623 Series™) before and during induction.



Data was recorded on a standard proforma in the operating room and then entered onto an Excel spreadsheet (Microsoft Corporation, Redmond, WA). The intraocular pressure was analysed by the repeated measures analysis of variance test looking at the difference in time for intraocular pressure. This test allows for the differences in baselines of these patients to be taken into account. The lowest systolic and diastolic blood pressures of each patient were averaged and then analysed by the paired t test so that individual variations in baselines could be analyzed. P values less than 0.01 were considered to be significant.

## Results

In total, 200 isolated oculoplastic procedures were performed on 188 patients using intravenous sedation and periocular local anesthetic. The procedures included a total 47 males and 141 females, between the ages of 68 to 89 years old, and weighing between 59 to 119 kg. The patient's demographic ethnicity included 156 White-Caucasian, 15 African-American, 13 Hispanic, and 4 Asian patients. All patients received a single intravenous bolus of 1 mg/kg of propofol.

The mean bilateral intraocular pressure before propofol induction was 16 mmHg; at one (1) minute after propofol induction was 11 mmHg, and five (5) minutes after the injection of periocular anesthesia for general oculoplastic surgery, the mean bilateral intraocular pressure was back to baseline at 16.5 mmHg. These measurements showed a significant ( $p < 0.001$ ) decrease change in the mean intraocular pressure between the pre-induction injection of propofol and the 1 minute post-induction injection of propofol. There was not a significant ( $p = 0.68$ ) difference in the mean intraocular pressure between the pre-induction propofol injection, and the post-induction injection of periocular anesthesia for general oculoplastic surgery. Our data shows that propofol decreases the intraocular pressure within the first minute after it is given, and returns back to baseline after 5 minutes. Our study also showed a significant decrease ( $p < 0.001$ ) of 11% in the mean systolic blood pressure, and a significant decrease ( $p < 0.001$ ) of 6% in the mean diastolic blood pressure from the pre-induction of propofol injection baseline. Similar findings have been previously noticed when injecting low dose propofol for intravenous sedation during cataract surgery.<sup>7</sup>

## Discussion

According to the American Society of Anesthesiologists (ASA), "Monitored Anesthesia Care" (MAC) has been described as a specific anesthesia service for diagnostic or therapeutic procedures performed under local anesthesia along with sedation and analgesia, titrated to a level that preserves spontaneous breathing and airway reflexes.<sup>8</sup> MAC alone or with local anesthesia accounts for a relatively high percentage of anesthesia services nationwide. MAC essentially comprises of three basic components: A safe conscious sedation, measures to lessen patient's anxiety, and effective pain control.<sup>9</sup> This service (MAC) results in less physiologic disturbance and a more rapid recovery than general anesthesia, suitable for day care procedures as it helps in fast tracking, making MAC the first choice in 10–30% of all surgical procedures in the United States.<sup>9</sup>

Common medications used for sedation in ophthalmic procedures can be classified into three categories: benzodiazepines (eg, diazepam, midazolam), opioids (eg, fentanyl, remifentanyl), and anesthetic induction agents (eg, propofol, ketamine). Various combinations of these drugs have been used in tandem, but none of them have shown to be consistently more effective than others.<sup>10</sup>

Propofol is a potent intravenous hypnotic agent which is widely used for anesthesia induction, and for sedation in the intensive care unit.<sup>11</sup> Propofol has a remarkable safety profile, but high dose infusions have been associated with the "propofol syndrome" which is a potentially fatal complication characterized by severe metabolic acidosis, rhabdomyolysis, circulatory collapse and death.<sup>12</sup>

Several studies have found a significant decrease in intraocular pressure from the baseline when the combination of high dose (2.0–2.5 mg/kg) of propofol and various other agents were administered to patients.<sup>13–14</sup> This study finds that a single low dose of 1 mg/kg of propofol used for intravenous sedation during oculoplastic surgery is sufficient to provide analgesia and amnesia from the periocular local anesthesia injection, but can cause a 33% decrease in the intraocular pressure, an 11% decrease in the mean systolic pressure, and a 6% decrease of the mean diastolic pressure when compared to the pre-propofol induction baseline, without any other major

Propofol is a potent intravenous hypnotic agent which is widely used for anesthesia induction, and for sedation in the intensive care unit.<sup>11</sup> Propofol has a remarkable safety profile, but high dose infusions have been associated with the "propofol syndrome" which is a potentially fatal complication characterized by severe metabolic acidosis, rhabdomyolysis, circulatory collapse and death.<sup>12</sup>



side effects. The mechanism by which propofol decreases the intraocular pressure is postulated to be its ability to relax the extraocular muscle tone as a result of the Central Nervous System (CNS) depression.<sup>15-16</sup> Propofol is thought to decrease the blood pressure by directly depressing the peripheral artery and venous tone, decreasing myocardial contractility, resetting baroreceptor activity, and inhibiting sympathetic nervous system outflow.<sup>17-18</sup> Propofol has been reported to cause a burning sensation when given intravenously, as well as unmask sneezing by suppressing inhibitory neurons which normally keep at bay the sternutatory (sneeze) reflex initiated by the microscope light or by needle/local anesthetic agents entering into periorbital soft tissues during oculoplastic surgery.<sup>19</sup>

This study confirms that low dose propofol-based intravenous sedation would be an excellent alternative prior to periocular local anesthetic injections during oculoplastic surgery due to its beneficial sedative effects, minimal and easily controlled side effects, and the moderate decrease in the intraocular pressure that occurs. **A**

### Acknowledgments

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### ERRATUM: AJAM issue #6

Article: Defining the Ideal Female Body: A West African Perspective

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# Beauty Concepts and Facial Proportions

A helpful Guide to Beautiful Aesthetic Results

by Nadine Hamada, MD

## Introduction

Throughout history, humankind has been obsessed with beauty, and finding the fountain of youth. But the current powerful media influence idealizing the face and body appearance, has caused a massive global negative effect increasing dissatisfaction and doubts about one's looks and body shape, and has grown the demand to turn back the clock and stay young as long as possible, more than ever before. This brought up the topics of Aesthetic procedures, Anti-aging techniques, and new plastic surgery techniques to the top headlines of the magazines, TV shows and scientific conferences.

## Why is beauty so important?

Studies showed that attractive adults date more, are more extraverted, have higher self-confidence, and self-esteem, and enjoy more occupational success, and higher wages.<sup>1</sup>

A survey was made included 3300 girls and women, across 10 countries, showed that 90% of all women aged between 15–64 world wide want to change at least one aspect of their physical appearance.<sup>2</sup>

This is without a doubt the Golden era of Aesthetic medicine, however, it applies a great pressure on aesthetic physicians to get flawless results. So it's clearly important to understand

what makes some faces more attractive than others, and accordingly use our aesthetic procedures to get a more attractive, and naturally beautiful individuals to evoke positive response from others.

Nowadays we see among celebrities many successful examples who became more beautiful post aesthetic procedures, as well as, others who managed to age beautifully. However, with some others, aesthetic procedures have gone so wrong. This should make us understand that Aesthetic procedures do not always guarantee a more beautiful results. In this article we will try to find guidance to beautiful aesthetic results by studying the beauty concepts, facial proportions, and measurements.

## What is beauty?

We all feel and know beauty, yet it has been a challenge to set a definition or rules for beauty. The Ancient Greeks have ventured to question meaning of beauty. Plato linked beauty to goodness.<sup>3</sup> Other Greek philosophers referred to beauty as the harmony and proportions of all parts.<sup>4</sup>

## Beauty concepts

### **The Golden Ratio**

"The GOLDEN RATIO", also known as the Phi ratio, was first discovered by Euclid 300BC. Euclid stated that many

beautiful things in nature follows the golden ratio which is approximately 1:1.62, it was used when the greek designed the "Parthenon" in Athens, which is considered one of the most perfect buildings ever built.<sup>5</sup> The golden ratio was further illustrated by Luca Pacioli, the mathematician, in his book "De Divina Proportione". In his book, Pacioli stated that: Beauty has to always follow the mathematical proportions, the ratio is 1:1.618 based on the Fibonacci numbers (every number in the sequence is the sum of the previous two numbers (0,1, 1, 2,3,5,8,13.....) The ratio between the numbers in the sequence is approximately equal to 1:1.618.<sup>6</sup>

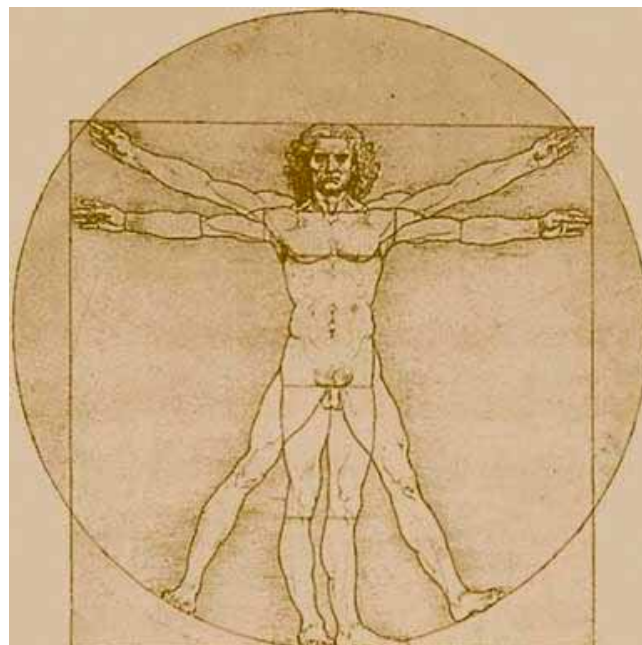


**Fig 1.** Aesthetic procedure results among celebrities between success and failure.

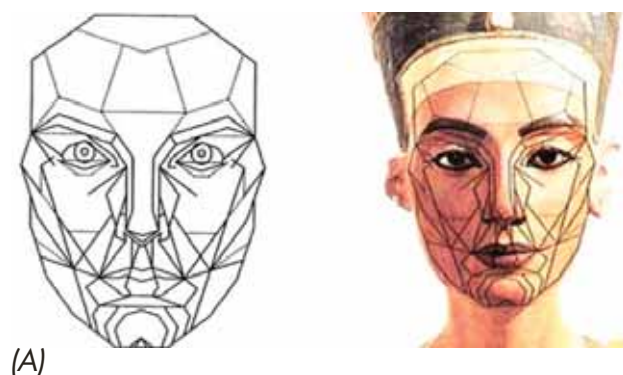
Leonardo Da Vinci, one of the most influencing artists of the Renaissance, used the golden ratio, and made a great contribution to beauty measures, following the steps of the Roman architect Vitruvius, Da Vinci created his perfect man, known as the "The Vitruvian Man" in 1490, which illustrated how symmetry and proportions applies to human's body and face using the golden ratio. Many Renaissance artists followed Da Vinci, and used the golden ratio extensively on their drawings and sculptures to achieve balance and beauty.<sup>6</sup>

Since the divine proportions seems to evoke an aesthetically pleasing effect, several studies, have been done, and have also shown that beautiful faces have facial measurements close to golden ratio.<sup>7</sup>

Stephen Marquardt, an eminent oral surgeon followed the golden ratio, and proposed an ideal face template based



**Fig 2.** "The Vitruvian Man" by Leonardo Da Vinci.



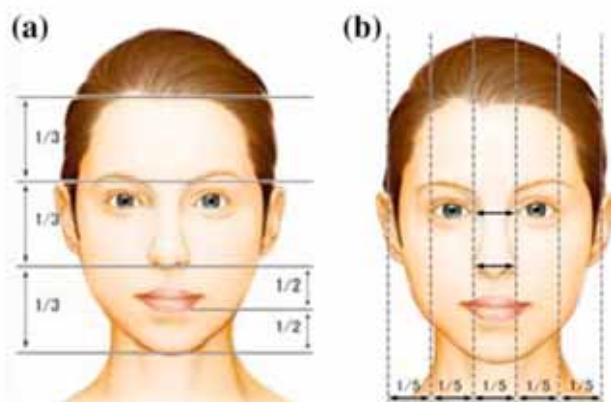
(A)



(B)

**Fig 3.** Marquardt's Golden Mask. (A): the mask and how it fits into the iconic beauty queen Nefertiti. (B): a person's original photo versus the results per the golden mask.





**Fig 4.** The rule of Horizontal thirds and Vertical fifths.

on it, he called it the “Phi mask” or the “Golden Mask” and claimed that all beautiful faces must fit perfectly into the mask, it grabbed so much attention as it was so exciting to set a universal standard for facial beauty.<sup>8</sup> However, many search studies proved that not all beautiful faces conform to golden ratio.<sup>9,10,11,12</sup>

In spite of all the counter studies to the golden ratio theory, and giving that it not a 100% accurate, the golden ratio is still considered an ideal description of facial beauty. A study has concluded that the golden ratio can be used as one of the important facial analysis methods to instantly recognize the balance and arrangement of facial structure on objective and aesthetic basis rather than exact measures.<sup>13</sup>

#### **The horizontal thirds and vertical faiths rule**

It was first proposed in ancient China. The face length is divided horizontally into 3 equal parts, from the hairline to the eye brow, from eyebrow to the nasal floor and form nasal floor to the chin. The vertical fifths rule divided the width of the face into five equal parts. Similar to the golden ratio this rule is not a 100% accurate as many beautiful faces do not often conform to these rules. However, the ratios defined in this rule, is extensively used for facial beauty analysis, and modeling.<sup>14</sup>

#### **The hypothesis of Averageness**

In psychology, averageness is the most investigated general pattern of facial beauty. Francis Galton made a study in which he overlaid multiple images of faces into a single photographic plate, he observed that the composite image was more attractive than the component faces.<sup>15</sup> Following his steps a century later, Langlois, and Roggman, used computer-generated composite faces to examine the correlation between averageness and facial attractiveness, they found that both male and female composite faces were judged as more attractive than most of all the individual faces used to generate them. And the more composite faces entered, the more attractive the result.<sup>16</sup> Other studies also showed that

preference of facial averageness is biological rather than cultural.<sup>17,18,19,20</sup>

Despite these findings, the averageness hypothesis has faced many doubts and challenges. A study stated that attractiveness of the average composite faces maybe due to other co-factors as smoothing the skin texture and applying more symmetry to the average result<sup>20</sup>, others got a rating for the original faces being more attractive than their average photos.<sup>22,23</sup> Another study added that many men and women considered that an average face from set of attractive faces was more appealing than one averaged from a wide range of faces, which implies that attractive faces have other criteria.<sup>24</sup>

#### **The hypothesis of Symmetry**

The methodology of symmetry hypothesis research is similar to the averageness. An original photo is compared to a computer-edited version showing perfect symmetry, and study the population preference.

