



NON-SURGICAL FACE LIFT TREATMENTS

We are all getting more out of life these days, and as the population ages, we are demanding more and more from our appearance as well. The goal is to get more without going under the knife. There is a raft of new technologies sweeping New Zealand that have transformed the beauty industry – and its clients! Every clinic needs to know about these advances and how they can assist in the anti-aging process.

So what are the causes of the skin thinning and sagging that clients seek to reverse? We often see this as inevitable as people age, without thinking about what is going on. In addition to too much sun exposure and bad living (eg smoking), these aging changes are related to poor diet and digestion, and diminishing hormones.

Healthy Diet and Lifestyle

Diet and digestion are important. You know the old saying, 'you are what you eat'? This is not correct. In fact, you are what you eat and absorb. As a person heads past 40, they don't make as much stomach acid and/or digestive enzymes, so nutrients from food are not as easily absorbed into the body. If you are concerned about digestion, you could advise a broad-spectrum digestive enzyme preparation with main meals.

Diet needs to consist of good quality proteins throughout the day because our skin is made of collagen – that's protein. The typical Western diet, containing a lot of sugar, starch and white flour, will not help the skin but will make it worse, because these substances cause inflammation in the body. The skin will show this because it is our largest organ. Acne in teenagers is a good example of this.

Good quality protein, lots of fruit and vegetables, and avoiding sugar and starch is the way to go. The way to fill up the rest of your diet will be with nuts and seeds, which are also good-quality proteins.

Supplements for Skin

These days everybody seems to be taking supplements; one survey found that 75% of us take them. The important ones for your skin are omega 3 fish oil, an antioxidant and anti-inflammatory, and the main antioxidant vitamins – A, C, E and selenium. In addition, in my clinical work I have noticed that virtually everyone I test has low zinc and low vitamin D. Zinc and vitamins C and D are important for collagen production, and D is also important for the skin and general health.

Hormones

Hormone losses cause a few tell-tale signs. Loss of hair from the outer part of the eyebrow and bags under eyelids can mean an underactive thyroid. Per oral lines, especially of the upper lip, can mean low oestrogen. The dropping of the lateral brow, the sagging of the cheek and the loss of volume in the cheek are related to a reduction in growth hormone levels. In my clinic, I have been able to 'cure' bags under the eyelids and prevent surgery by improving the clients' hormone balance.

So, if at all possible, prevention, or slowing down of ageing that involves loss of good biochemistry and hormones, is one of the first principles.

In the 40s and beyond is the time when many of these changes start. I have met many 50-year-old women who say, "When I hit 50 my face dropped." Referring them to someone who can sort out their hormones can be useful, especially if they have other problems like heavy painful periods, severe PMT or menopausal symptoms that are causing a disruption in their lives.

Beauty Sleep

It goes without saying that sleep is important. We all know that if you get a good night's sleep you feel and look better. This is because if you are in bed and asleep before 10:30pm the pineal gland, in the centre of the brain, releases melatonin, the body's natural antioxidant and anti-aging substance. Melatonin is an anti-cancer compound and is responsible for preserving eyesight, the brain and the heart. It is also a natural anti-aging compound that is easily enhanced with a good night's sleep.

Smoking

Smoking is a big no-no because twin studies have shown that smoking thins the skin. (I suspect it is because the body is starved of oxygen.) Any plastic surgeon will tell you that he will not perform a facelift on a smoker because of the poor wound healing. Similarly, in my Skinfresh Clinic, we avoid performing some of our light and laser-based therapies on smokers because of the expected poor response. In addition, smokers are exposed to chemicals like cadmium and arsenic – these will cause further damage to the skin and the body.

Sun Exposure

Sun exposure is an important cause of skin ageing because UV damage from the sun causes solar elastosis, meaning the collagen fibres are stretched out and less coherent – this is an important cause of skin thinning and sagging. Manage stress, because it causes inflammation which is damaging to the skin. I've never seen a tired, stressed person look good.

Skin Care Specifics

Of course, skin care is the next step on top of healthy lifestyle and prevention; the most important aspects are protective and skin-tightening skin care.

Protective skin care consists of sunblock and antioxidants. A good broad-spectrum sunblock capable of stopping UV rays is very important, especially in New Zealand. I prefer a zinc-based morning moisturiser with sunblock combination, because zinc is a physical blocker that will block the whole spectrum of UV, as well as helping the skin.

