

Introducing a novel model: The special theory of relativity for attractiveness to define a natural and pleasing outcome following cosmetic treatments

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Summary

A meteoric expansion in esthetic medicine followed the introduction of nonsurgical cosmetic neuromodulators and fillers in the early 2000s, which has been recently declining. The initial inertia has likely been tempered by the cosmetically interested patient's fear of appearing unnatural. Defining a natural outcome is a mission essential to the advancement of esthetic medicine; however, achieving a natural result following cosmetic intervention is a misnomer and a logically flawed endeavor that cannot exist. The ever elusive "natural" that is loudly desired by the populous, and ardently pursued by both industry and physicians, can only be an interpreted deduction. To better define a natural outcome, a novel model based on the theory of relativity is suggested. Attractiveness consists of a 3-dimensional area defined by beauty, genuineness, and self-esteem. When all three variables are at a maximum, a desirable attractive appearance is achieved that can be interpreted as "natural." Similar to the time-space dilemma, attractiveness is relative, dynamic, and highly dependent on the position of the projector and the interpreter. The 3D cube of attractiveness is therefore contained within a 4th dimension that takes into account the perspective of the judge. It is hoped that by realizing a new theory of what defines a natural outcome, esthetic medicine will be prepared to meet the needs of future generations.

KEYWORDS

cosmetic medicine, esthetic medicine, facial rejuvenation

1 | SEEKING BEAUTY IS NOT OUR AIM BUT RATHER OUR DEMISE

Is esthetic medicine entering a period of darkness repressed by a clergy and congregation beholden to a liturgy that describes an unobtainable paradise? Until we enlighten ourselves beyond the canons preaching beauty as a singular goal promising salvation, we may be doomed to a period of arrested development. Similar to the pre-enlightenment period where the prevailing thought was that the world was flat, today's conventional thinking decrees beauty, a one-dimensional entity, at its center of faith. Beauty has become a highly

simplified measurement for defining a pleasing outcome in esthetics and is an incomplete representation of what a human race, blessed with a consciousness, wants, and seeks in self and others. Large lips, inflated cheeks, projected chest, and behinds is a distortion of an evolutionary purified beauty. A generation that chooses to worship these cartoon-like ideals and its leaders cannot help but to also feel an inexplicable unease. When the priestess of reality TV with arguably the most perfectly balanced and mathematically proportioned face is seen crying with tears running down her cheeks yet no movement in her facial musculature, a conflict arises in the mind of

the perplexed. She is beautiful but not genuine. An esthetic medical establishment that cannot discipline itself from the shallow glamor of adulterated beauty is complicit in its dissemination. Instead of leading, esthetic medicine assembly caters to the primal urges of the vulnerable and naïve, thereby justifying the misguided creation of humans with inanimate beauty. We have entered a postmodern era where we have the tools, skills, and knowledge to deliver a beauty that is beyond reality, but inadvertently, we are also delivering precisely the opposite of what the populous desires: an inauthentic caricature of beauty. It is for this reason that esthetic medicine has stalled. The Big Bang of nonsurgical cosmetic treatments was followed by an accelerating expansion, 679% growth from 1997 to 2015. The increase, however, has fallen to a relative 6.7% over the last year.¹ We have only ourselves to blame when cries of wanting to look natural are heard but not heeded. By crowning a one-dimensional objective as our only goal, we stand guilty as charged.

This week I consulted with a 45-year old woman who presented me with a conundrum. “Doctor, I didn’t wear any make up and let my toxin and fillers wear off so I would look natural and you could see me. I am interested in looking better, I am open to receiving more fillers, toxin, or even surgery. I’ll do whatever you think is best but I want to look natural. What can you do for me?”

Her riddle, I could not answer. But it forced me to contemplate, what is natural?

We are born natural as are those on the cover of National Geographic magazine are natural, with large noses, loose jowls, and hanging necks. Is this the natural that our patients seek? In esthetic medicine, attempting to create a natural outcome does not and cannot exist. It is an unattainable goal based on a flawed logic. A “natural” appearance can only exist in the absence of esthetic interventions. Yet many have now set sail on a quest to find the ever-elusive natural outcome, but can it only be appreciated as an interpretation? Patients no doubt seek to be beautiful but they also want to simultaneously appear genuine or trustworthy. To achieve a natural outcome, starts by reaching the intersecting longitude and latitude planes of beautiful and genuine. These two primitively encoded navigational tools are not yet in themselves enough to direct us to the desired destination. The most desirable people are not solely the most beautiful or the most genuine.