Some studies suggested that it is symmetry of the average faces, rather than averageness, is what makes the face attractive.<sup>25,26</sup> In conclusion hypothesis of symmetry is controversial. Some studies suggested that the normal faces with fluctuating symmetries are preferred to perfectly symmetrical versions.<sup>27,28,29</sup> Whereas some studies found that perfectly symmetrical faces were considered more attractive than the originally slightly asymmetrical faces.<sup>30,31</sup> Another point of view is that even through symmetry is positively correlated to facial beauty, it is not a major determinant factor as symmetric faces are not necessarily attractive.<sup>32</sup>

#### **Sexual Dimorphism (Masculinity- Femininity Cues)**

It refers to the phenotypic difference between adult male and female features during adolescence, it basically reflects the effect of both estrogen on females, and testosterone on males.

Male typical faces have: a squarer face with sharp angles, horizontal eyebrows, smaller and narrower eyes, more hallow cheeks, thinner lips and longer and broader chins. While, female typical faces have: A more oval, heart shaped, or rounded face, with smooth round angles, high arched eyebrows, bigger eyes, high pointy nose, more prominent cheekbones with fuller cheeks, fuller lips and pointier chin.<sup>33</sup>



**Fig 5.** Illustrates the Men versus women facial ideal features



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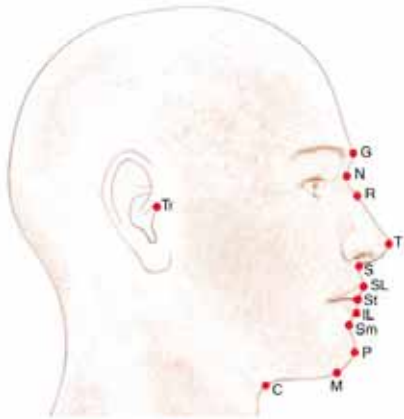
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**Figure 6.** Main Facial landmarks (Prendergast et al., 2012): (G): The glabella the most prominent part in the midline between brows. (N): The nasion lies at the root of the nose. (R): the rhinion is the junction of the bony and cartilage part of the nose. (T): the Tip the top of the nose. (S): Subnasale the junction of the columella and the upper cutaneous lip. (SL): The Superior labrum is the junction of the red and cutaneous part of the lip at the vermilion border in the midline. (ST): Stomion is the point where lips meet. (IL): Inferior labrum is the point in the midline of the lower lip at the vermilion border. (Sm) the supramentale is the point of the labiomental crease between lower lip and chin. (P): Pogonion the most anterior point of the chin. (M): the menton the most inferior point of the chin. (C): the cervical point is in the midline where the neck meets the sub mental are (Tr): Tragion is the most superior point on the tragus.

Evidence that facial sexual dimorphism is attractive is much clearer for female femininity, rather than for male masculinity. Some studies focused on masculinity contribution to facial attractiveness, more than, or in addition to, averageness. However, other studies showed that the relation between masculinity and men attractiveness is negative.<sup>34</sup> A part from the pros or cos of this theory, I believe that aesthetic physicians, in majority, agree that preserving, and, or enhancing the feminine features in female faces, and the masculine features in male faces is essential to get naturally beautiful results.

### The skin condition and beauty

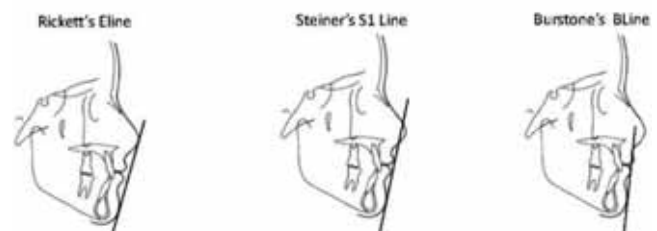
Regardless the skin color, the skin condition affects the overall beauty of the face. Empirical evidence shows that having a flawless skin is the most universally desired human feature, and males are expected to be most attracted to females with smooth flawless skin.<sup>35</sup> So skin care and treatment, must be an important part of our aesthetic plan for our patients in order to get a more beautiful results.

### Facial profilometry, land marks, planes and angles

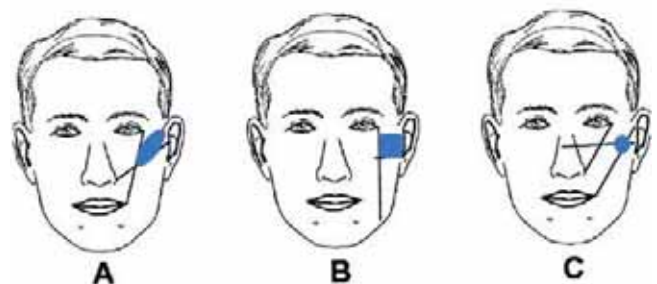
Modern science has followed all the previous theories, and more work has been done by Maxillofacial surgeons,

Orthodontic surgeons, as well as plastic surgeons towards proper facial analysis, and facial profilometry. Many landmarks, planes, and angles has been set for different aesthetic and reconstructive procedures; such as the nasal angles, that are used for the surgical and nonsurgical rhinoplasty, as well as, for the jaw and Chen protrusion/ retraction correction, and many other lines and planes that are useful guide in different plastic and aesthetic procedures. The most commonly used facial landmarks are the Glabella, nasion, tip of the nose, subnasale, pogonion, menton, and Tragion.<sup>36</sup>

Examples for profile lines that we commonly use in lips and chin augmentation are: the Steiner's (S-line), which is a line drawn from the mid of columella (the point in the center between the tip of the nose and the skin sub-nasale) to the pogonion, ideally both upper and lower lips should be with in the S-line. The Rickett's E-line, which is a line drawn from the tip of the nose to the soft tissue pogonion, and ideally the upper lips should be 4mm from that line while the lower lips should be 2mm away, also there is the Burstone's (B-line), which is a line drawn from the sub nasal to the pogonion. These lines as well as many others can be used to guide in chin and lips augmentation using fillers.<sup>37,38</sup> Practically speaking, there are no single prescription for a "perfect Lips", nor a "one size that fits all". However, following these proportional lines, respecting the anatomy as well as respecting the normal ratio of the lips (from a front view the upper lips are smaller than the Lower lips and the ratio is 1:1.62). These rules can guide



**Figure 7.** The Rickett's E-line, Steiner's S line and Burstones' B-line (Buschang et al., 2011)



**Figure 8.** The malar cheek projection lines: (A): Hinderer's lines, (B): Wilkinson's line, (C): Powell's lines (Nechala et al., 2000)



the injector to create an attractive, and aesthetically pleasing results, and avoid unpleasant common aesthetic mistakes such as, the "Duck-like" lips, also the "sausage-like" lips, which do not mainly result from over augmentation of the lips the more it results from lack of knowledge and respect of the anatomy and proportions.<sup>39</sup>

We must never follow our patients wishes if it doesn't respect the beauty measures, and anatomy, we can educate them that: Your lips must fit in to your own face and must not enter the room before you.

Another example for the important facial measurements is the malar projection lines, which are used to determine the area that is indicated for malar augmentation. The most clinically relevant lines are: Hinderer's lines, Wilkinson's line, and Powell's lines. Hinderer's lines, are made of the intersection of two arbitrary lines, one drawn from the tragus to the nasal ala, and the other other line is drawn from the lateral canthus of the eye to the ipsilateral oral commissure. According to Hinderer's lines, the malar eminence should ideally be in the upper lateral quadrant. Wilkinson's line is a line dropped vertically downwards from the lateral canthus to the edge of the mandible. According to Wilkinson's line, the malar eminence is located ideally at upper one third of this line, while Powell's lines are 3 lines; the first is a line connecting the ala nasale with lateral canthus, the second line is originating from the oral commissure of the lips parallel to the first line, and finally the third line is (Frankfort plane) which is drawn horizontally between both upper tragus that bisects the distance from the nasion to the nasal tip, the intersection between line 2 and 3 is ideally the most prominent part of the cheek. Following these rules, and filling this region returns the natural fullness of the cheek and gives the beauty curve known by the Ogee curve, it can be seen is best in 45 degree view of the face.<sup>40,41</sup>

### Is That's all?

Other things that need to be considered is the ethnic origin, and the age of the patient which will help to determine the amount of augmentation needed for each part of the face. Another point to consider is the amount of procedures and material needed, if the correction needed is big, then its best to get the treatment done over more than one setting, the treatment plan must also include treating and correcting



**Figure 9.** The Ogee curve: The beautiful facial curve of the ideal malar prominence in a 45 degrees view.

the diseases and problems skin of the face and neck as well.

### Conclusion

So how can we possibly get beautiful results if beauty is a subjective thing, and constantly in and out fashioned like anything else controlled by the media?

In conclusion, though beauty is subjective, and there are no defined rules or specific measures for it, we can still find the proper guidance to beautiful aesthetic results by following the beauty concepts and facial proportions, as well as our proper knowledge of the facial anatomy, and then blend it with art, and only then, you can get a harmonized, unique, natural beauty that reflects each individual spirit and character.

Finally, always remind your patients who ask to be a replica of a certain star or celebrity, that beauty trends always expires, but beautiful faces never do, in spite of all the change of taste and preference, over the years in hair styles, skin color, makeup, fashion and body ideal shape, beautiful faces remained timelessly beautiful. So our goal as Aesthetic physicians is to deliver a more attractive, and naturally beautiful face that is harmonized, with each persons age, ethnic origin, and character. **A**

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**Figure 10.** Beautiful woman painting, by Sandro Botticelli: (1445-1510): representing the timeless beauty.



**Figure 11.** Marilyn Monroe: The icon for women attractiveness and beauty of all time.

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# Umbilical Cord Wharton's Jelly Mesenchymal Stem Cells - The Next Future

by Steven E Warren, MD

"ANY SUFFICIENTLY ADVANCED technology is indistinguishable from magic!" was proclaimed by the famous British science fiction writer Arthur Clarke years ago. The use of stem cells certainly appears like magic when stem cell therapies are incorporated into medical practices. Unfortunately, there has been considerable advertising or marketing of "stem cells" with companies stating that they have the best stem cells and that stem cells cure everything. There is much misinformation surrounding this upcoming and promising therapeutic option. It is essential to understand more about stem cells and to understand what they are and how they are effectively used. As medical professionals, we need the correct information to educate ourselves as well as our patients. After learning about stem cells and understanding some of their benefits, it does feel like it is magic.

It is essential to understand what stem cells are; the types of stem cells; the theories on how they work; utilization of them; concurrent therapies to use with them; and the aesthetic application of them in medical practices. Stem cell therapy has been gaining support and popularity throughout the medical community and soon will become the standard of care. There is an enormous amount of peer-reviewed literature endorsing the benefits of stem cell therapy not only to control symptoms but to reverse the detrimental effects of specific disorders and illnesses.

Stem cell therapies have been around for greater than one hundred years. They have been used in medicine since the 1950s when bone marrow transplants were first used to treat leukemia. In 1981, Martin Evans in the UK was the first to identify embryonic stem cells in mice. Sixteen years later, Dolly, the sheep was first cloned, and researchers began to speculate that combining human embryonic stem cells with adult cells could be utilized to create genetically matched tissue organs. One year later at the University of Wisconsin and Johns Hopkins University, they isolated human embryonic

stem cells and duplicated them in a lab. It was in 2001 that President Bush limited the federal funding of embryonic stem cells since a human embryo was destroyed obtaining them. Five years later in Japan at Kyoto University, they were able to turn ordinary adult cells into "induced pluripotent stem cells." Since that time the research has exponentially multiplied into stem cell research and its application in humans.

It is essential to understand the different types of human stem cells and their sources. The first classification is whether they are embryonic or adult stem cells. Next, they are classified by their potential action and differentiation. Totipotent cells are the only type that constructs a complete, viable living thing. The cells produced by the very first divisions of the fertilized egg are an example of totipotent. Pluripotent cells are like totipotent cells and can differentiate into nearly all cells derived from any of the three germ lines. Multipotent stem cells can differentiate into a closely related family of cells, not all germ lines. Oligopotent cells can only transform into a few cell types like lymphoid or myeloid stem cells. Unipotent cells can only produce on cell type their own but have the ability of self-renewal which non-stem cells cannot.

In the United States, embryonic stem cell therapies are not conducted due to the controversy surrounding their procurement. Hematopoietic stem cells are used primarily for hematological malignancies and are given intravenously after a patient has had their cells killed by chemotherapy or immunosuppression. The type of stem cells that most of the new research is focused on is mesenchymal stem cells (MSCs). These potent cells are found throughout the body, but the primary sources have been from the bone marrow, adipose tissue, and birth tissues such as the placenta and umbilical cord. An international conference several years ago defined mesenchymal stem cells based on the positive expression of a specific cluster of differentiation (CD) surface molecules; the negative expression of other CD molecules; plastic-adherent in standard cultures; and the ability to

differentiate at a minimum into chondroblasts, adipocytes, or osteoblasts. These mesenchymal stem cells are pluripotent and can differentiate into cartilage, bone, nerve, cardiac, muscle, fat, or brain tissues.