Other blockers containing titanium dioxide or oxybenzone will not quite block the whole UV spectrum. A recent innovation marketed as Helioplex® is oxybenzone with an added compound to give it the extra spectrum – in my opinion, a zinc-based sunblock will work just as well.

Antioxidants on the skin, as well as in the body, are a good idea. The antioxidants need to be A, C and E, and often other antioxidants are added to skin care, including alpha lipoic acid, coenzyme Q10 and idebenone (which is a derivative of coenzyme Q10, and marketed as Presage®). Natural antioxidants can include green tea, but there are many others in a variety of cosmetics, such as flavinoids, carotenoids and polyphenols, which can include soy, curcumin, silymarin, and pycnogenol. Anti-inflammatory botanicals include ginkgo biloba and green tea.

Among the most important skin-care ingredients are the Retinoids, the strongest of which is Retinoic. These are all vitamin A-derived and work powerfully on the DNA in the skin cells, stimulating them to normalise the skin. This results in older skin becoming plumper, less wrinkled, and less pigmented. Retinoids also protect the skin from UV radiation and reduce skin cancer.

Special Skincare Ingredients

The skin tighteners can include DMAE and special peptides. DMAE is short for dimethylaminoethanol, which is a naturally-occurring substance that facilitates the synthesis of the neurotransmitter acetylcholine. Some overseas ads have called this 'the face lift in a jar', and claim increased firmness of the skin. According to a textbook of cosmetic dermatology, they cited 150 women between 35 and 60, in a placebo-controlled randomized double-blind multiple centre study featuring DMAE.

Dermatologists rated the improvement in women's otherwise untreated skin on a 1-10 scale. They did this regularly for one month using digital photography, skin colour evaluation and water retention measurements in the stratum corneum. At the end of 29 days it was found that the change in the firmness of the under-eye area treated with DMAE was 5.15 (where 0 was no change, and 10 was the best change), and this result was of statistical significance. The change in cheekbone and cheek fold firmness was 6.96 and 7 respectively – also of statistical significance. The change in jawbone firmness was 5.98.

Another study published in the Journal of Skin Research and Technology found that over longer periods of time, DMAE was found to increase firmness. There was yet another study on lip fullness, which showed an improvement of 5.43 after 29 days of use. In the American Journal of Clinical Dermatology, DMAE has been called a "moderately acute anti inflammatory agent".

DMAE is thought to work in one of two possible ways. It may enhance water retention in the connective tissue, and it has been shown to improve cholinergic transmission between neurons in sea urchin studies. It has been hypothesised that DMAE's effect on synaptic transmission may promote a form of muscle tightening in the skin.

The amount of DMAE to use in humans is in question because one study in the British Journal of Dermatology showed that human cells cultured with 3% DMAE exhibited a moderate cytotoxicity – however, this was in-vitro. In other studies using humans, DMAE seems to have a good safety profile. If you wish to be safe, it may be prudent to use a lower strength of DMAE.

Though I have given you this information about DMAE, I am not aware of any products available in New Zealand with this as their ingredient. However, I do notice that many creams will have patented ingredients that they don't declare, making it difficult to know what they contain. Look out for this in the future.

We are still with skin care, but on a different theme now. An example of undeclared 'miracle ingredients' in skincare include simple statements about peptides. Peptides are molecules that contain amino acids, and amino acids are the building blocks of proteins, as are peptides. There are peptides that tighten but there are also peptides in other categories. You will hear more of peptides from now on – think of them as messengers that tell the skin cells to do certain things – like grow, increase collagen, and so on.

The relaxing peptides include a hexapeptide called argireline, which inhibits neurotransmitter release at the end of a motor nerve. The clinical result of this peptide's inhibitory effect on neurotransmitter release may raise the threshold for minimal muscle activity, requiring more signal to achieve movement and therefore reducing subconscious muscle movement over time. If this peptide is delivered to targeted facial muscles, there could be a decrease in dynamic facial lines and wrinkles. This is 'Botox in a jar'.

The other kinds of peptides available include signal peptides and carrier peptides. Signal peptides stimulate proteins of the extracellular matrix including collagen and elastic. These types of peptides were originally developed as part of wound-healing research on the growth and stimulation of human skin fibroblasts. These same peptides are now being studied for their ability to act as growth factors via activation of protein kinase C, which is a key enzyme for cell growth and migration.