What esthetic medicine voyagers seek is not just being beautiful and genuine in appearance but more importantly, they want to be attractive. Being attractive is a multidimensional nebula far beyond the singularity of physical beauty. The attractive embody confidence and capture the disinterested interest of others. We all know of a physically beautiful person, blessed with ideal features, yet they project an unattractive image. They walk into a room with their head down, an angry scowl or pompous lift projecting a negative aura. In contrast, those who enter with a confident swagger, a hinted smile, and a suggested approachability may not have the most

mathematically perfect features but they are tantalizingly and overwhelmingly captivating. They ooze attractiveness, a kinetic, and complex primordial recipe that esthetic providers are attempting to define and deliver.

Being attractive is relative to the observer and the projector. It is defined where the unidimensional forces of genuineness, beauty, and self-esteem intersect, resulting in a 3-dimensional cube of attractiveness. Similar to the theory of relativity, which requires observers to view the time-space continuum from a perspective beyond themselves, a 4th dimension is necessary to appreciate the esthetic ideal of “natural.”

I invite you to consider a novel Special Theory of Relativity for Attractiveness for defining the ideal esthetic in human appearance.

It is first necessary to define the variables:

Beauty: A form of subconscious, primal communication consistent, and universally employed throughout all of nature, relevant to all living species indicating a being’s current health, fertility, and genetic value. Beauty is measured mathematically using the phi formula for facial features in static 2-dimensional photographs.²

Genuineness: A form of subconscious communication relative to an observer that is indicative of the projector’s trustworthiness and is measured dynamically during animation using a 7 -point Likert scale by the observer.³

Self-esteem: A dynamic, minimally mutable measure of one’s perceived self-worth or value. Self-esteem is measured by a self-rated Self-Esteem scale.⁴

Attractiveness: A consciously influenced and perceived dynamic form of communication that captures the interest of an observer. Attractiveness is affected by the prime variables of beauty, genuineness, and self-esteem and consists of the area within the 3-dimensions defined by these indices. Attractiveness is also influenced by expression, hair style, posture, culturally specific adornments, costume, cosmetics, and is relatively appreciated. Attractiveness is measured by a judge’s (observer’s) perceived first impression projected by the object in photographs but is better determined via dynamic video.⁵⁻⁷

2 | BEAUTY

Defining beauty has been debated for millenniums. While there are philosophical, cultural, religious, artistic, and mathematical viewpoints to consider, for our purposes, beauty serves as a primal form of communication indicating the current health and fertility status of a living being, along with the adaptive value of its genes. In such a model, beauty may be mathematically defined by measuring symmetry, body size ratios, and facial proportions. The most recognized mathematical equation for defining ideal beauty is the phi formula, which takes in to account the golden ratio of proportions. This divine formula encases the Vitruvian man as well as defines the gospels of esthetic surgery.² Humans have overcome the intrinsic laws of nature via the ability to modify one’s mathematically defined and genetically programmed beauty. We can alter facial proportions, body ratios, change eye color and augment secondary sexual characteristics, tricking the

naïve into believing an appearance of health, youthfulness, and fertility that is only but a false representation. Just as human kind cannot overcome the speed of light constant without consequences, there is a limitation in overtaking the laws of beauty after which human nature may collapse. While a world of human Ken and Barbie Dolls may fulfill the mathematics dictates of beauty, they also have surpassed the point on the curve where they appear fertile, healthy, and attractive to observers other than themselves. Beauty exhibits a Gaussian distribution. As we increase cosmetic interventions from makeup to hair care, neurotoxins to fillers, surgery to hormonal replacement, we can approach the mathematical proportions of an ideal beauty, but once past a distinct point, additional cosmetic intervention leads to an opposite effect. Cosmetically overtreated individuals project an image of being less healthy and evolutionarily fit. The nadir or high point of the natural curve is where the planes of genuineness and beauty intersect (Figure 1).