Bone marrow MSCs are obtained from aspirations from the bone marrow usually the iliac crest and are separated from the other cells by centrifuge. This method is a surgical procedure, and the number of MSCs is minimal (1 MSC in 30,000 cells) due to the where the source is, patient's age, health, nutritional status, and exposure to toxins. The quality and quantity of the cells are questionable using this technique. MSCs from the adipose tissue are also obtained during a surgical procedure using lipo-aspiration. The cells are separated from the fatty tissue by centrifuge and are injected directly into the area of concern. There are a few more MSCs in this collection technique, but again it is fewer MSCs than other sources and are subject to the method used and the process used to process them (the type of equipment, the provider, the approach to spinning them down, sterility). These cells are also dependent on the patient's age, health, nutritional status, and toxin exposures. The FDA has been recently questioning this technique due to the possibility of contamination and the wide variability on the amount of MSCs obtained.

The best source comes from birth tissues – umbilical cord (Wharton's Jelly or cord blood); amnion, or the placenta. The MSCs from the umbilical cord produce the highest volume of viable stem cells. The FDA has developed a policy called the "Minimal Manipulation of Human Cells, Tissues, and Cellular and Tissue-based Products." In simple terms the processing of the cord does not alter the original, pertinent characteristics of the tissue relating to the tissue's ability for reconstruction, repair, or replacement; and does not change the unique biological features of the cells or tissues. The birth tissues are secured through protocols developed by the National Tissue Bank Organization, which are very stringent on how the birth tissues are identified and preserved. The donor's mother and father are screened for any history of infectious diseases or behavioral risks. The cords are then processed through unique processes approved by the FDA. The MSCs are stored at -197 degrees Centigrade after they have been obtained and cleared through a stringent protocol.

There are two types of stem cells obtained from the cord. One form is from cord blood, and the other type is from the Wharton's Jelly. Cord blood stem cells which contain MSCs do run a risk of graft-host reaction and a greater chance of harboring infectious microorganisms.

Wharton's Jelly has become the preferred source of stem cells because they are readily available from a large

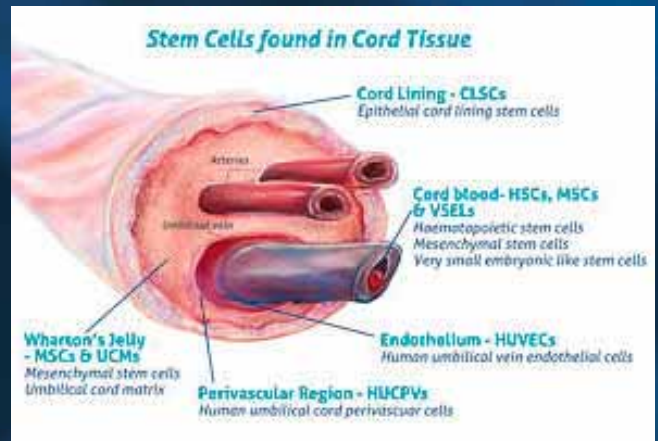


Fig 1.

pool of donors (deliveries), noninvasive and painless acquisition, no risk to the donor, no ethical limitations, and high ability to differentiate into any of the three germ lines. Wharton's Jelly (*substantia gelatinosa funiculi umbilicalis*) is a gelatinous substance within the umbilical cord mainly comprised of mucopolysaccharides such as hyaluronic acid and chondroitin sulfate. It contains some fibroblasts and macrophages, growth factors, cytokines, and the MSCs. It is the support system for the three vessels in the cord.

Umbilical Wharton's Jelly-derived MSCs are not embryonic stem cells or adult stem cells but have properties of both. These cells are immune privileged, and cell rejection is not an issue, and HLA matching is not necessary. These potent cells have the best anti-inflammatory activity, immune modulating capacity, and have a very high differentiation capacity. They can change into chondrocytes (cartilage), adipocytes (fat cells), osteoblasts (bone), odontoblast-like cells (teeth), dermal fibroblasts (skin), smooth muscle cells, skeletal muscle cells, cardiomyocytes (heart muscle), hepatocyte-like cells (liver cells), insulin-producing cells (pancreas diabetes), glucagon-producing cells (prevent diabetes), and somatostatin-producing cells (adrenal gland hormones), sweat gland cells, endothelial cells (blood vessel cells), neuroglia cells (oligodendrocytes) (brain cells), and dopaminergic neurons (neurotransmitter cell). It has been theorized that stem cells not only replace damaged or dysfunctional cells (senescence) but also regenerate new healthy tissues. It has been shown that the MSCs have direct engraftment onto inactive or damaged host cells to precipitate a repair of the host cells as well as a paracrine-effect via cell to cell communication to host cells through exosomal activity and cause long term healing effects.



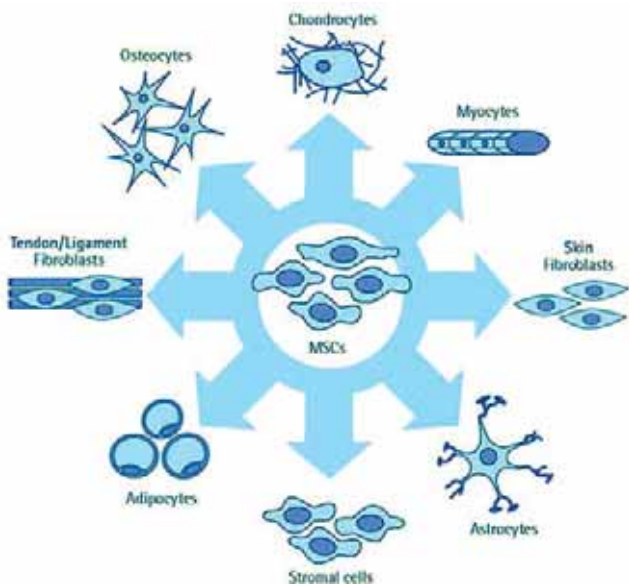


Fig 2.

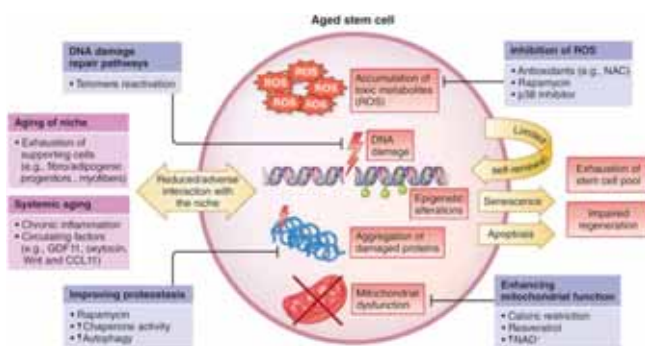


Fig 3. source:www.nature.com

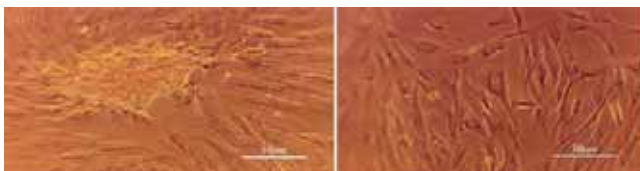


Fig 4. Morphological appearance of Wharton's jelly mesenchymal stem cells from human umbilical cord under an inverted microscope (scale bars: 100  $\mu$ m). Freshly isolated cells from umbilical cord displayed fibroblast or spindle-like appearance (A). Upon reaching 80% confluency, the primary cells principally formed bipolar spindle-like cells with parallel or whirlpool-like arrangements (B) Hu Y, Liang J, Cui H, Wang X, Rong H, Shao B, Cui H - Neural Regen Res (2013)

## Aging

We know that aging is the worsening of physiological processes. There are many theories of aging such as accumulated changes in the genome; decreased telomere length; protein and cellular damage; increased inflammation and cell senescence; exhaustion of endogenous stem cell populations; intercellular miscommunication; and increased generation of free radicals in cells, tissues, and organs. These same processes are occurring in our skin due to UV damage, environmental insults, inflammation, an increase in reactive oxidative species; and epidermal stem cell mitochondrial DNA depletion leading to the deterioration and destruction of epidermal tissue and loss of thickness as well as the loss of collagen and elastin in the dermis. Most organs, tissues, and cells gradually become less efficient as we age. Even as young as 40 years of age this aging process starts. The skin loses its elasticity, begins to thin out, and becomes transparent. As this occurs, the skin surface develops wrinkles and fine and thick lines. With the continued loss of underlying subcutaneous fat, hollow cheeks and deep eye sockets occur. Hair gradually thins on the scalp, pubic area, and armpits.

## Uses of MSCs

Due to the insults and damage to our bodies as we age, we need the addition of stem cells as part of the process to rejuvenate or regenerative our bodies. MSCs can speed up the length of time it takes for injuries or wounds to heal and reduce. MSCs repair osteoarthritic joints; increase functionality, the range of motion, and flexibility of joints. They decrease nerve damage and repair nerves; increase collagen; help generate new heart and blood vessel tissue; help heal skin wounds; prevent the formation of scar tissue and reduce hair loss (even stimulates hair growth). MSCs can be used for an array of orthopedic diagnoses; (autoimmune conditions - MS, diabetes, lupus, Parkinson's disease, autism, kidney damage, dementia, RA; heart disease, lung disease, TBI; wound care); TMJ diagnoses. A variety of methods can deliver the MSCs: intra-articular; intra-theal; intravenous, subcutaneous; sub-dermal; micro-needling; and deep dermal injection for filling and lifting.

How do they work in skin cell renewal? Usually, the skin cells are quiescent until stimulated after any injury. Then the stem cells promote wound healing by modulating the inflammatory environment, promoting angiogenesis and vascularization, encouraging the migration of keratinocytes and contribute to re-epithelization and extracellular remodeling as well as inhibiting apoptosis of wound healing or damaged skin cells. Chemotactic proteins guide the MSCs to sites of injury, a response that is mediated by the activation of matrix metalloproteinases and other factors. WJMSCs have been shown to possess a strong ability to improve tissue damage in response to skin injury, by contributing to collagen deposition;





Fig 5. source:www.facelift-sydney.com.au

wound contraction; increasing fibroblast formation; angiogenesis; regeneration of skin appendages; antimicrobial properties, increase dermal thickness; and enhanced growth of epidermal cells. They promote fibroblast proliferation and migration, accelerate re-epithelialization rate through paracrine signaling. They can shorten the inflammatory phase, thereby reducing myofibroblast and fibrocyte development and scar formation, produces exosomes, IGF, TGF- $\beta$ 1, and stromal-derived growth factor-1 $\alpha$ , epidermal growth factor (EGF), keratinocyte growth factor, and vascular endothelial growth factor- $\alpha$  (VEGF- $\alpha$ ), interleukins 6–8 and 11, pentraxin, and many more. They also increase the production of type I collagen, which is thought to increase the strength of the wound and produce fibroblasts.

### Aesthetic Uses

MSCs (especially Wharton's Jelly umbilical cord-derived MSCs) are applied for fine lines, wrinkles, thick lines, sunken/hollow areas in the cheeks and under the eyes. They are useful as a non-surgical alternative to a facelift, blepharoplasty, genioplasty; breast augmentation or reconstruction; body or buttock contouring. They have a beneficial use for correction of nasal deformities; hand wasting; and hair restoration. The application of stem cells has been as nonsurgical treatment of scleroderma or psoriasis; a long-lasting autologous alternative to synthetic fillers; scar reduction; overall skin texture improvement; reducing environmental damage; recovery from laser procedures; and increase collagen production.

The MSCs are beneficial as adjuvant therapy to PRP, growth factors, hyaluronic acid products; dermal fillers; neuromodulators; laser treatments; fat transfer; PDO thread procedures; and IPL/radiofrequency procedures. The concomitant use of MSCs and amniotic fluid has been utilized to promote healing, to reduce inflammation, to provide additional hyaluronic acid, growth factors, cytokines, and proteins. Amniotic fluid provided excellent anti-scarring, anti-adhesive and anti-inflammatory properties.

Hair restoration using combinations of birth tissue products can stimulate the stem cells in the hair shaft by reversing the pathological mechanisms which contribute to hair loss (especially in *androgenic alopecia*) and regeneration of complete hair follicles from their parts (cells in the bulge can regenerate a whole hair).

In addition to the injection or usage of these cells, it is essential to focus on avoiding continued aging damage. It is important to use skin protection (sunscreens, hats); nutrition (avoid inflammatory foods and sugars); reduce inflammation (natural anti-inflammatories such as curcumin, resveratrol, Boswellia, astaxanthin and avoiding synthetic NSAIDs); hydration, and toxic exposures to the skin (artificial chemicals in products).

### Conclusion

The medical community is now witnessing the emergent technology of mesenchymal stem cells at a rapid pace. As providers, it is of essential that we understand what these cells are and how these cells can be applied. It is important to remember the source of the cells, the actual type of cells, the number of living cells, and what can be done to maximize them. Wharton's Jelly umbilical cord-derived MSCs have been recently found to be very useful in healing the body. In the beautiful world, there are many usages of these cells with good results. Whether utilizing them as a standalone procedure or in combination with other cells, growth factors, or different techniques for administering them, the utilization can be beneficial both to medical practice as well as to patients. Stem cells are just one tool to add to an array of procedures to increase the medical practice's success. **A**



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Received his B.A. in Chemistry and MSCM in Health Education Public Health Community Medicine from the University of Utah. He subsequently finished all the course work for an M.S. in exercise physiology, received a DPA from George Washington University in Health Care Policy Analysis and Administration, and his M.D. from George Washington University. He has been Owner and Medical Director of Regenerative Stem Cell and Wellness Center since 2017, as well as Medical Director of Aspire Hospice and Health Care since 2011, of Cozy Health Care since 2012, and of ENDO-C CBD since 2016. His past work schedule included full time geriatrics in nursing homes and assisted living as well as home visits for hospice patients. He has also have owned and operated addiction centers as well as pain clinics. Dr. Warren currently has a Functional Medicine practice with an emphasis on stem cell orthopedic injections, wellness stem cell injections, chronic disease stem cell injections, hair restoration, male and female hormones, peptides, IV infusions, ozone, alternative pain management, personal injury evaluations and aesthetic services neurotoxins, dermal fillers, PRP, etc. He is also the principle investigator for a large CBD (cannabidiol) company doing research on pain, anxiety and sleep.