Carrier peptides perform another function in cosmeceuticals, which is to stabilise and deliver metals such as copper to the tissues. Copper is an important trace element necessary for wound healing and enzyme processes. Copper, if delivered to the skin, may have skin anti-aging benefits. This is because superoxide dismutase, a very important antioxidant, requires copper as a co-factor. Thus, making copper available to the skin means that superoxide dismutase can work more efficiently and work as an antioxidant.

Another important enzyme that is dependent on copper is lysoloxidase. This is important in collagen and elastic production. We are now seeing copper peptide complexes incorporated into skin care.

Facial Microcurrent Treatment – the 'Non-Surgical Facelift'

Now for a machine. In a category on its own is the facial micro-current treatment available in many New Zealand salons. This technology originated in the medical and physiotherapy fields and is now used, according to the seller's claim, to 'activate the skin's natural chemicals responsible for health and vitality'.

The benefits are claimed to include improved muscle tone of the face, neck and jowls, improved ability to lift the eyebrows, and reduction or elimination of fine lines and wrinkles. It is supposed to improve facial circulation, skin exfoliation, lymphatic drainage, sun damage, skin pigment and product penetration. The micro-current technology uses gentle electric stimulation to trigger these events. The only information I have been able to find about this technology is one study (claimed to have been performed at the University of Washington), which showed that after 20 days of treatment, collagen production increased by 14%, elastic increased by 48% and blood circulation increased by 38%.

Apparently, it works by triggering the body's production of amino acids and ATP – both of these accelerate cell repair and promote healthier cell production.

The treatment itself is painless and takes an hour to complete. The client would need to have approximately 12 sessions and then routine follow-up treatments to maintain the facelift results. Many of you recognize this as a treatment promoted as the 'non-surgical facelift' by a major beauty and appearance franchise in New Zealand.

Microdermabrasion and needling are next to consider as treatments that could subtly lift, as part of their effects on collagen production.

Microdermabrasion

Microdermabrasion is the process of resurfacing the top layer of the skin to a precise depth by the concurrent combination of exfoliation and vacuuming. Removing the dead skin cells and stimulating blood flow causes the deeper dermal level to be stimulated to produce collagen and fibroblasts.

The results are a fresher improved skin with an enhanced surface quality. This is a comfortable treatment with no downtime. Clinical studies have shown this treatment to be effective for acne, hyperpigmentation, sun damage, fine lines and superficial skin disorders. The normal recommendation is for six to 12 treatments, seven to 14 days apart, according to the severity of the client's problem.

Because the suction component of microdermabrasion stimulates the deep dermal collagen, there is potential for this treatment to provide subtle skin tightening and thus a subtle lift. The treatment requires less than an hour and the patient's skin can be pink or slightly red afterwards, but this can be easily covered by makeup and will resolve in a few hours. Maintenance needs to continue with a good skin-care programme and monthly treatments.

Skin Needling or Collagen Induction Therapy

Skin needling is something that is not obvious in the marketplace, but has been known about and used since the mid-1990s. It first became known when a Swiss-French dermatologist, Dr Philippe Simonin, published his results in *Barn's Cosmetic Dermatology* 1994. At the time he called it *electroridopuncture* (ERP).

In his study of 600 patients, he performed 10 treatments on each. He found that in the patient group with skin aging, 40% showed significant improvement, 22% showed moderate improvement, and 13% some improvement. In patients with old scars, 60% improved with five to six treatments. He found that best results were obtained for old fibrous and depressed scars.

Another pioneer of skin-needling was Dr Andre Cameron, a Canadian plastic surgeon who made a chance observation of improvement in the texture and depression of scars of some of his facelift patients who had undergone tattooing for scar camouflage. He noted that the skin needling caused flattening of hypertrophic scars. He performed his needling procedures with a high-speed tattoo gun under local anaesthesia and treated each scar to pinpoint bleeding.

I recall sitting at a conference in Australia a few years ago watching Dr Des Fernandes, a South African plastic surgeon, delivering a paper about his method of performing skin needling. He used a surgical version under anaesthetic to improve collagen production, scarring, texture and aging.

There is a take-home skin-needling roller available for patients to use themselves – this is less invasive than the surgical model. Once again, there is potential for this treatment in subtle skin tightening, because it increases collagen in the skin.

You have noticed by now that I have covered the least invasive and least costly types of treatments that to date have had a mild effect on any sort of tightening or lifting.

