

## **OVERVIEW OF THE APPROACH TO THE TREATMENT OF AGING SKIN**

How and why we age largely remains a mystery but we do know certain facts. Aging of the skin is at least partly due to biologic and genetic factors, which at the moment we cannot control and partly due to environmental and life-style factors of which we have some control.

The biologic and genetic factors such as our natural skin color and how our parents “aged” will in part determine how we age. It is known that individuals with darker skin age “better” than those with lighter skin given the same amount of sun exposure due to their “natural” photo protection. On light skinned individuals compare, for example, the sun-exposed skin of the forearm and back of the hand to the non-exposed skin of the inner arm and notice the difference in color, tone, texture, and wrinkling. The tendency to develop lines around the eyes, so-called “crows feet”, droopy eyelids, fullness of the lower eyelids, and some of the deeper lines and wrinkles of the forehead and around the mouth are primarily thought to be genetic in origin. The tendency to develop brown spots is also probably genetic, but certainly aggravated by sun exposure. As we age, we may gain or lose weight and the face is one of the first places to reflect those changes. Additionally, there is a natural and gradual loss of skin elasticity as well as loss of fat and bone structure in the area around the mouth. Dental health is also important as the teeth and upper and lower jaw support the skin and loss of these structures can affect facial appearance. Lastly, gravity pulls everything downward. All of these factors contribute to what we perceive as aging including deeper “smile” and “sad” lines around the mouth, thinning of the upper lip and the development of jowls around the jaw.

Almost all of the perceived “negative” consequences of biologic and genetic skin aging noted above can be made even worse or on the contrary hopefully improved by environmental and life-style choices. It is indisputable that long term ultraviolet light exposure and smoking contribute to and accelerate skin aging. Ultraviolet light, whether it be nature sunlight or artificial indoor tanning contributes to the development of brown spots, visible fine facial blood vessels, facial lines and wrinkles, thickened leather-like skin, red, scaly, and crusted lesions known as actinic keratoses (AKs) which are precancers, basal and squamous cell skin cancers, and melanoma, the most serious and potentially life-threatening of all skin cancers. Smoking contributes to the lines around the mouth, especially upper lip lines, and poor wound healing, among its many other negative effects. It goes without saying that avoiding tanning and smoking is a good start to prevention. Maintaining good physical and mental health is dependent upon preventive medicine with regular checkups by your primary care physician and upon a healthy “life-style” paying attention to a healthy diet, regular exercise, good hygiene, adequate sleep, and stress reduction.

Furthermore, critical facial assessment reveals most of us are asymmetrical; that is, the right and left sides of the face are not identical, but more like “sisters”. Eyebrows are often different height or shape, one side of the face may be fuller or flatter, and lines and wrinkles don’t match up. Some of these differences may be explained by sun exposure patterns (driving a car exposes the left side of the face), sleep patterns, and underlying bone and dental structure. These are factors we must take into consideration when evaluating, treating, and assessing outcomes. Improvement is expected, but perfection is not realistic.

While the benefits of cosmetics, cosmeceuticals, moisturizers, exfoliants, alpha and beta hydroxy acids (glycolic, lactic, and salicylic acids), retinoids (Retin-A, Renova, Retinol, Tretinoin, Tazarotene, Differin), bleaching creams, antioxidants, vitamins including Vitamin C, growth factors, enzymes, and the like may be debatable, there is unequivocal evidence that sunblock and physical protection from ultraviolet light by wearing

a hat, sun protective clothing, and UV protective sunglasses retard photoaging. The spectrum of ultraviolet light responsible for photoaging (brown, red, scaly, and crusted spots, fine lines, and wrinkles) is called UVA and is present in equal intensity, morning to evening, all year around, and regardless of whether the sun is shining or not and passes through window glass. On the other hand, ultraviolet B (UVB) is most intense 10 a.m. to 2 p.m. during the summer, causes sunburn and is primarily responsible for skin cancer. Therefore daily year round use of a broad spectrum (UVA/UVB) sunblock SPF 30 or greater preferably containing Zinc oxide/titanium dioxide is recommended. In fact, the Food and Drug Administration allows any product containing a sunblock to be labeled “anti-aging”, “rejuvenating”, “revitalizing”, “anti-wrinkle”, etc.

Basic skin care includes cleansing with a gentle or soap-free skin cleanser and applying a moisturizer with a sunblock SPF30 or greater everyday. Makeup application and type is a matter of personal preference and certainly acceptable. The benefits of applying other cosmeceuticals, as noted above, can be debated, as clearly, not all of the claims made by these products “come true”. By law, products which require prescription must demonstrate sound unbiased scientific evidence verifying their efficacy for the majority of users and their safety. Non-prescription products which include many of the cosmeceuticals do not have to prove efficacy but only that they are safe. That said, many of these products may be helpful but certainly not for everyone who uses them. Unfortunately, some do not live up to their expectation. Our licensed aestheticians and medical assistants have been trained by us and are available to assist you with many of your skin care and aesthetic needs.