## Introduction

Quality of life is becoming a major demand of women and intimate well-being is also crucial. Intimate rejuvenation is getting a high demand worldwide since the last ten years and the market is expected to grow widely in the future. Expansion of indications comes together with more effective treatments and medico-surgical techniques reinforcing the trend towards natural aspect. Combined treatments provide also better and less invasive results.

Then, quality of life in gynecology means to deal with ageing of intimate zone, childbirths, changes of skin conditions.

## Discussion

The main issues are sexual dysfunctions,<sup>1-8</sup> tissues atrophy (due more frequently to hormonal disorders), and aesthetic conditions. These issues could involve metabolic diseases,<sup>9-11</sup> evolution of scars in the intimate area or changes in its shape. Several questionnaires have been created to assess the impact of sexual dysfunctions on sexual women's quality of life.<sup>12,13</sup> But, when it comes to answer to a patient's question, make the correct diagnosis, avoid contraindications, tools are lacking. Therefore, we studied the question in an integrative approach<sup>14</sup> and built an instrument that we called "Intimacy Program" (**Figure 1**). The aim is to standardize the first check-up consultation for intimate rejuvenation, with an easy-to-use questionnaire and integrative analysis with visual diagrams. We use a 4 points severity scale from 0 (no symptom) to 3 (severe symptoms) in 4 topics involved in intimate quality of life:

### 1. Sexual dysfunctions evaluated by 4 questions:

- Dyspareunia
- Anorgasmia
- Vaginismus
- Libido disorders.

### 2. Vulvo-vaginal atrophy evaluated by 3 questions:

- Vaginal dryness
- Vulvar itching
- Vulvar burning.

### 3. Laxity syndrome evaluated by 3 questions:

- Vaginal laxity
- Opening of introit
- Urinary incontinence.

### 4. Aesthetics of intimate zone evaluated by 3 questions:

- Labia minora hypertrophy
- Labia majora atrophy
- Vulvar hyper coloration

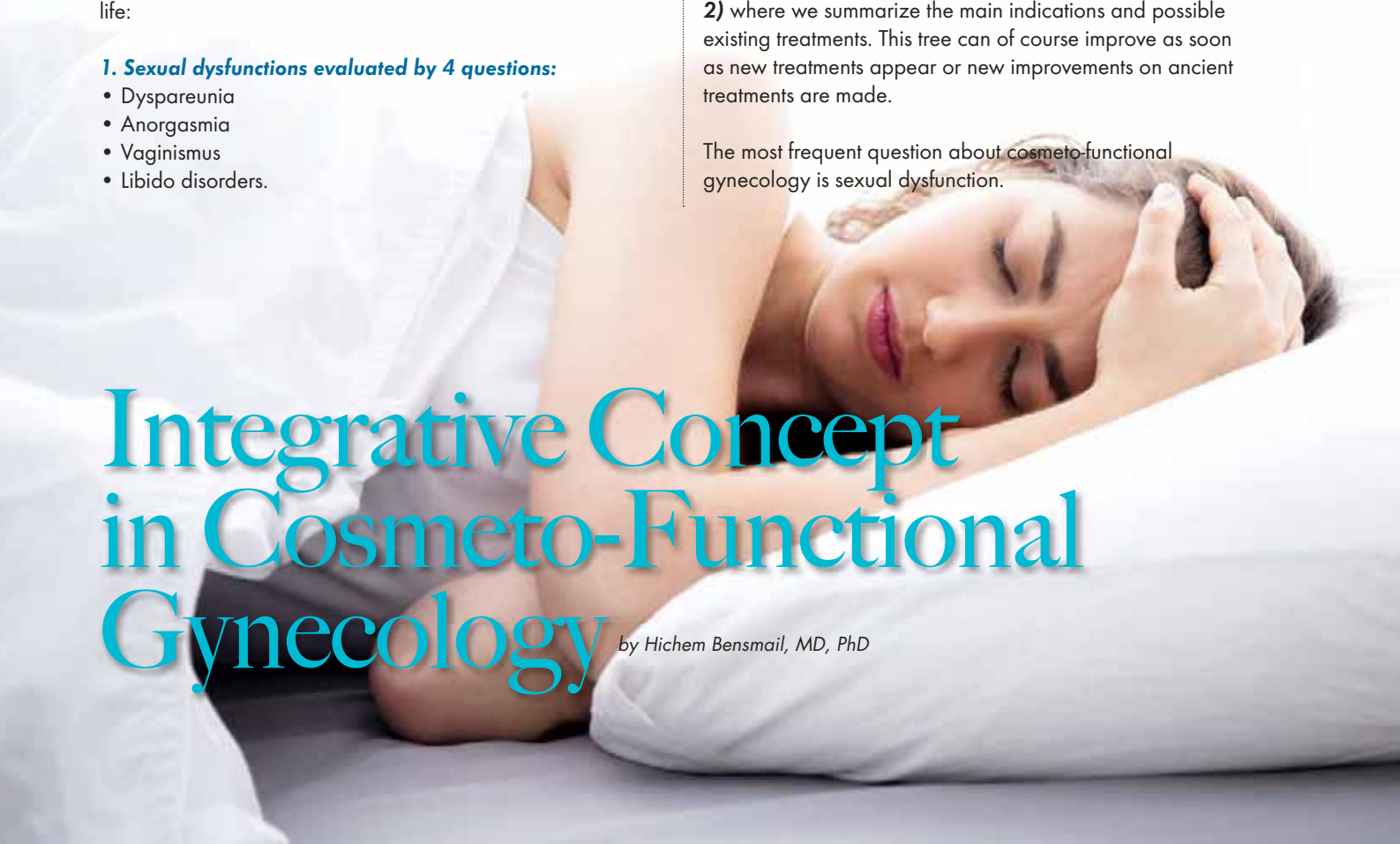
Then we create a radar diagram with all these scores (**Diagram 1**). It will give a holistic approach of intimate care the patient is willing to have and also will point the possible collaborations we may need with sexologist, endocrinologist, gynecologist, aesthetic doctor (depending on our own skills and capabilities). This first check-up gives us a clear overall view of instant intimate quality of life of our patient. Then we will have to reiterate the same questionnaire after each treatment and analyze the evolution or improvements that would occur. We then are easily able to compare before/after treatment results and point in which topic improvements are still to be done.

Thereafter, we have built a decision-making tree (**Figure 2**) where we summarize the main indications and possible existing treatments. This tree can of course improve as soon as new treatments appear or new improvements on ancient treatments are made.

The most frequent question about cosmo-functional gynecology is sexual dysfunction.

# Integrative Concept in Cosmeto-Functional Gynecology

by Hichem Bensmail, MD, PhD



### Intimacy Program

Your details are for strictly medical confidential use and for survey purpose.

For each category below please:

-grade severity of each symptom

- by using the Severity Evaluation Scale

Name

Surname

Birthday

Email

Severity Scale Evaluation



### Sexual Dysfunctions

Symptoms related directly to sexual relations: pain, contraction, desire troubles, arousal troubles

Dyspareunia

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Anorgasmia

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Vaginismus

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Lack of Desire

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

### Vaginal Atrophy

Dryness, Itching, Burning

Vaginal Dryness

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Itching

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Vulvar Burning

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

### Vaginal Laxity Syndrome

Feeling of laxity and lack of sensations, urine leakage, and sensation of open introitus.

Vaginal Laxity

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Open Introitus

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Urinary Incontinence

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

### Esthetic Aspect

Description (Facultative)

Labia Minora Hypertrophy

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

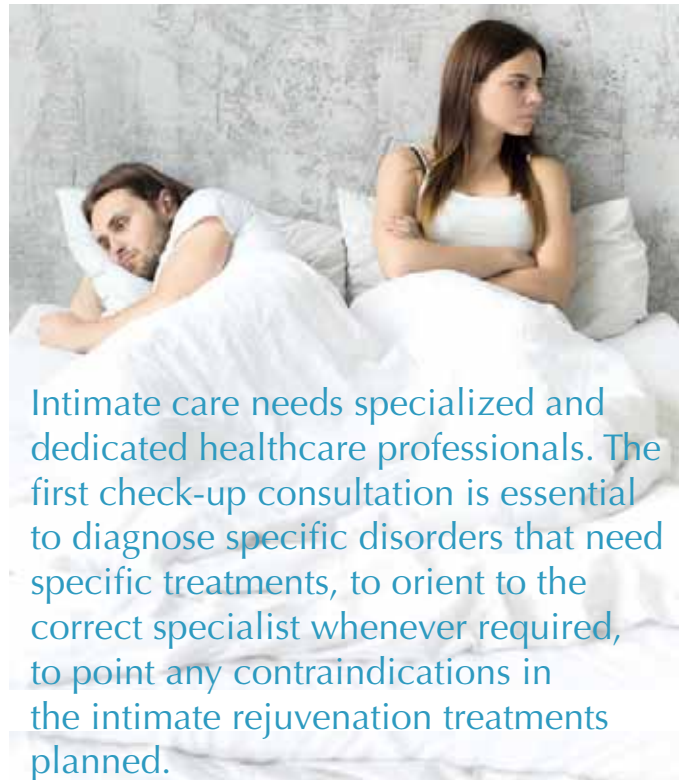
Labia Majora Atrophy

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Mark and Hypercoloratio of vulva

	0	1	2	3	
none	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	severe

Figure 1. "Intimacy Program" Questionnaire



Intimate care needs specialized and dedicated healthcare professionals. The first check-up consultation is essential to diagnose specific disorders that need specific treatments, to orient to the correct specialist whenever required, to point any contraindications in the intimate rejuvenation treatments planned.





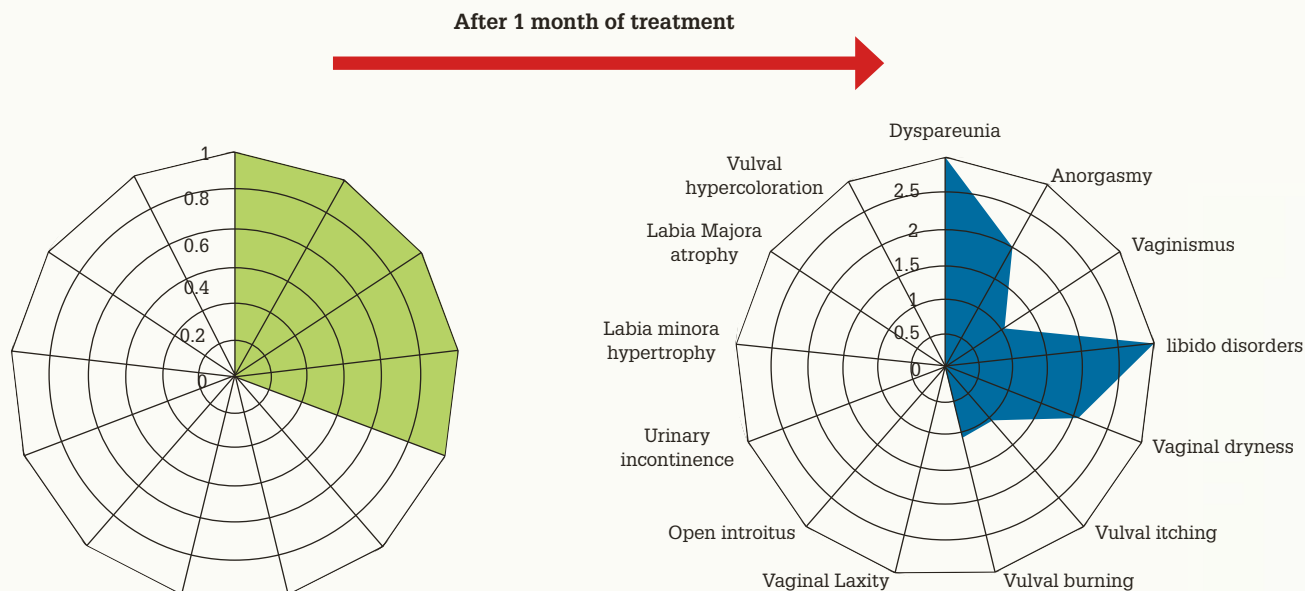


Diagram 1. Results of the Intimacy Program questionnaire

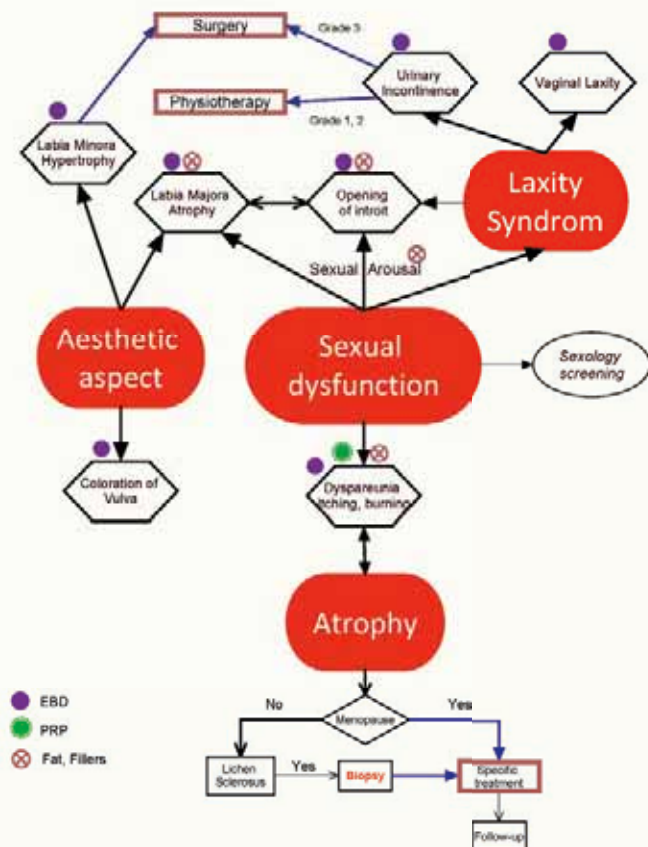


Figure 2. Decision-making tree in cosmeto-functional gynecology

Starting from this point, we can find either arousal issues, laxity syndrome problems or genitourinary symptoms due to lack of hormones or skin disease (lichen). And in addition to that, patient can claim improvements of esthetic aspect of their vulvar area.