Muscle Relaxers

Now we start to move towards treatments that have more obvious effects, the first of which are muscle relaxers. We all know them as botulinum toxin injections which are used mostly in the upper half of the face on dynamic wrinkles (those caused by muscle movement) situated in the frown, brow and crow's-feet areas. Carefully placed botulinum toxin injections can lift the lateral eyebrow and open up the eye.

In addition, botulinum toxin injections can be used in the lateral chin area, where we have the depressor angularoris (DAO) muscle. This muscle is triangular, with its broad base along the jaw just lateral to the centre point of the chin. The tip of the triangle of this muscle inserts near the corner of the mouth. The action of the DAO muscle is to pull down the corners of the mouth. By injecting close to the base of this muscle and relaxing it, you can release the corner of the mouth and therefore lift it slightly.

In addition to lifting the corner of the mouth, it may help to release and therefore lift the cheek subtly. This is a common technique used before proceeding to a mid-face liquid facelift (using fillers) which we will discuss later.

Botulinum toxin injections are also used strategically to inject platysmal bands. Platysmal bands are thickening of the platys muscle which sheaths over the top of the anterior neck muscles. When asking the client to make certain faces in front of a mirror, you can see a couple of vertical lines under your chin and sometimes lines at the side that coincide with the jowl. Strategic injection of these muscles will soften the jowl, therefore improving the jawline and improving the neckline. Some call this the Nefertiti lift.

Dermal Fillers

The most popular dermal fillers on the market are those containing hyaluronic acid, which is generally found in the skin of animals. It is manufactured and placed into syringes for injection into the face. It is typically injected under lines and wrinkles to lift them up, and lasts six to 12 months depending on the product. Brand names include Restylane® and Juvederm®.

Its most popular use is in the lips, to define the lip borders, improve the per oral lines and to plump the lips. However, it has also been used in the mid face to add volume to the cheek areas and zygomatic areas, giving a more youthful line to the cheeks and lifting the anterior face.

In recent years, another product has come onto the market containing calcium hydroxyl apatite – brand name Radiesse®. This substance has been used in the body for some 30 years to support heart valves, vocal cords and urethras. It has been used for around 12 years to fill the fat atrophy and severe loss of volume in the cheeks in AIDS patients. It is a thicker product than hyaluronic acid, with more lift. It lasts 12 to 18 months.

It is not suitable for the lips because it is white, and I believe its best use is in the nasolabial and marionette areas and to create the liquid facelift. I am one of the most experienced doctors in the use of Radiesse® in New Zealand.

The 'liquid facelift', or 'mid facelift' can use hyaluronic acid, calcium hydroxyl apatite and perhaps other fillers to give volume to the cheeks and the zygoma area. This gives a more youthful line and takes pressure off the nasolabial and marionette lines. It is a very satisfying procedure which restores the youthful lines of the face.

In addition, all fillers can be used in the lateral brow to raise it, as well as in hollow areas around the lateral eye – as you age you lose muscle mass around the temporal area.

At the last international cosmetic surgery conference I attended, we had several international speakers exhibiting a definite trend away from surgical facelifting and towards using several syringes of filler to give volume and shape to the face. One international speaker used 12 syringes of filler in one patient.

The advantage of using fillers compared to a facelift is the low invasiveness of the procedure, as well as lowered risk and downtime. In addition, the contours of the face are being improved to youthful contours

rather than just stretched back by a facelift. We have all seen the unfortunate results of too many facelifts – the ‘Catwoman appearance’.

Final, cautionary points on fillers: first, refer your client to an experienced doctor for this procedure; second, your client, in my opinion, should avoid ‘permanent fillers’ for two reasons. Although they may seem better value for money, they have a ‘permanent risk’ of granuloma formation and infection, requiring antibiotics, and sometimes surgical removal of the filler. Also, the face changes over the years, and the permanent filler will start to look odd or out of place.

It’s safer and aesthetically better to use the fillers I have mentioned because of their low risk.

Autologous Fat Grafting

This has been around for many years – this is a technique where the patient’s own fat is harvested from a position such as the buttocks and then injected into the cheek or other areas. It is a more invasive procedure and in some cases the graft does not last.

Laser and Light Treatments

Of these treatments, the two gold-standard treatments for skin tightening are Thermage® (monopolar radiofrequency) and Titan® (far infrared light procedure). Both have been scientifically validated and clinically proven to treat the deep dermis and permanently tighten the skin. Although the skin is permanently tightened, the skin continues to age and loosen.

I understand that Thermage is somewhat uncomfortable, and requires pain management. Clinics get around this by apply face-numbing cream, and using sedation and / or inhaled anaesthetic.