Skin conditions can be loosely categorized into those which affect **COLOR, TONE, TEXTURE, AND VOLUME** and often are a combination of these factors. Skin is what we see but its appearance also depends upon underlying fat, muscle, and bone which nourish and support it. All of these factors need to be taken into consideration when approaching treatment.

**LISTED BELOW ARE SOME OF THE MOST COMMON TREATMENT OPTIONS FOR THE FOLLOWING CONDITIONS:**

- Skin tone, texture, color: Topical cosmeceuticals, chemical peels, microdermabrasion, microneedling, photo rejuvenation using photodynamic therapy (PDT) Levulan/Blu-U light or intense pulse light (IPL), pulse dye laser, Fraxel laser.
- Facial redness/Fine visible facial blood vessels: Green tinted neutralizing makeup, pulse dye laser, IPL.
- Brown flat spots: Topical cosmeceuticals, light chemical peels, liquid nitrogen, laser, IPL.
- Brown crusty spots (seborrheic keratoses): Liquid nitrogen, surgical removal.
- Actinic keratoses (AKs): Topical cosmeceuticals, topical chemotherapy, photodynamic therapy (PDT) using Levulan/Blu-U light, liquid nitrogen/surgical removal.
- Forehead lines: Botox, filler, surgical lift,
- Crow’s feet lines around eyes: Cosmeceuticals, chemical peels, Botox, filler, microneedling, Fraxel laser.
- Brow lift: Botox, filler, surgical lift.
- Excess upper/lower eyelid skin: Fraxel laser, blepharoplasty (surgical removal of excess skin).
- Dark circles under eyes: Topical cosmeceuticals, filler, lasers.
- Deflated or hollowed cheeks: Filler.
- Lines and wrinkles around mouth, upper lip lines, “smile” and “sad” lines: Filler, Botox, microneedling, Fraxel laser.
- Small thin lips: Filler.
- Jowls: Botox, filler, skin tightening devices (Thermage/laser), facelift.
- Neck skin lines and laxity: Botox, filler, microneedling, laser, surgical neck lift.
- Double chin: Kybella fat dissolving injections, cryo lipolysis, liposuction.
- Skin tightening: Topical cosmeceuticals, skin tightening devices (Thermage/laser), surgical facelift.

- Depressed acne/chickenpox-like scars, surgical scars: microneedling, Fraxel laser, filler, surgical correction.

In general, lines and wrinkles of the upper face are treated with Botox with the addition of fillers if necessary and lines and wrinkles of the lower face are treated with fillers adding Botox if necessary. Microneedling or Fraxel laser may be used to supplement these procedures. Frequently, combining different treatments provides the best results.

**BOTOX** and fillers are two of the most common procedures performed by physicians for non-surgical cosmetic rejuvenation. Their popularity is a reflection of their efficacy, predictability, and safety. The results are almost immediate with little or no “downtime” and most, if not all, of the few and relatively minor side effects which may occur, are temporary and reversible.

Botox, Dysport, and other similar neuromodulators are injectables used to relax facial and other muscles, which when tense, cause or aggravate facial lines and wrinkles primarily of the upper face (forehead, frown lines, and crows feet around the eye). The injections are minimally uncomfortable and do not require anesthesia. Immediately after treatment (which takes less than 15 minutes), there may be minimal localized swelling, redness, and rarely bruising lasting a few hours to a day or two at most. The results of smoother, relaxed, more youthful appearing skin begins about three days after treatment and reaches its full correction at about four weeks. After the initial treatment, results start to fade at three to four months and repeat treatments are necessary to maintain the correction. After several treatment sessions, the duration of correction may last longer for some patients. Many patients come in twice yearly for their treatment. In patients who continue to exhibit unwanted lines and wrinkles after Botox, the addition of filler material, microneedling or Fraxel laser can be used to improve results. Botox is very safe in the dosages used for cosmetic purposes even though it is a toxin. Side effects of Botox include but are not limited to headache, droopy eyebrows, eyelids, or lip, facial asymmetry (one side of the face does not look the same as the other), and double vision. These side effects are infrequent and are completely reversible (go away completely even without treatment).