3 | GENUINENESS

While finding an ideal mate to procreate and promulgating genes is life's biological purpose from a Darwinian perspective, the most primal instinct of survival is to protect one's own genes. This aim is achieved by engaging with those who are believed to be genuine, whose actions and behaviors can be trusted. Genuineness is a sign of trustworthiness. Humans have developed an incredibly sensitive evolutionary preserved detector of genuineness. It is innately wired and housed deep within the subconscious brain.⁸

Guillaume-Benjamin Duchene in 1862 describing a genuine smile wrote that while the zygomaticus major muscle was under conscious control and "follows the will," the subconsciously controlled orbicularis oculi muscles are "put into play by the sweet emotions of the soul."⁹ A genuine or Duchene smile sees both of these muscles

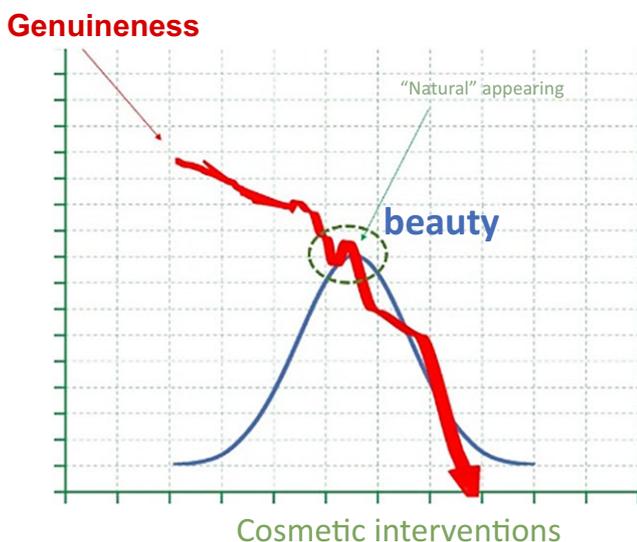


FIGURE 1 Genuineness starts out the highest at birth and can only be reduced with cosmetic intervention. The maximum point at which genuineness and beauty intersect is necessary for achieving a "natural" appearing result following cosmetic intervention

contracting nearly simultaneously. Those who do not smile with their eyes may appear ingenuine or untrustworthy. Genuineness is a dynamically interpreted trait that requires a person to be viewed in animation. Cosmetic providers, however, have been marketed to use the amount of toxins or fillers that produce a significant improvement on 2-dimensional static photos, likely blunting the appearance of a genuine Duchene's smile.

We are creating, validating, and teaching outcomes that result in cosmetically treated patients appearing ingenuine. It is not surprising patients are demanding to look natural. Appearing genuine is an essential component to cosmetic patients' desires. Those who are not trusted are generally not liked. In essence, trusted and genuine appearing people are more attractive. Rarely, if ever, however, does a cosmetic patient request to look more genuine. Furthermore, if genuineness was the goal, patients would never seek out cosmetic treatments as any intervention can only serve to reduce genuineness.

Creating beauty while protecting genuineness is at the core of what cosmetic patients desire, and this in itself can likely be used to define the "natural" results that patients seek, but this 2-dimensional model attempting to define an esthetic ideal is not complete. Much like Newton's laws of motion breaks down at cosmic levels, we need to consider another dimension to find the ideal esthetic goal.

4 | SELF-ESTEEM/CONFIDENCE

A person may be beautiful and genuine but not attractive. All cosmetic providers can recount a person who had a great outcome following cosmetic surgery or a nonsurgical treatment yet still does not capture the disinterested interest of another. They walk into the office with their head down, slumped shoulders, a shuffling gate, and hair draping over their face. One of the key components to being attractive is healthy self-esteem. The most engaging person in the room is often not the one with the most perfect facial features, but rather the one with the most confidence. Esthetic treatment can have a positive impact on self-esteem, confidence and happiness,^{7,10} and one's perception of their own appearance is highly correlated with their self-esteem.¹¹

5 | ATTRACTIVENESS

Being attractive is what cosmetically seeking patient's desire and esthetic physicians aim to offer. The volume of the cube created by the three indices' of beauty, genuineness, and self-esteem defines attractiveness (Figure 2). As we increase cosmetic interventions, beauty can be increased as well as self-esteem. Genuineness, however, cannot be increased as humans are born genuine and it can only be decreased by cosmetic intervention. If judicious use of cosmetic intervention is employed, self-esteem and beauty can be increased while genuineness is preserved. It is at the nadir of these three parameters that the interpreted area of naturalness exists (Figure 3A,B). When cosmetic interventions are exaggerated so that ideal physical ratios defining beauty are surpassed, genuineness is

reduced and self-esteem may drop as positive reinforcement from one's self and others wanes. As appearance progresses outside the cube of attractiveness, the cosmetically treated person begins to assume the unnatural appearance that is feared (Figure 3C).