My own experience in my clinic is with Titan, which is a walk-in/walk-out procedure with no downtime and no significant discomfort. It can be used on any skin colour, including dark skin. The ideal candidate is a non-smoker with thin lax skin. Often people over 50 respond the best. After an initial course of two to four treatments of the face, jaw and/or neck, one top-up treatment can be performed at one to two years to maintain the effect as the patient ages.

Other laser and light therapies can subtly tighten the skin. Many clinics have intense pulse-light machines (IPL) and in some patients, after a series of treatments, a very subtle tightening might be observed. However, you wouldn’t do it for tightening.

A particular treatment that does tighten the skin a little more than these IPL treatments, but not as much as Titan, is the Laser Genesis treatment, a specific 1064 ND Yag laser which is used to heat the deep dermis. It is a comfortable, walk-in/walk-out procedure with no downtime. I use it for texture and rejuvenation as well as deep redness, including rosacea. Because it works on the mid dermis it will tighten the skin.

I have had clinical experience with this and have seen these results. It is used a lot in Japan because the darker Japanese skin precludes the use of IPL for rejuvenation. After an initial course of treatment, to maintain the tightening and the other effects it needs to be topped up around six-monthly. There are only a few of these in New Zealand.

Hybrid devices are those that consist of intense pulse-light combined with bipolar radio-frequency. The combination of electrical and optical energy as seen in these devices is theoretically there to enhance the effect. I have only seen two studies about this technology – one which said that they did not see any evidence of tightening, and another that showed some benefits similar to Laser Genesis. Top-up treatments after a course will be six-monthly.

Tripolar skin tightening treatments, I believe, do not have any clinical studies to support them. More invasive laser and light-based treatments exist primarily to improve pigmentation, collagen production and texture. They are not specifically designed to tighten as far as I can ascertain, but some tightening can occur as a side effect of the treatments.

Carbon dioxide laser is the oldest. It resurfaces the skin like a burn, and there is usually a recovery time of about three weeks. Modern innovations of this technology are the fractionated lasers which reduce the downtime to five to seven days and give fewer side effects – however, you need four to six treatments with some of them - Fraxel®, for instance. All these treatments require pain management. Even newer innovations with, in some cases, different wavelengths to the CO2 Laser, are fractionated treatments that only require one treatment.

There is a unique technology, called Portrait®, using plasma nitrogen to resurface the skin and improve pigmentation and texture. Downtime is five to seven days, and only one or two treatments are needed. Pain management is needed here too.

Suspension Threads

More invasive treatments start to use treatments like suspension threads. These are plain nylon threads or threads with barbs along them that are inserted behind the hairline, for example, brought down to the cheek or jaw area, and then pulled up and tied under the hairline. The procedure of inserting suspension threads requires sedation and a skilled experienced doctor to insert them. The results can be very good. This procedure could put off the need for a facelift.

Chin Implant

The chin implant is a bit more invasive and requires a general anaesthetic. It can be used in a weak chin to help pull up a sagging neck.

Future Treatments

In the future, look for ultrasound lifting, which is currently being researched. Focused ultrasound can heat the deep skin. So far, it has been studied for brow lifting. Topical anaesthetic is needed. The ideal candidate has not yet been determined; however, it is thought it will be able to treat mild to moderate skin laxity. It has not been marketed yet, but researchers believe it to be a promising technology for the future. These machines are not on the market presently.

In summary, there are many comfortable treatments available to improve the skin and thicken as well as lift it, with no downtime. Combinations of these treatments can be used to enhance the effects.

My list includes:

1. Enhance internal health of the body so the largest organ, the skin, can benefit first. Sleep, diet, digestion, stress management;
2. Oral skin supplements – vitamins A, C, D, E, selenium;
3. Hormones;
4. Skincare – protect with sunblock. Enhance with Retinoids;
5. Non-invasive treatments for very, very mild effects – microdermabrasion, needling, IPL;
6. Laser for mild to moderate effects;
7. Gold-standard treatments for best effects – Thermage®, Titan;
8. Botulinum toxin to open eyes, lift lateral brow, and relax DAO. Nefertiti lift for neck bands;
9. Dermal filler 'liquid lift' or 'mid facelift';
10. Sedation requiring 'threads' to lift jowl, brow, cheek;
11. Chin implant, facelift (requiring general anaesthetic);
12. Future – ultrasound skin tightening, DMAE and more peptides in skin care.