## Conclusion

Intimate care needs specialized and dedicated healthcare professionals. The first check-up consultation is essential to diagnose specific disorders that need specific treatments, to orient to the correct specialist whenever required, to point any contraindications in the intimate rejuvenation treatments planned.

Holistic approach do involve several doctors and allied health professionals, then needs to build multidisciplinary network. Integrative tools and standardized follow-up are helpful to make objective analysis and make a treatment plan. **A**

## Keywords

**EBD : Energy based devices**  
**PRP : Platelet Rich Plasma**

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## Summary

Medical Rhinoplasty has been these last years widespread with different techniques like

- fillers (permanent and not permanent) which can lead to necrosis, granulomas and nodules due not only to bad techniques but also to the physico chemistry of the fillers themselves, even if registered by Authorities like CE, FDA, or others.
- threads which can lead to deformities and some necrosis if copies of inventors products are used, if realized by not trained physicians, on in case of too many threads.
- sutures which are different of threads.
- botulinum toxin which leads to a severe atrophy of the muscles. (Much more it's used, less it works)
- The medical myoplasty of the nasal depressor septum technique called ENDOPEEL, even if it is not a peeling) which is conservative, without damaging any structures or functions of the nose and which needs to be repeated each 6 months. This technique has been realized since 18 years worldwide by trained facial plastic surgeons, plastic surgeons, cosmetic dermatologists and some aesthetic medicine practitioners and none side effects or complications has been reported until now.

## Introduction

The immediate chemical and medical rhinoplasty by using the techniques called Endopeel, which have like mechanisms of action a myotension, a myoplasty and a myopexy which duration does not exceed 6 months is a new weapon for dermatologists, plastic surgeons and well-trained aesthetic medicine practitioners wishing to be conservative and preservative without irreversible side effects.

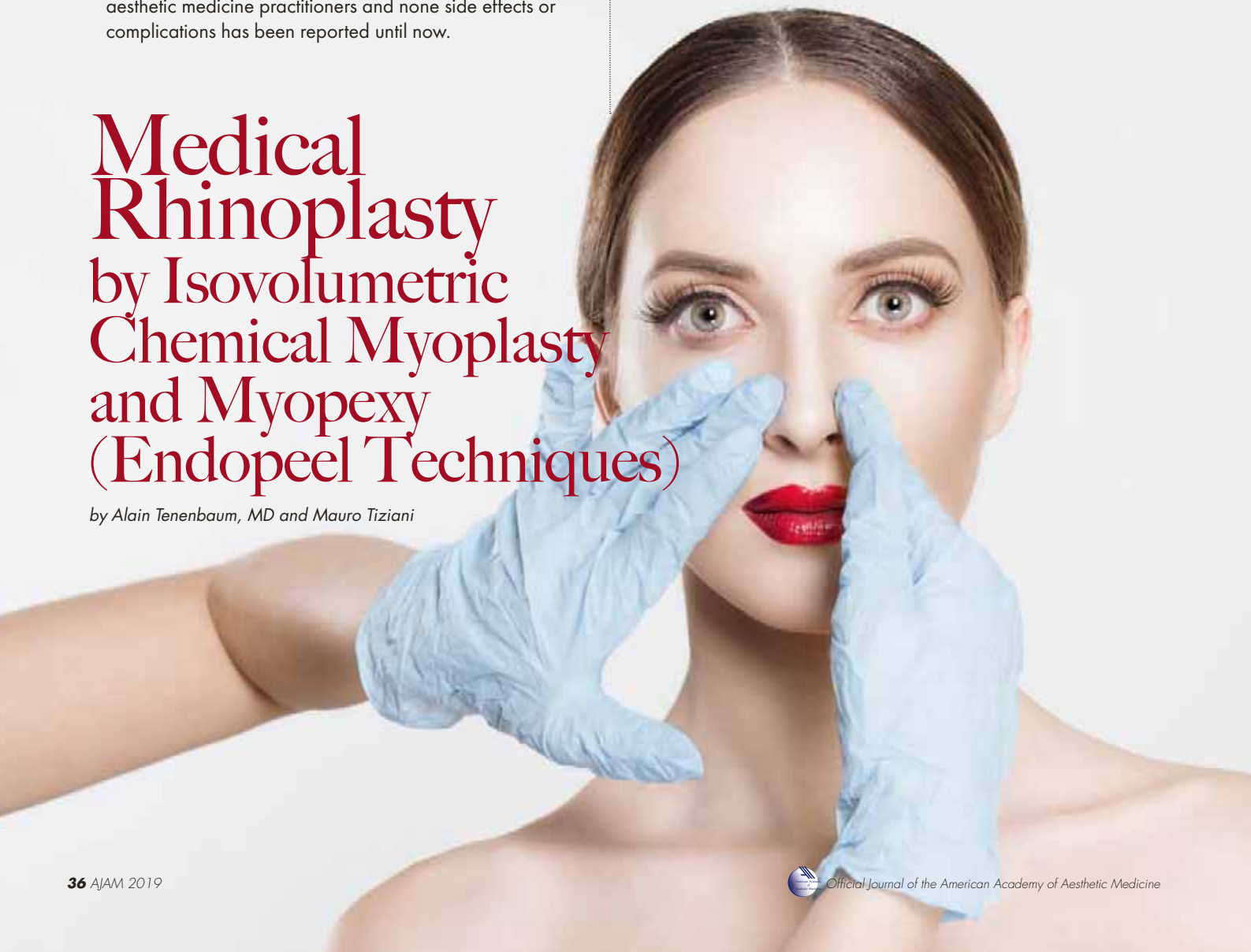
## Patients' selection

Endopeel techniques can be proposed to patients wishing to get a scarless immediate medical rhinoplasty without downtime, to patients who are not candidates or not ready for a surgical rhinoplasty, to patients which refuse suspension threads or elastic sutures.

The advantages of this technique of A. TENENBAUM are the immediate effect, the absence of scar, the absence of down time, the absence of social eviction, as the transitory complications which are very rare and limited only to short duration minimal edema (maximum 3 days).

# Medical Rhinoplasty by Isovolumetric Chemical Myoplasty and Myopexy (Endopeel Techniques)

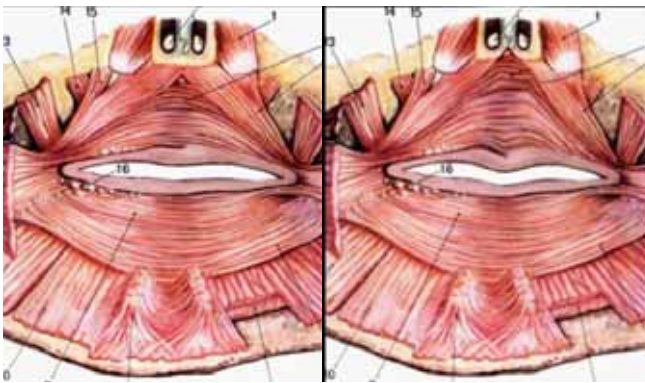
by Alain Tenenbaum, MD and Mauro Tiziani



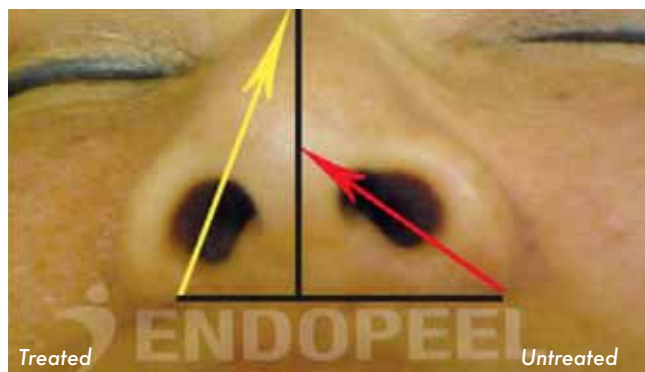




**Figure 1.** 30 minutes after 2 injections to lift up the nasal tip. Courtesy of Dr. Alain Tenenbaum.



**Figure 2.** Mechanisms of Endopeel Techniques on the depressor of the nasal septum Adduction of the lateral philtral bands and shortening of the triangle basis contributing to the lifting of the nasal tip.



**Figure 3.** Narrowing the nasal aisle can be obtained by 2 injections into the nasal aisle elevator. The direction of the nostril will change 30 minutes after the injection. Such indication is mostly requested by Asian as Black Patients. Right Nasal Aisle Treated. Courtesy of Dr. Alain Tenenbaum.



**Figure 4.** Narrowing the nasal aisle. Courtesy of Dr. Alain Tenenbaum.



**Figure 5.** Lifting of the nasal tip and Injection into the ligament of Pitanguy to work on the pyramidal muscle

## Indications

Only 3 indications are possible:

- the nasal tip lifting by injecting the nasal depressor of the septum (**Figure 1 & Figure 2**)
- the nasal aisles narrowing by injecting the nasal aisle elevator (**Figure 3 & Figure 4**)
- the projection and narrowing of the nasal pyramidal muscle by injecting the ligament of Pitanguy (**Figure 5**)

## Main Contra-Indications

- nasal pathology
- pure indications of surgical correction
- allergy to arachides
- usual contra indications like: pregnancy, breast feeding, dysmorphophobia, surrealistic expectations,

## Material and Methods

The chemical patented mixture used for injection is made of carbolic acid and arachidonic acid. To reshape the nasal depressor of the septum, 2 injections of 0.15 ml have to be performed:

- 1st one normal to the barycenter of the philtral triangle, delimited by the philtrum bands laterally and the orbicularis oris as base of this triangle. (**Figure 6 & Figure 7**)
- the 2nd one at the top or roof of this triangle, where the philtrum bands are converging in one unique point, making



**Figure 6.** 1st point of injection (red point)

It is the barycenter of the philtral triangle or the most declive point of the triangle. To find it easily, the position of the patient has to be in dorsal decubitus with head in hyperextension and you need to lift up with you 1st and 2nd finger of left hand the columella, which has to be parallel to the examination table. Then philtral lateral walls can be marked and the barycenter of the triangle is easy to see.

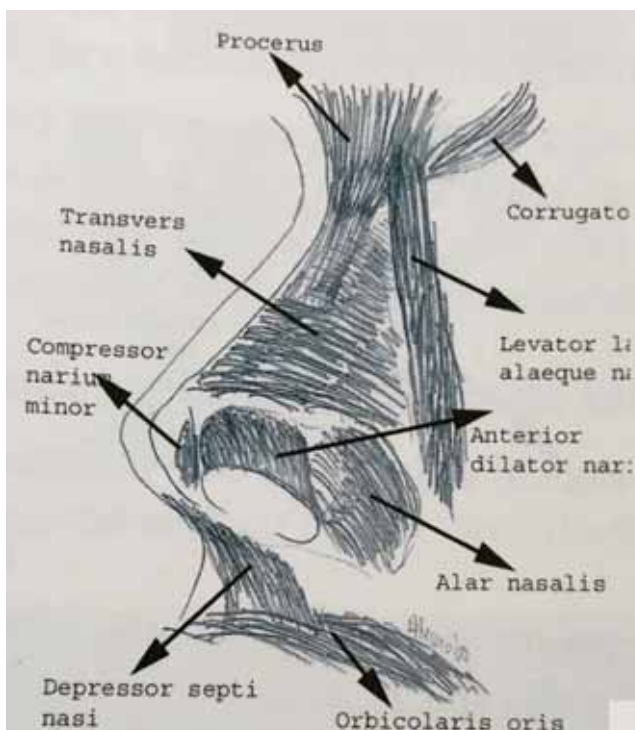


**Figure 7.** How to inject at 1st point of injection

Left hand is important to maintain the columella parallel to the examination table Right hand is responsible of the injection – Needle 30g1/2-Syringhe 1ml luer lok. 0.15ml are injected.



**Figure 8.** 2nd point of injection. It has to be done at the intersection of the 2 philtral bands or at the top of the philtral triangle, with an angle of 30 grades between the syringe and the horizontal (parallel to the examination table). 0.15ml are injected.



**Figure 9.** Clinical Anatomy of the nasal muscles Courtesy of Dr. Alessio Redaelli.

3 muscles interest us in medical rhinoplasty with endopeel techniques. The depressor septi nasi or nasal septum depressor The levator alaeque or nasal aisle elevator. The transvers nasalis or nasal pyramidal muscle.

an angle of 30 grades with the horizontal, to reach the little muscle at the bottom of the nasal septum.

**(Figure 8 & Figure 9)**

## Chemistry

Carbolic acid is completely different from phenol. Four differences need to be known by the physicians

- Resonance stabilization of the phenoxide anion by the aromatic ring. In this way, the negative charge on oxygen is shared by the ortho and para carbon atoms. That is why carbolic acid is used instead of phenol for endopeel techniques (which lead to medical liftings, obtained by chemical myoplasty, myopexy and myotension)
- Increased acidity is the result of orbital overlap between the oxygen's lone pairs and the aromatic system
- The dominant effect is the induction from the sp<sup>2</sup> hybridized carbons; the comparatively more powerful inductive withdrawal of electron density that is provided by the sp<sup>2</sup> system compared to a sp<sup>3</sup> system allows for great stabilization of the oxyanion.
- The pKa of carbolic acid is 6.6 and the pKa of phenol is 9.95

## Molecular Biology (written exclusively by M. Tiziani)

Carbolic acid is a molecule with a low molecular weight, composed of a benzene group and a hydroxyl, the latter with an unstable hydrogen atom, where the only electron, is far from the nucleus, undergoing its strong influence, not having other electrons that shield the nucleus. The carbolic acid is combined and conditioned by the arachidonic acid, that under stereospecific conformations, provides a strong energy margin to the hydroxyl of carbolic acid. The complex in general is amphipathic, having a hydrophobic and a hydrophilic part, the complex is not soluble in water. Functional hydrogen, both of the carbolic and of the arachidonic, and the double bond arachidonic ester group, they have the overall tendency to bind to water molecules, that break their bonds by forming new ones, from these results a high quantity in terms of energy, in an endergonic and exergonic functions, this energy partly transfers into macromolecular mechanism, synthesis and cell signaling, and part is released in heat. The hydrogen of the hydroxyl bound to the carbolic acid is unstable, the electron is highly excited, and does not have a specific stable positioning, where the trend, on contact with other reactive compounds or particles, it is the liberation of the electron from the trajectory around the atom. The merger and the instantaneous accident between different particles, energetically charged, emit an energetic quantity, where hydrogen loses its electron and becomes proton.