Although projected attractiveness may be increased or decreased via consciously controlled interventions such as costume, adornments, posture, expression, makeup, hair styles, and cosmetic medicine, it is most closely linked with an individual's self-esteem. A positive 59%-85% correlation between global self-esteem and self-rated attractiveness has been reported.^{11,12} When self-esteem is high, so is one's self-perceived and projected attraction level. This is not to be confused with narcissism which is an iteration of low self-esteem and is an unattractive character trait.

6 | RELATIVITY OF ATTRACTIVENESS

Congruent with the time-space model where both time and space are dynamic and not absolutes relative to the observer, attractiveness is variable and relevant to the interrelatedness in space of the projector and the observer. Multiple studies have shown that ratings of attractiveness are influenced by perceptions of one's own attractiveness level.¹³ In a frequently cited study, participants rated their mate's level of attractiveness as 8.06/10 regardless of where either one of them fell on an objective scale of attractiveness.¹³ Accordingly, two attractive people will rate each other 8.06, as do two less attractive people who will also rate each other 8.06, but all four people would not score an 8.06 if rated by a large group of independent raters. Attractiveness, not beauty, is in the eye of the beholder. The authors concluded that mates do not settle for an unattractive romantic partner, rather they seek out and find another who they believe to be attractive, and quite often their selected mate's objective attractiveness level is similar to their own. If circumstances change and self-esteem rises or falls, it may alter what one finds attractive. Attractiveness of another is relative to the perceiver's

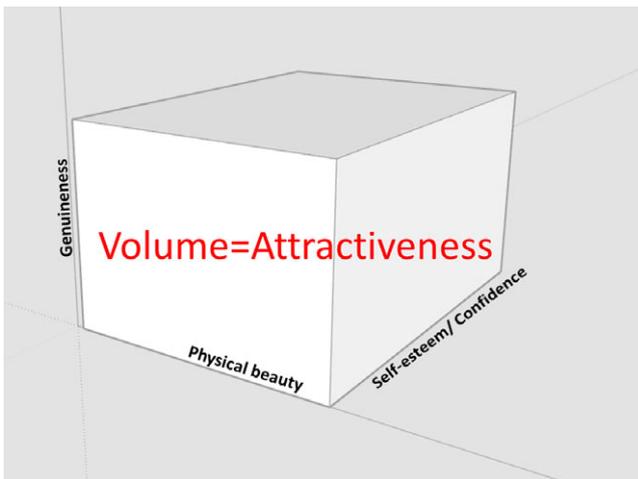


FIGURE 2 Attractiveness is a volumetric area defined within 3D plane in which the dimensions of beauty, genuineness, and self-esteem are the indices

own impression of themselves. Clinically, this may be inferred that following a cosmetic treatment whether or not a patient feels satisfied with the result may be highly correlated with their self-esteem