**FILLERS** are materials injected (as opposed to topically applied products containing similar ingredients) to fill lines and wrinkles and replace volume loss primarily of the lower face, but are used in the upper face as well. Fillers include those which are hyaluronic acid based (Restylane, Juvéderm, Belotero, Voluma) and collagen stimulators (Radiesse, Sculptra) and there will be others available in the near future. Each product produces its result in a unique way. The collagen stimulators are products which stimulate the body to produce its own new collagen. Collagen can be thought of as the “bricks of a wall” providing support; hyaluronic acid products as the “mortar” holding the “bricks” (collagen) together as well as acting like a sponge to hold water in the skin. All of these products are considered “natural” as they are normally present in the skin. Like the body’s own collagen and hyaluronic acid which are continually being broken down, these injectable materials are similarly metabolized by the body resulting of a loss of correction over time. In general, the duration of the correction of these products is between three and twenty-four months with the hyaluronic acid products providing shorter term and collagen stimulators longer term correction. These are general guidelines as the duration of the correction is also dependent upon the facial area injected, the amount of material injected, and there is also variation among individuals. In general, the safety profile of the filler materials is excellent. Expected consequences of treatment include, but are not limited to pain of injection, redness, swelling, bruising, and lumps and bumps. Redness, swelling, and bruising may last several days but the development of lumps and bumps may last several weeks to several months. None of these products are permanent and regular maintenance treatments are required for continued correction. There are some permanent fillers and surgical implants available but these products have both good and bad attributes. On the “good” side, if you obtain the result you like, it will persist indefinitely. However, we all continue to age with time in spite of our best efforts, but permanent products will not change and could become visible over time. Secondly, if you obtain an undesirable or unexpected result with a permanent product, the only way to correct it is with surgical removal which will likely result in permanent scarring.

**SKIN TIGHTENING** can be accomplished to a minimal degree using cosmeceuticals and there are devices such as radiofrequency (Thermage), and specialized lasers claiming results but none of these devices can approach the results of a surgical facelift. Of course, with these more aggressive procedures, the trade off for their more significant results is a longer downtime and recovery, and much higher side effect profile.

**Microneedling** is a procedure utilizing a mechanical device which creates microscopic invisible holes in the skin which close and tighten skin. It is used to reduce acne, surgical and traumatic scars, stretchmarks, fine lines and wrinkles around the eyes and mouth, and reduce pore size.

**LASERS** are light beams with specific characteristics. There is a laser for almost every color in the rainbow. For instance if we wanted to remove a brown spot, we would use a laser that specifically targets the color brown and that laser beam when pulsed would target the brown color and ignore any other surrounding colors. The same theory would hold true for the color red (blood vessel) or any other color. These are color specific lasers. There are some other lasers which are not color specific but target water in the skin. They are used for skin tightening, photo rejuvenation, reducing lines, wrinkles, acne, and surgical scars. Some of these lasers are non-ablative (Fraxel) which do not leave a crust on the skin after treatment but they need to be used on a monthly basis for three to six sessions and the results are seen gradually over time. There are also ablative lasers (CO2 Fraxel) which mean the leave a crust on the skin, much like a burn which may take several days to several weeks to heal but the results are more immediate. Lastly, there are non-laser light sources called intense pulse light (IPL) and photodynamic therapy (PDT) whose results for photo-rejuvenation are similar to the non-ablative lasers. Most of the photo-rejuvenation treatments require multiple sessions (3-6) at monthly intervals to obtain results.

**RENEW AND THE SPA**, our aesthetics department are staffed by medically trained licensed aestheticians who are supervised by our board-certified Dermatologists. They are available to counsel and give advice about skin care and hygiene, sun protection, makeup choices and application under physician supervision. Our highly skilled and trained aestheticians perform facials, pore extraction, chemical peels, microdermabrasion, microneedling, facial hair waxing, laser hair removal, intense pulse light (IPL) and photodynamic therapy (PDT) for overall facial skin rejuvenation. These dedicated skin care specialists provide expertise and service which are an integral part of our overall approach to helping you obtain and maintain healthy skin.

In conclusion, these are some of the many options available for the treatment of aging skin and there will likely be many more to come. Choosing what is “right for you” can be both confusing and challenging. When undergoing any procedure, cosmetic or otherwise, fulfilling patient’s expectations is a physician’s greatest challenge. Paramount to a satisfactory outcome is for both physician and patient to have equally realistic expectations that are reasonable and not inflated. For example, we cannot expect our skin to look like it did when we were 20-years old or to compare with models in glamour magazines. We can expect your skin to look “better” after treatment, but better is relative and improvement in one person’s eyes may not be the same as to another. Lastly and unfortunately, favorable and desired outcomes cannot be guaranteed and sometimes unintended and undesired results occur. If this happens, we will work with you to try to solve the problem.

Our goal is to educate you so that you have a clear understanding of the treatment options, risks, benefits, and alternatives before proceeding with treatment. We are honored and pleased that you have chosen to place your trust and confidence in New England Dermatology & Laser Center for your skin care. Together, we will strive to meet your expectations.