According to the scheme:  
 **$H=H^{+}(\text{proton})+e^{-}(\text{electron})$**

This is the bioenergetic cycle of endopeel, through the plasma membrane, through ion channels and protein receptors. Hydrogen of the carbolic acid hydroxyl group, it is coming into contact with the extracellular and cellular factors of the organism, keep an unstable form for a short time. Very soon it is acquired by the ionic channels or from transmembrane protein complexes, scattered, these, on the surface of the extracellular plasma membrane, available for the first contact with the endopeel complex. The transmembrane action potential is an electrochemical gradient process, composed of electron particles, process that is conducted through protein and lipid factors, which make up the plasma membrane. On protein receptors, as in ionic channels, where the signals come from external factors, they are processed and transformed into specific reporting factors. According to this principle, the signals coming from the outside, they are processed and modified based on compatible parameters, with the organization and the cellular mechanisms. The unstable electron of the carbolic acid hydroxyl group, under the attack of the transmembrane action potential, also composed of electrons, realizing a collision by coming into contact between charged particles, traveling the particles of the carbolic

acid with respect particles to the action potential, in different directions according to different speeds, freeing a fundamental part of energy, in such quantity according to the trajectory and to the speed of the particles.

According to the environmental characteristics, within, which the reaction is realized in the organism (temperature, reactive agents, three-dimensional conformations of macromolecules, quantity of oxidative components, also in the form of toxins, waste of oxidative metabolism, level of hydration in the system, structural state of matter).

The result between the collision of two or more electrons, where the amount of energy is released, where a substantial part is captured by the nucleus of the hydrogen proton ( $H^{+}$ ). The greatest quantity of energy is always captured by the nearest matter, in this case the nucleus of the proton ( $H^{+}$ ). Hydrogen is the most specific atom for energy transport and the most versatile in energy transformation processes, through movements, transformations and recombination of molecular factors. Changes in the energetic aspect when it turns into ion, changes current situations by modifying molecules and macromolecules, breaking existing ties and creating new ones. When the organism gets old its metabolism slows down, and a sufficient amount of energy is missing, when the organism's construction and repair plan it requires an amount of energy, to face an organizational and complex plan.

The organism will have to resort to an energy saving plan, preparing a plan for the reconstruction or repair of tissues approximate, based on the amount of energy available from the metabolic cycles. With age, the tissues acquire a poorer and less complex reconstruction and repair, they become less resistant, less elastic, subject to every least traumatic situation, it is the decadence of all energy parameters.

When the organism gets old its metabolism slows down, and a sufficient amount of energy is missing, when the organism's construction and repair plan it requires an amount of energy, to face an organizational and complex plan.



Always our complex organism, that derive energy through the oxidation of nutrients, known hydrogen as a versatile atom for transport and maintenance of an energetic gradient. With endopeel, fundamental it is the hydrogen of carboxylic acid, maintained in a stable situation within its molecular composition, until it is used during antiaging treatments, where the hydrogen of the hydroxyl group of the carboxylic acid is released, to carry out his useful work in the contribution of an energetic quantity, available for:

- Transformed into proton, with a high quantity of energy, it propagates like a wave in the cellular organism, going to position itself on the oxidative factors deposited, on macromolecular complexes, on DNA chains and so on. Where it creates a hydrolysis of these factors, turning them into water. Easily understood by the fact, that subsequently the tissues treated with endopeel will be much more hydrated.
- An energy supply necessary to carry out a complete reconstruction or repair of tissues.
- In those situations where oxidative factors inhibit DNA chain the coding of information necessary for the functionality of the organism.
- In those situations where cellular damage, not easy repairable, it can be due to epigenetic mutations, where the mutations are within a stable equilibrium, that can be upset by an energy shock which bring the cell into apoptosis.

## Results

We assist to a philtral triangle base shortening and lateral sides adduction after the two injections described above. (**Figure 10**)

It results:

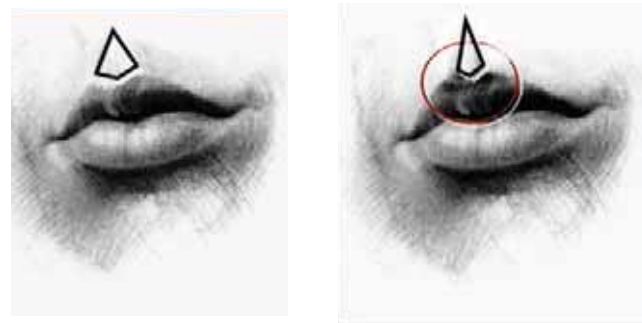
- that the philtrum from bidimensional gets tridimensional with a nice depression at its center (**Figure 5**)
- an improvement of the cupid bow
- an improvement of the vermillion
- the naso labial distance and nasal angles are improved (**Figure 11**)
- The orbicularis oris follows the depressor septi by myoplasty and myopexy due to its muscular insertions causing too a lifting of the upper lip. (**Figure 12**)

## Discussion

The contraction of the nasal septum depressor increases the nasal tip rotation towards down and makes it hanging down during the smiling, giving too a thin upper lip aspect.

Using Endopeel methods, we will get immediately and for 6 months duration in 62% of cases if the techniques are well done, a nasal tip lifting with an upper lip discreet lifting too.

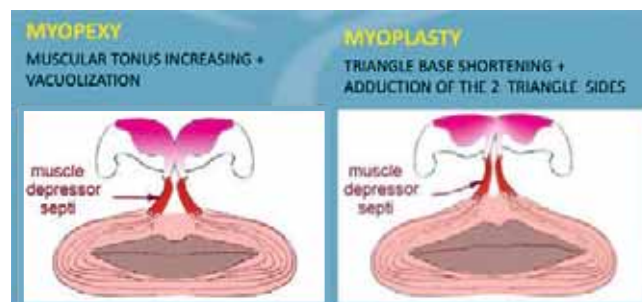
A naso labial break could lead to a non-satisfactory result. In such case a VY plasty has to be performed.



**Figure 10.** Adduction of the 2 philtral bands



**Figure 11.** Nasal angles and naso labial distance after Endopeel techniques applied to the nose. Courtesy of Dr. Saba



**Figure 12.** The orbicularis oris follows the depressor septi by myoplasty and myopexy due to its muscular insertions causing too a lifting of the upper lip

But unpredictable is the absence of results in the Type III of Rohrich. Consent Inform should clearly mention that 16% of them are Type III, leading to no results even if techniques are well performed!

## Conclusion

The safest weapon to perform medical rhinoplasty are the endopeel techniques because of

- No risks of necrosis, even in case of bad technique and unknowledge of anatomy
- No risks of granulomas, migration or nodules as it is not a filler
- No risks to damage cartilages as Endopeel Techniques are else than threads and/or sutures



Such techniques have the best rate benefits/price and can be performed on all skin types in any seasons and need maximum 7 seconds if trained to realize it.

The results are seen after 1/2 hour with a duration of 6 months and just in 16% of cases there are no results.

Such techniques have the best rate benefits/price and can be performed on all skin types in any seasons and need maximum 7 seconds if trained to realize it. **A**

#### **Keywords:**

endopeel, chemical myoplasty, chemical myopexy, retensado cutaneo, medical rhinoplasty, rhino tip, philtral triangle, nasal septum depressor, orbicularis oris, vermillion, naso labial, upper lip lifting, preservative rhinoplasty, non-surgical rhinoplasty.

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Special thanks to Dr. Michel Delune for his innovative insights into Aesthetic Medicine and Cosmetic Dermatology.

Special thanks to Prof. Dr. José Patrocínio, who has selected to show in life these techniques during the World Congress of Facial Plastic Surgery in 2016 in Rio de Janeiro.

#### **Conflict of Interest**

The authors are the inventors of such techniques. No commercial name is mentioned in this article.



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# Redefining the Jawline Non-surgically

by Riekie Smit, MD

AS PHYSICIANS WE understand the functional importance of the mandible, but in the aesthetics of the face the mandibular definition has become almost as important as its functionality. A well-defined jawline greatly contributes to attractiveness ratings of both male and female subjects<sup>1</sup>. Media platforms and especially social media have given ample attention to the definition of jawlines referring to specific celebrities and even giving the jawline celebrity status. 'Texas jaw', 'Angelina Jolie or Johnny Depp jawline', 'Tarzan jaw' 'Chiseled jaw' are some of the names referring to a well-defined jawline and mandibular angle. The amount of Google, Pinterest and other searches for ways to 'get a more beautiful jawline' is immeasurable. People are advised to chew more chewing gum, loose weight, eat less salt and do facial exercises, with numerous pictograms<sup>2</sup>. This indicates the importance that this feature has to our patients with aesthetic concerns.

The prominence of the jaw and the definition of the jawline of both men and women have been studied and discussed in the world of art, beauty and aesthetics for years. In men, a strong, square and well-defined jawline is seen as a feature of strength, power and masculinity<sup>1, 3, 4</sup>. In women, a soft, oval, but still well defined jawline is synonymous with beauty, health and not being overweight<sup>3, 4</sup>.

To improve the aesthetics of the jawline in our patients we have to understand that the single most important part of treatment is to make the jawline stand apart from the neckline. To achieve this 'separation' we have to treat the aspects that cause the jawline to blend into the neck namely the platysma muscle, the sagging skin or soft tissue and the fat pads in the lower face.

## Therapies to obtain a 'chiseling' of the jawline **Relax muscular contraction over jawline**

There are numerous muscles inserting and originating into the mandible. The strong muscular interaction between the neck and lower face muscles over time contributes to the loss of the well-defined jawline. The most relevant muscles in the region of jawline definition and where jawline enhancement is focused on would be the masseter muscles and the platysma muscle. The masseter muscle inserts on the lateral surface of the ramus and angle of the mandible and contributes to the width of the face<sup>6</sup>. Relaxation of the masseter muscle bilaterally with neuromodulators will then reduce the bi-mandibular distance and give a narrower face appearance.

The platysma muscle is a superficial muscle originating from the chest and shoulder muscles (pectoralis & deltoid) and



inserting on the inferior border of the mandible where it intertwines with other lower face muscles and also inserts into the cheek skin. The muscle extends down the neck superficially, crossing the clavicle and extending to just above the second rib<sup>8</sup>. The platysma lies very superficially and inserts directly into skin, making it part of the mimicking muscles.

**figure 1**

The treatment of the platysma with neuromodulators have included the relaxation of the platysma bands in the neck as well as the relaxation of the insertion of the platysma fibers over the lower jaw. This last indication was described by Dr P Levy in 2007 as the 'Nefertiti lift', a new technique for specific re-contouring of the jawline<sup>9</sup>. His technique is described to drape the skin of jawline and proved the visual effect of a 'mini lift' with placing and average total of 20 Units of Abobotulinum toxin along the jawline. This technique has some controversies, but mostly due to the fact that the treatment works effectively only in patients with a typical hyperactivity of platysma action over the jawline. The ideal patient would be one where the jawline disappears during contraction of the jawline, such as this patient shown in **figure 2**.

Relaxation of the platysma muscle with Botulinum Toxin is more known for the reduction of the platysma bands below the jawline<sup>10</sup>. Although this treatment is not performed for mandibular border definition, it would certainly also contribute to this, as we know the platysma contracts inferiorly over the border. We could therefore assume that treatment of the platysma bands in the neck would also contribute to an improvement of the jawline further, as it relaxes the muscle contraction, as we can see in **figure 3**.

The ideal injection points to ensure the overactive muscles overlying the mandibular border is relaxed would be the points as shown in **figure 4**.

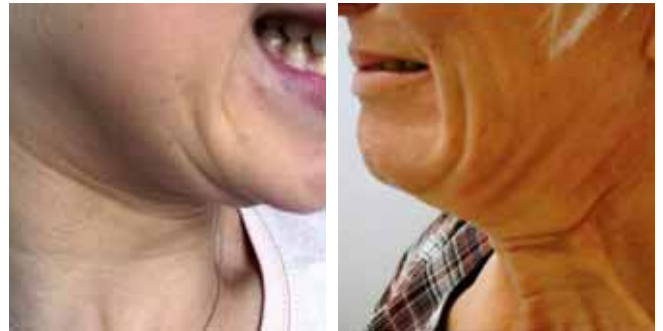
These are superficial injections (subdermal). The author recommends the use of Abobotulinum toxin A, reconstituted in a dilution of 2.5ml saline in 500 IU. Each injection point will require 5 – 10 IU of Abobotulinum toxin A with a 0.3ml or 0.5ml Insulin BD syringe. The injection for 5 IU will be 0.025ml and the injection of 10 IU will be 0.05 ml when using the recommended reconstitution. This is a combination of previously described techniques to remodel the lower face<sup>11</sup>.

**Restructure or enhance the mandibular border**

The mandibular border can also be enhanced with soft tissue augmentation fillers. The technique is most often performed with volumising types of fillers from either hyaluronic acid or calcium hydroxylapatite or other types of non-permanent fillers<sup>12, 13</sup>. The augmentation of the jawline is performed either to augment the mandibular border or to smooth the



**Figure 1.** The intertwining of its fibers with the lower face muscles can clearly be seen in these cadaver dissections.



**Figure 2.** The ideal patient for the Nefertiti neck lift is when their platysma contraction leads to fading of the mandibular border.



**Figure 3.** Before & after Platysma band relaxation, showing improvement also of the jawline. 50 IU of Abobotulinum Toxin A were injected over the area of platysma bands.