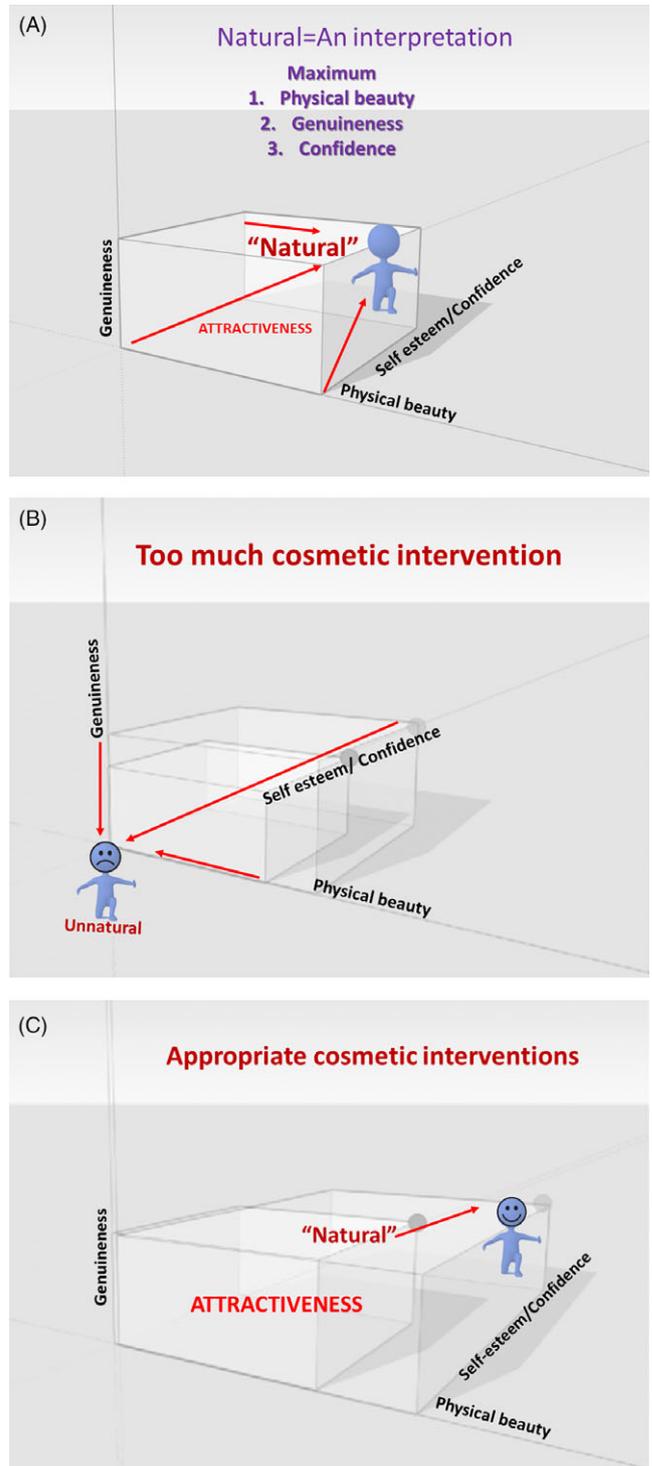


FIGURE 3 Naturalness can be interpreted as an area in the cube of attractiveness where beauty, genuineness self-esteem are at their maximum (A). Following appropriate cosmetic intervention, the cube of attractiveness may increase and naturalness may be preserved (B). If too much cosmetic intervention is employed then attractiveness can decrease and the individual may fall outside the cube of attractiveness and assume an unnatural appearance (C)

level. In addition, whether or not their acquaintances, family, and friends feel the result successfully increased the patient's attractiveness level is relative to that specific acquaintance, family member or friend's own self-esteem/attractiveness rating. Therefore, when treating a patient, taking into consideration the attractiveness level of those around them would be prudent, although admittedly impractical. The perceiver has to be open and willing to receive the impression to evaluate it, otherwise, the projector may not be recognized as attractive. To illustrate this point, in a celebrated social experiment reported by the Washington Post in 2007, Josh Bell, the famed violinist, played classical Bach on a \$3.5 million Stradivarius violin in the Washington subway on a snowy cold January morning.¹⁴ Few stopped or were attracted to the beautiful music. The vast majority passed by "other than a 3 year old." Two days earlier, Josh played to a sold-out crowd in a Boston theater. What was the difference? Same guy, same violin, same music. It came down to the relative perception of the commuter (ie, judging observers), who did not recognize and were not attracted to the beautiful music being projected. Similarly, if a person is sulking after having a bad day because of recently losing their job, their confidence and self-esteem levels may be low and even if a mathematically ideal, objectively beautiful, person walks past them they may not perceive them at all. If, however, in a different environment, a month later, these same two people are on vacation and the person who previously was disengaged now has a new job and is feeling confident, they may be more inclined to recognize, appreciate, and be attracted to that mathematically ideal person walking past them. While beauty can existentially exist regardless of the projector or receiver, attraction requires at least two people and a consciously cognitive deduction. In a concept that has not been clearly defined before in esthetic medicine, projecting and being perceived attractive is a relative phenomenon to the timing, self-esteem, an attractiveness level of the person projecting and the person judging (Figure 4).