**Figure 4.** Points of injection with neuromodulators to relax overactive muscles draping the jawline.

pre-jowl or labiomandibular sulcus. An interesting recent publication showed that the formation of the labiomandibular sulcus was caused by the change in the subcutaneous fibro-connective arrangement rather than by an underlying adhesion or ligament. The authors conclude that augmentation of the jawline should be performed in the subdermal and subcutaneous superficial plane to the platysma, due the layered arrangement of this region<sup>14</sup>. Other authors still feel the supra-periosteal plane is suitable for placement of fillers<sup>12,13,15</sup>. Soft tissue augmentation with fillers for jawline enhancement requires a meticulous analysis of the face, the proportions and artistic insight to obtain good results in sculpting the jaw.

### **Lift the excess skin & soft tissue draping over the jawline**

The skin and soft tissue sagging effect may also drape over the jawline to hide it. Therefore treatment to lift the skin and soft tissue of the mid- and lower face can further contribute to improve the chiseled appearance of a well-defined jawline. Skin and soft tissue tightening can be obtained with:

- Fractional ablative laser for skin tightening,
- Skin mesotherapy/ biorevitalisation or needling (skin tightening),
- medium depth peeling,
- Low viscosity HA fillers for skin,
- Biorestructuring PDO threads (mono and screw type of threads)
- Radiofrequency treatments,
- Contour or Anchor threads (but also on fat pads, as will be described in next point).

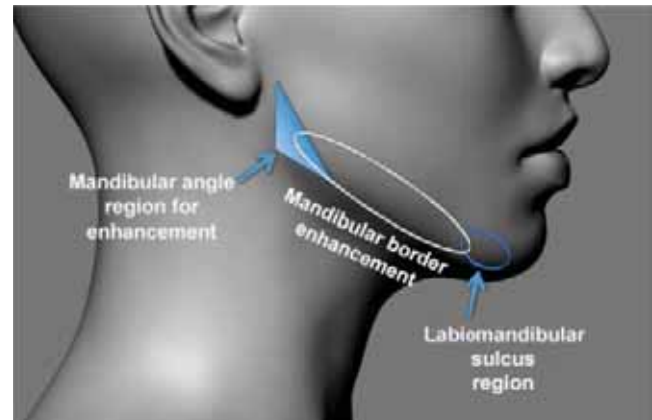
The aim of lifting the skin and soft tissue draping is to obtain a maximal superior vector lift to counteract the gravitational sagging over the jawline.

### **Lift sagging fat pads in lower face**

Facial fat pads reduce in size causing a loss of support of the skin and soft tissue, exacerbating the skin and soft tissue sagging over the jawline (jowls). Excess fat pads in the lower face region and in the neck or chin region would further hide the jawline.

To lift facial and chin fat pads, we can use high quality radiofrequency, microfocused ultrasound<sup>16</sup> or contour threads<sup>17, 18</sup> in the lower face and neck region.

These modalities do not only tighten the superficial layers and skin, but would also contribute to the superficial fat pad lifting. Reducing excess fat pads non-surgically can be achieved with lipolytic injections or fat freezing devices with new specific hand pieces for this region.



*Figure 5. Regions of enhancements for jawline sculpting.*



*Figure 6. Before and 2 months post Monopolar Radiofrequency. Thermage treatment done by Dr B Straka. Image courtesy of Solta.*



*Figure 7. The vector direction usually used to lift the draping of soft tissue over the mandibular border. Insertion can be from the temporal region in the hair line or lateral part of face.*



**Figure 8.** Before and 1 week after PDO barbed threads insertion for lifting soft tissue over jawline. (product used: MINT lift PDO)

Lipolytic injections have traditionally been done with Phosphatidylcholine (PPC) or with efficacy. Unfortunately poor control over quality products has been responsible for numerous complications and this has lead to numerous physicians globally switching to deoxycholate. Deoxycholate research has shown the same efficacy than PPC. A recent study (2018) validates the use of deoxycholic acid for reducing supraplatysmal adiposity in the submental area<sup>19</sup>.

## SUMMARY

In summary, we have a number of options available to give that beautiful chiseled jaw to our patients. As with everything else, patient selection and proper evaluation is vital to choose the correct treatment modality. Treatments only have good results when used on the ideal candidate. Lastly, always be realistic, holistic and honest with your patient. **A**




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# Herpes-Zoster Infection following Facial Aesthetic Procedure

## A Case Report

by Mucio Porto, MD; Vasconcelos,  
SDP; Da Cruz, MEA; Porto, MJ

## Introduction

Dermal fillers consist in an implant for the lips, wrinkles and facial furrows filling. Most frequently, these fillers' base material is hyaluronic acid (HA) derived from the glucuronic acid and it can be found naturally on the dermis' extracellular matrix serving as, not only a sustention base, but also for the elasticity and hydration for the dermis. This is an out-patient procedure and it consists on an injection into the skin, after the preparation of the target location using a topical anesthetic with immediate effects. A better harmonization can be seen, although there is presence of a temporary swelling. Depending on the patient's enzymes and HA tissue stability, results can stay from for 12 to 30 months.

Herpes-zoster infection is the consequence of varicella-zoster's virus reactivation<sup>1</sup>. Clinical signs and symptoms are characterized by localized painful papulovesicular eruptions with cutaneous erythema. The virotic reactivation is linked to the immunosuppression caused by stressful factors which affect the patient's cortisol hormone release and consequently lowers the cellular immunity<sup>2</sup>.

This report aims to call attention to the possibility of Herpes-zoster's infection after aesthetic procedures, which are made worldwide, and to emphasize the importance of exploring the previous health history of the patient. Finally, we emphasize the paramount importance of a quick and accurate diagnosis for preventing complications as scars, dyschromia and even corneal lesions in case of ocular involvement, besides the patient's emotional impairment.

## Case Report

A 56 year-old woman was submitted to facial filling with hyaluronic acid, brand Juvederm Vycross®. It was used 2cc of the product, applied with a 25G cannula distributed to the right and left nasolabial folds and mouth commissures also bilaterally.

After two days, the patient complained about "swelling, redness and an intense burning-type pain at the right side of the face". In the exam, it was observed hyperemia, superior lip edema and papulovesicular lesions at the right side of the face (**Figures 1 and 2**), especially at the nasogenian sulcus, nasal ala, malar region and oral mucosa (**Figure 3**). In addition, it was verified a proper blood flow, which excluded the possibility of vascular lesions, and purulent secretion, evidencing a possible local bacterial infection. The patient had a history of herpetic infection and was submitted to a large amount of emotional stress a few days previous to the procedure. The diagnostic hypothesis was facial Herpes-zoster, with possible bacterial infection. The immediate conduct was:



*Figure 1.*  
Superior lip edema and hyperemia at the right side of the face: anterior view.



*Figure 2.*  
Superior lip edema and hyperemia at the right side of the face: profile view.



*Figure 3.*  
Papulovesicular lesions at the oral mucosa.

1. Acyclovir 200mg, 2 pills every 6 hours
2. Cephalexin 1g, 1 pill every 12 hours
3. Nimesulide 100mg, 1 pill every 12 hours
4. Triancinolone acetinide for the oral mucosa 2 to 3 times a day
5. Revision within 3 days

After 3 days, at the revision, patient was still with hyperemia and crosts, but not complaining of pain (**Figure 4**). After other 3 days, it was observed an improvement, with decrease of the hyperemia area and the edema, but with the presence of microcysts type corneal pearls in the upper third of the right nasolabial fold (**Figure 5**) and the follow up revision was made in 7 days. At the end of this period, the patient continued stable and the healing was complete, without complications (**Figure 6**).

## Discussion

It can be inferred that, with the purpose of rejuvenating the facial and corporal appearance or, even, maintain and accentuate the natural beauty, the non-surgical aesthetic procedures that consists in hyaluronic acid application into the subcutaneous tissue are becoming a lot more common. According to the Brazilian Dermatology Society (SBD)<sup>3</sup> the hyaluronic acid filling is safe, since it is accomplished by a trained and able doctor. In addition, according to the American Association of dermatology (AAD)<sup>4</sup>, this procedure must be accomplished exclusively by doctors, and its side effects are more common when the professional does not have a deep knowledge of the skin and training in injectables.

Therefore, the complications resulting from this procedure are not frequent, although there is a risk of possible side effects, such as: local edema, inflammatory processes, telangiectasias, hypertrophic scars, allergic reactions and the development of granulomas<sup>5</sup>. There is also, according to the researched literature, reports of secondary infection of the lesions caused by inadequate asepsis techniques at the application sites of the product<sup>5</sup>.

In addition, the appearance of Herpes zoster is highlighted as a possible complication of filling with Hyaluronic Acid. This condition occurs due to reactivation of the Varicella-Zoster virus in a cranial nerve or in the dorsal root ganglion, with propagation along the sensory nerve to the dermatome<sup>6</sup>; This reactivation may be caused by factors such as increased age or immunosuppression by stress.

In the case described, the patient was submitted to the facial filling application by a plastic surgeon, duly qualified for such procedure, having as complication an episode of Herpes zoster. The patient was in a stressful situation in her family environment when she performed this procedure,



**Figure 4.**  
After three days, patient was still with hyperemia and crosts.



**Figure 5.**  
After 6 days in total, presence of microcysts type corneal pearls in the upper third of the right nasolabial fold.



**Figure 6.**  
After completing the treatment, the patient was stable and the healing was complete, without complications.



It is reiterated that the professional responsible for carrying out the aesthetic procedure must master the treatment in cases of possible complications and must be quick and effective for a better prognosis of the case. In these cases, all of the patient's complaints after the filling procedure are clinically relevant, therefore, they should not be neglected by the attending physician.

which resulted in an immunosuppression responsible for viral reactivation. However, the doctor in charge was not informed by the patient about her emotional state prior to the procedure, but only in relation to her history of Herpes simplex.

It should be noted, however, that herpes simplex virus infections (HSV-1 and HSV-2) represent the most common sexually transmitted diseases at the global level, achieving a seroprevalence of 80% in adults<sup>7</sup>. As for the varicella-zoster virus that, reactivated, triggered the reported case, practically all the individuals are infected by it during life, predominantly in childhood<sup>8</sup>. Thus, the aesthetic procedure performed is not contraindicated for those infected with the herpes simplex virus and/or varicella-zoster virus, since the wide prevalence of both virus and the low incidence of complications due to them.

From this report, we illustrate the importance of performing a complete anamnesis of all patients, whose physiological and pathological antecedents should be analyzed with caution and attention, before any aesthetic procedure.

In addition, it is reiterated that the professional responsible for carrying out the aesthetic procedure must master the treatment in cases of possible complications and must be quick and effective for a better prognosis of the case. In these cases, all of the patient's complaints after the filling procedure are clinically relevant, therefore, they should not be neglected by the attending physician. Therefore all patients should be instructed to report any early signs and symptoms as early as possible, in order to the doctor to obtain an early diagnosis and initiate the necessary treatment avoiding further complications.

Further studies should be done to better understanding and evaluating the incidence of herpes zoster infection following aesthetic procedures since many factors already mentioned contribute to its occurrence. **A**

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## Scientific Program

### NOV 9, 2019 | SATURDAY – CONGRESS DAY ONE

#### General Session 1 | Casuarina Room

07.30 – 08.30	Breakfast & Registration
08.30 – 08.45	Welcome & Congress Opening By <b>Dr Michel Delune</b> , <i>President, AAAM, Laguna Niguel, CA, USA</i> <b>Prof. John Kim</b> , <i>Laser Surgery and Cosmetic/Aesthetic Medicine, Los Angeles, CA, USA</i>
08.45 – 09.35	Keynote 1: Recent Advancements in Aesthetic Medicine <b>Dr Haneef Alibhai</b> , <i>Aesthetic Medicine, Vancouver, BC, Canada</i>
09.35 – 09.45	Keynote Q & A
09.50 – 10.15	Industry Sponsored Session 1
10.15 – 10.45	Morning Coffee Break

#### MORNING BREAKOUTS

##### Breakout 1: Aesthetic Medicine for the Z Generation | Palo Verde A Room

10.45 – 11.15	Main Concerns in Aesthetic Medicine for the Z Generation <b>Dr Federico Vonson</b> , <i>Anti-Aging, Mexico</i>
11.15 – 11.45	Dermofacial Aesthetics
11.45 – 12.15	Male and female patient requests
12.15 – 12.30	Q & A
12.30 – 13.30	Lunch Break

##### Breakout 2: Red Flags in Aesthetic Medicine | Palo Verde B Room

10.45 – 11.15	Risky Patients and Complications of Fillers and BtxA in Aesthetic Medicine <b>Dr Michel Akl</b> , <i>Aesthetic Medicine, Olean, NY</i>
11.15 – 11.45	Risky techniques
11.45 – 12.15	Recognition and Management of Severe Vision Loss after Cosmetic Dermal Filler Injection <b>Dr Alejandro Espallat</b> , <i>Ophthalmology, Miami, FL</i>
12.15 – 12.30	Q & A
12.30 – 13.30	Lunch Break



Sponsored Workshop with LIVE DEMO   Willow Room	
10.30 – 12.00	Sponsored Workshop with Live Demo 1
12.30 – 13.30	Lunch Break
AFTERNOON BREAKOUTS	
Breakout 3: Lips and Peri-Oral Areas   Palo Verde A Room	
13.30 – 14.00	Peelings
14.00 – 14.30	Hyaluronic Acid Lips and Perioral area Treatments - Aesthetic Challenges <b>Dr Michel Akl</b> , <i>Aesthetic Medicine, Olean, NY</i>
14.30 – 15.00	New Fillers <b>Dr Brian Kinney</b> , <i>Plastic Surgeon, Beverly Hills, CA</i>
15.00 – 15.10	Q&A
15.15 – 15.30	Industry Sponsored Session
15.30 – 16.00	Afternoon Coffee Break
Breakout 4: Combined Protocols in Aesthetic Medicine   Palo Verde B Room	
13.30 – 14.00	Combination Therapy - The Key to Success in Aesthetic Medicine <b>Dr Haneef Alibhai</b> , <i>Aesthetic Medicine, Vancouver, BC, Canada</i>
14.00 – 14.30	Advanced Combination Therapies <b>Dr Desmer Destang</b> , <i>Aesthetic Medicine, St Lucia</i>
14.30 – 15.00	Dermofacial Aesthetics <b>Dr Desmer Destang</b> , <i>Aesthetic Medicine, St Lucia</i>
15.00 – 15.10	Q&A
15.30 – 16.00	Afternoon Coffee Break
Sponsored Workshop 2   Willow Room	
13.30 – 15.00	Sponsored Workshop with Live Demo 2
15.30 – 16.00	Afternoon Coffee Break
Free Communications   Palo Verde A Room	
16.00 – 16.30	The Top 30 Keys to Growing a Medical Aesthetic Clinic <b>Dr Haneef Alibhai</b> , <i>Aesthetic Medicine, Vancouver, BC, Canada</i>
16.30 – 17.00	Anti-Aging Effects of Nicotinamide Riboside (NR) Supplementation <b>Dr Saad Sami Al Sogair</b> , <i>Dermatology, Khobar, Saudi Arabia</i>
17.00 – 17.20	Risks from Copies of Manufactured Products and Fake Companies <b>Dr Alain Tenenbaum</b> , <i>Plastic Surgeon, Lugano, Switzerland</i>
17.20 – 17.30	Q & A
Industry Panel on Controversies   Palo Verde B Room	
16.00 – 16.30	Panel 1: TBA
16.30 – 16.45	Panel Q&A
16.45 – 17.15	Panel 2: TBA
17.15 – 17.30	Panel Q&A

NOV 10, 2019   SUNDAY - CONGRESS DAY TWO	
General Session 2   Casuarina Room	
08.30 – 09.20	Keynote 2
09.20 – 09.30	Keynote Q & A
09.30 – 09.45	New Marketing Strategies in Aesthetic Medicine
09.50 – 10.15	Industry Sponsored Session 2
10.15 – 10.45	Morning Coffee Break
MORNING BREAKOUTS	
Breakout 5: Latest Trends in Stem Cells, PRP and Fat Graft   Palo Verde A	
10.45 – 11.15	New indications
11.15 – 11.45	Complications
11.45 – 12.15	The Future of Stem Cells in Aesthetic Medicine <b>Dr Steven Warren</b> , <i>Aesthetic Medicine, Bountiful, UT</i>
12.15 – 12.25	Q & A
12.30 – 12.45	Industry Sponsored Session
12.45 – 13.45	Lunch Break
Breakout6: Cosmetic Gynecology and Safety Concerns   Palo Verde B	
10.45 – 11.15	What's new in Cosmetic Gynecology <b>Dr Hichem Bensmail</b> , <i>Gynecology, Bordeaux, France</i>
11.15 – 11.35	Total Intimate Rejuvenation: Model of Multidisciplinary Clinical Collaboration (Dermato,Gyneco,Endocrino) How to work together <b>Dr Hichem Bensmail</b> , <i>Gynecology, Bordeaux, France</i>
11.35 – 12.05	Injectables for vulvo-vaginal rejuvenation
12.45 – 13.45	Lunch Break
AFTERNOON BREAKOUTS	
Breakout 7: Aesthetic Medicine Treatments for Male Patients   Palo Verde A	
13.45 – 14.15	Using Medical Tools to Create a More Masculine Facial Appearance <b>Dr Alain Tenenbaum</b> , <i>Plastic Surgeon, Lugano, Switzerland</i>
14.15 – 14.45	Non or Minimally Invasive Procedures for a Perfect Masculinity of the Body <b>Dr Alain Tenenbaum</b> , <i>Plastic Surgeon, Lugano, Switzerland</i>
14.45 – 15.15	How to manage androgenic alopecia today
15.15 – 15.45	Introduction to andrology <b>Dr Omnia Latif</b> , <i>Gynecology, Hamilton, NJ</i>
15.45 – 16.00	Q&A
Breakout 8: Clinical Cases for Discussion   Palo Verde B	
13.45 – 14.15	Hormonal Adjustment Therapy <b>Dr Omnia Latif</b> , <i>Gynecology, Hamilton, NJ</i>
14.15 – 14.45	High Intensity Focused Electromagnetic Fields <b>Dr Brian Kinney</b> , <i>Plastic Surgeon, Beverly Hills, CA</i>
14.45 – 15.15	Weight Loss Programs <b>Dr Brian Kinney</b> , <i>Plastic Surgeon, Beverly Hills, CA</i>
15.15 – 15.45	TBA
15.45 – 16.00	Q&A

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[editor@aaamed.org](mailto:editor@aaamed.org).

## Practice Opportunities

Looking to join an aesthetic medicine practice, or hiring a practitioner? In future issues of the AAAM journal, we will have a Practice Opportunities classified ads section where medical practices or doctors can post their needs – whether to join or expand a practice or to hire new doctors. Posting is free for AAAM members.

## Medical Negligence & Settlement

Stressed by negligence law suits in aesthetic medicine? AAAM invites contributions on actual experiences with negligence law suits and how they ended up. Members can learn from such contributions.



# Hands-On Based Learning Courses 2019

## International Calendar

### REGISTRATION & MORE DETAILS:

#### Asia, Australia, Europe:

MS JESSICA MOK  
CBB Medical Training Pte Ltd  
(Singapore)  
Tel: +65 3157 5933  
asiaaesthetic@ezyhealth.com  
www.asiaaestheticmedicine.com  
www.europeaestheticmedicine.com

#### Middle East & India:

MS SUNITA MEHTA  
International Business Consult (Dubai)  
Tel: +97 14 3370 400  
sunita@ibcme.com  
www.ibcme.com/aaam

#### South Africa:

MS LAURA HARTMAN  
AMCSA Events Organizers  
Tel: +27 12 567 1513  
info@aesmedsa.co.za  
www.aesmedsa.co.za

#### USA:

MS ELLEN DAHLIN  
American Academy of Aesthetic  
Medicine  
Tel: +1 310 944 1790  
info@aaamed.org  
www.aaamed.org

### ASIA PACIFIC & AUSTRALIA

#### Level 1 Certificate Course in Aesthetic Medicine

Bangkok	22 – 24 Jun 2019
Yangon	6 – 8 Jul 2019
Kuala Lumpur	17 – 19 Aug 2019
Sydney	19 – 21 Oct 2019
Bangkok	2 – 4 Nov 2019
Kuala Lumpur	30 Nov – 2 Dec 2019

#### Level 2 Diploma Course in Aesthetic Medicine

Kuala Lumpur	16 – 20 Aug 2019
Sydney	18 – 22 Oct 2019
Bangkok	1 – 5 Nov 2019

#### Level 3 Board Certification Exam

Sydney	22 Oct 2019
Bangkok	3 Nov 2019

#### Level 1 Certificate Course in Aesthetic Medicine for Dentists

Bangkok	22 – 24 Jun 2019
Singapore	7 – 9 Sep 2019

#### Korean Thread Lifting and Facial Contouring

Bangkok	6 – 7 Nov 2019
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### EUROPE

#### Level 1 Certificate Course in Aesthetic Medicine

London	11 – 13 May 2019
Amsterdam	27 – 29 Jul 2019
Budapest	21 – 23 Sep 2019
London	23 – 25 Nov 2019

#### Level 2 Diploma Course in Aesthetic Medicine

Amsterdam	26 – 30 Jul 2019
London	22 – 26 Nov 2019

#### Level 3 Board Certification Exam in Aesthetic Medicine

London	12 May 2019
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#### Level 1 Certificate Course in Aesthetic Medicine for Dentists

London	11 – 13 May 2019
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#### Korean Thread Lifting and Facial Contouring

Amsterdam	27 – 28 Jul 2019
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### SOUTH AFRICA

#### Level 1 Certificate Course in Aesthetic Medicine

Pretoria	11 – 13 Sep 2019
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#### Level 2 Diploma Course in Aesthetic Medicine

Pretoria	9 – 13 Sep 2019
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#### Level 3 Board Certification Exam in Aesthetic Medicine

Pretoria	11 Sep 2019
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### MIDDLE EAST & INDIA

#### Level 1 Certificate Course in Aesthetic Medicine

Dubai	4 – 6 Jul 2019
Cairo	17 – 19 Jul 2019
Cairo	19 – 21 Sep 2019
India	8 – 10 Nov 2019
Dubai	12 – 14 Dec 2019

#### Level 2 Diploma Course in Aesthetic Medicine

Dubai	2 – 6 Jul 2019
Cairo	17 – 21 Jul 2019

Cairo	19 – 23 Sep 2019
India	6 – 10 Nov 2019
Dubai	10 – 14 Dec 2019

#### Level 3 Board Certification Exam

Dubai	4 – 5 Jul 2019
Dubai	12 – 13 Dec 2019

#### Level 1 Certificate Course in Aesthetic Medicine for Dentists

Dubai	4 – 6 Jul 2019
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#### Level 2 Diploma Course in Aesthetic Medicine for Dentists

Dubai	2 – 6 Jul 2019
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#### Masters Course on Cadaver Anatomy for Facial Aesthetics

Cairo	17 – 18 Sep 2019
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#### Masters Course in Aesthetic Gynaecology

Dubai	7 – 8 Jul 2019
Cairo	24 – 25 Sep 2019
Dubai	17 – 18 Dec 2019

#### Masters Course in Hair Transplantation

Dubai	9 – 11 Jul 2019
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#### Masters Course in Fat Grafting, Fat Remodelling & Mesotherapy (Basic)

Dubai	19 – 20 Dec 2019
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#### Masters Course in Advanced Body Aesthetics

Dubai	15 – 16 Dec 2019
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### USA

#### Level 1 Certificate Course in Aesthetic Medicine

Dallas, TX	17 – 19 May 2019
Philadelphia, PA	21 – 23 Jun 2019
Cerritos, CA	2 – 4 Aug 2019
Miami, FL	13 – 15 Sep 2019
Newark, NJ	11 – 13 Oct 2019
Las Vegas, NV	6 – 8 Nov 2019
Miami, FL	6 – 8 Dec 2019

#### Level 2 Diploma Course in Aesthetic Medicine

Dallas, TX	15 – 19 May 2019
Las Vegas, NV	4 – 8 Nov 2019

#### Level 3 Board Certification Exam in Aesthetic Medicine

Dallas, TX	19 May 2019
Las Vegas, NV	8 Nov 2019

#### Level 1 Certificate Course in Aesthetic Medicine for NP, PA, RN

Dallas, TX	18 – 19 May 2019
Las Vegas, NV	8 – 9 Nov 2019

#### Masters Course in Threadlifting

Cerritos, CA	27 – 28 Jul 2019
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#### Masters Course in Liposuction

Cerritos, CA	5 – 7 Aug 2019
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#### Masters Course in Cadaver Injectables

Miami, FL	12 Sep 2019
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#### 16th Annual AAAM Congress

Las Vegas, NV	8 – 10 Nov 2019
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*\*course calendar is subject to changes by AAAM. Information correct at time of printing. Please check websites for updates.*





# AMERICAN ACADEMY OF AESTHETIC MEDICINE

Theory • Lectures • Live Demonstration • CME Accredited • AAAM-endorsed Certificate upon Course Completion

## AAAM Course and Board Certification Calendar 2019

► **May 15 – 19, 2019**  
**Level 2 Diploma Course in Aesthetic Medicine**  
Dallas, TX

► **May 17 – 19, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Dallas, TX

► **May 18 – 19, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine for NP, PA, RN**  
Dallas, TX

► **May 19, 2019**  
**Level 3 Board Certification Exam in Aesthetic Medicine**  
Dallas, TX

► **June 21 – 23, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Philadelphia, PA

► **July 27 – 28, 2019**  
**Masters Course in Threadlifting**  
Cerritos, CA

► **August 2 – 4, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Cerritos, CA

► **August 5 – 7, 2019**  
**Masters Course in Liposuction**  
Cerritos, CA

► **September 12, 2019**  
**Cadaver Course in Injectables**  
Miami, FL

► **September 13 – 15, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Miami, FL

► **October 11 – 13, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Newark, NJ

► **November 4 – 8, 2019**  
**Level 2 Diploma Course in Aesthetic Medicine**  
Las Vegas, NV

► **November 6 – 8, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Las Vegas, NV

► **November 8, 2019**  
**Level 3 Board Certification Exam in Aesthetic Medicine**  
Las Vegas, NV

► **November 8 – 10, 2019**  
**16h Annual AAAM Congress**  
Las Vegas, NV

► **November 7 – 8, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine for NP, PA, RN**  
Las Vegas, NV

► **December 6 – 8, 2019**  
**Level 1 Certificate Course in Aesthetic Medicine**  
Miami, FL

### **LEVEL 1** (Open to full-fledged, licensed medical doctors only)

**Introduction to Aesthetic Medicine:** Botulinum Toxin A, Dermal Fillers, Lasers, IPLs, and Skin Rejuvenation and Chemical Peelings

**21 AMA PRA Category 1 Credits™**  
Physician earns Certificate in Aesthetic Medicine

### **LEVEL 2** (Require completion of Level 1 Certificate Course)

**Advanced Aesthetic Medicine:** Advanced Botox and Dermal Filler Techniques, Cosmetic Dermatology, Phlebology and Pain Management, Sclerotherapy, and Marketing and Business Management (Completion of Level 1 required)

**35 AMA PRA Category 1 Credits™**  
Physician earns a Diploma in Aesthetic Medicine

### **LEVEL 3** (Completion of Level 1 and 2 required, plus six months study period and clinical practice)

**Board Certification Exam:** Written and Oral Examination.  
Successful graduates receive a Diploma and may refer to themselves as **"AAAM Board Certified in Aesthetic Medicine"**

### **MASTERS COURSES** (Registration subject to AAAM approval)

**Level 1 for NP, PA, RN** (open to licensed physician assistants, nurse practitioners, and registered nurses)

*Dates and locations are subject to change. Please refer to website or contact us for updates.*

Contact: **Ellen Dahlin** • Phone: **+1-310-944-1790** • Email: **info@aaamed.org** • **www.aaamed.org**

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