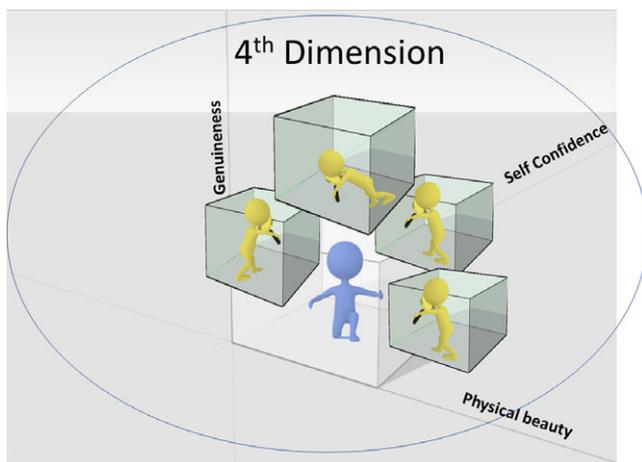


FIGURE 4 Attractiveness is relative, dynamic, and dependent on the position within a 4th dimension of the individual projecting and those that are judging

7 | THE PROVIDER AS AN OBSERVER/RATER OF ATTRACTIVENESS

Evidence exists that a cosmetic physician's appearance and self-esteem level influence the perceived outcomes for patients seeking esthetic treatments, and there are also reasonable data that physician's workplace satisfaction level may have an impact on patient outcomes.^{15,16} A systemic review evaluating studies of workplace happiness revealed that doctors with better workplace happiness are more likely to be better communicators, offer contagious optimism, and achieve better outcomes in their patients.¹⁶ If doctors have better moods this may manifest in a more positive and upbeat attitude that leads to optimum results perceived by patients.¹⁶ Although the studies evaluating health outcomes and physician interactions are mostly centered in primary care settings, can the same conclusions hold true in esthetics? Satisfaction rates for patients treated with energy-based devices published by dermatology groups have been reported higher than those from plastic surgeons.^{17,18} It is not surprising then that a 2015 Medscape survey of over 19 500 physicians from 26 specialties found dermatologists as the physicians with the highest career satisfaction rate.¹⁹ Outcomes following cosmetic intervention are influenced by multiple variables, included within may be the provider's attitude and their own personal satisfaction with their work.

8 | DEFINING NATURAL

Appearing unnatural is the number one fear hindering potential patients from undergoing a cosmetic medical procedure.²⁰ What exactly does it mean to appear unnatural, however, is undefined, yet we all can spot an unnatural look. The cosmetic medical community has recently been on a determined quest to define natural, yet it remains frustratingly elusive. It may be that a natural outcome following cosmetic interventions is only but a foggy illusion. Perhaps a better understanding of what is being desired when a patient requests a "natural outcome" would aid in the goal more likely being met. If it can be assumed that to appear better, feel better and not have anyone know treatment was performed, characterizes the correlating outcome signifying "natural," then a natural outcome is a misnomer. Paradoxically, the patient is really requesting to look unnaturally beautiful yet genuine and feel satisfied. A natural outcome then can only exist as an interpreted deduction. Traditionally, cosmetic medicine has taught and emphasized that to aim for an idealized beauty is a singular mission targeting an incomplete goal that is certain to fall short of patient expectations. Using modern day measures (phi formula, genuineness scales), a person's calculated beauty is at its nadir and intersects with maximum perceived genuineness at a point mathematically defined and suitable to objective scrutiny. This 2-dimensional cross section is then volumized by adding the self-esteem component to get a 3-dimensional cube of attractiveness. It is within an area defined by where the multiple planes are at a maximum that the ever elusive and overly venerated "natural" result can be gleaned (Figure 2). This area is then subject

to variable interpretation based on the judging observer's position from outside the cube. The most ideal outcome for an individual patient requires also considering the relative position of the patient's most meaningful judges. Therefore, the 3-dimensional cube of attractiveness is encased within a 4-dimensional space that considers the variable and dynamic positions of others (Figure 4). A treating physician who is also intimately involved in judging the patient's current and desired position would be best to know his or her position in the 4th dimension as well.

9 | CONCLUSION

To achieve a pleasing natural outcome is only but a relative interpretation of an area within the cube of attractiveness where the three planes of beauty, genuineness, and self-esteem meet. This is then appreciated within a 4th-dimensional plane relative to the judging observer. A new theoretical model for identifying an esthetic ideal of attractiveness that is intended to help guide esthetic providers when determining how to best meet their patient's demand for a natural outcome is proposed. The Special Theory of Relativity for Attractiveness is a first attempt to create a mathematically and scientifically logical framework for defining the mission of esthetic medicine. The theory is now open for critique, debate, testing, and modification. To meet the demands of an individual patient, alleviate the fears of a skeptical populous, and advance the field of cosmetic medicine, the esthetic medical community who serve both as providers and as observers would stand to benefit by understanding the relationship of the four dimensions of attractiveness and how they impact patients, judges, and themselves.

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