When it comes to looking youthful, skin that is even-toned, radiant and free of discolouration, spots and scars is more important than battling lines and wrinkles, according to experts. Looking “fresher” is the new “10 years younger”. Jenni Gilbert reports.

**Cause and effect of pigmentation, acne and acne scars**

THE HUMAN EYE decides in milliseconds about someone’s (perceived) age and attractiveness. When it sees a radiant, uniform skin tone, the eye-to-brain immediately calculates a younger age and higher level of attractiveness.

A lack of wrinkles is obviously an asset, but evenness of skin tone instantly gives visual clues about health, age and even reproductive capability, which is a primal marker of “youth”.

From the late 1980s, when it became possible to reverse lines and wrinkles with non-surgical technologies, crease-free skin and often preternaturally pumped cheeks and lips became the holy grail of reclaiming youthfulness.

Multi-national skincare companies accordingly invested their focus almost exclusively on ever-new breakthrough ingredients and formulations that promised to erase the tracks of time.

But, then, little wrinkles began to emerge in this trend. In 2006, multi-national Procter & Gamble (whose cosmetic brands include Max Factor and Olay) conducted intensive research and announced: “The study of skin ageing has evolved and moved beyond lines and wrinkles to address an important new area: the impact of skin tone on appearance.”

Its research and development would turn to “a new understanding of the biology behind a ‘youthful glow’.”

In 2010, the role of hyperpigmentation (also known as sun spots, age spots, dark spots, brown marks and “the mask of pregnancy”) in the appearance and perception of ageing was further cemented by a global survey conducted by Estee Lauder Companies on behalf of one of its flagship brands, Clinique.

It’s showed that hyperpigmentation was a growing concern of women around the globe, and particularly in Australia where the local survey (conducted online in February 2010 among 608 females aged 18-64 nationally) revealed it was the third largest skin concern and affected 62 percent of the women surveyed.

“People use the appearance of age spots to judge your age,” said Dr Daniel Yarosh, senior vice-president of science research for Estee Lauder Companies. “It’s become a huge concern, both physically and emotionally. Women say dark spots bother them more than lines and wrinkles.”

Another study in the same year used images of middle-aged women that were photoshopped into two sets: one with extremely uneven skin tone and the other, deep wrinkles.

Both sets were shown to a group of people to rate the attractiveness and youthfulness of the women’s faces.

Almost unanimously the women with uneven skin tone were voted less attractive and much older than their wrinkled counterparts.

Instead of ironed-taut, flawlessly smooth skin, there is a new
template for the aesthetics industry: consumers want to look relaxed, healthy and happy, with their skin even and toned.

According to internationally renowned dermatologist Dr Jean-Louis Sebagh, whose London-based practice is a magnet for supermodels (notably Cindy Crawford) and jet-setting socialites, the obsession with wrinkle-free skin is passe.

An industry leader and a pioneer of Botox use in the 1980s, Dr Sebagh says:

"It's very much about age maintenance today and not anti-ageing. We are now using Botox and filler with restraint."

Plastic surgeon and president of the British Association of Plastic Surgeons, Dr Rajiv Grover, adds: "Take a look back through the history books and you'll see that we've been slow to catch on. Looking younger was never about wrinkles.

"In teaching young artists how to portray a subject's age, Leonardo da Vinci explained 500 years ago that wrinkles should come relatively low on the pyramid, under complexion and volume.

"In the same way that a human eye perceives age, for Da Vinci it was about creating an impression of youth, something that the small detail of wrinkles would actually have little bearing on."

The primary culprits of uneven skin tone are hyperpigmentation, acne, dilated pores and scars.

In this special we look at the causes, types and the variety of professional treatments and prescribed home care available.

PIGMENTATION

According to leading cosmetic physician and skin cancer specialist Dr Gabrielle Caswell, President of the Cosmetic Physicians' Society of Australasia (CPSA), treatment depends on the depth and type of the pigmentation.

Therefore, it is essential for therapists to know in what layers of the skin the pigmentation is presenting:

- Epidermis - outermost layers of the skin.
- Dermis - layer of skin between the epidermis and subcutaneous tissues (hypodermis)
- Hypodermis - subdermal layer mainly composed of loose connective and adipose tissues.

TYPES AND CAUSES OF PIGMENTATION

While all skin tones suffer from pigmentation, those with darker Asian, Mediterranean and African skin tones are particularly prone, especially if they have a lot of sun exposure.

UV stimulates the pigment cells (melanocytes) in the epidermis to start making melanin. This is what causes suntans – and also hyperpigmentation.

However, there are other inherent factors that are exacerbated by UV exposure.

- Hormones: This is a biggie. Hormonal hyperpigmentation looks similar to that caused by UV exposure, so this means it is essential to be spot-on (see below) about the true source of discoloration.
- From the years spent on oral birth control pills to the months of pregnancy to the transition of menopause, fluctuations in the levels of oestrogen or progesterone can prompt hypersensitivity in the basal-layer melanocytes.
- This over-enthusiastic generation is called melasma (or chloasma, as in the case of pregnancy), a disorder that appears as areas of dark, irregular, demarcated skin, ranging in size from macules to patches on the forehead, nose, lips, and cheeks in a mask-like configuration. People with olive or darker skin tones are particularly susceptible.

Genetics: That is, inherited. People can be born with, or develop, odd, speckled neavi or other discolorations that can be quite large.

Heat: Environmental heat can trigger hyperpigmentation. Even the most vigilant about using sunscreen and physical sun protection can still attract discoloration because thermal heat also encourages melanocytes to produce melanin.

Injury: When you squeeze or pick at spots, or have suffered significant acne outbreaks, healed skin can form red-brown patches. These fade very slowly, if much at all. It's not scarring but post-inflammatory hyperpigmentation. It can also happen after accidents, surgery, needles, injections and burns.

DIAGNOSIS AND TREATMENT MUST BE SPOT-ON

To effectively treat pigmentation, a therapist should have a solid understanding of different skin types, the anatomical structure of the skin, possible causes of pigmentation and how types of pigmentation differ from one another. All these factors determine what treatments can be used – or not.

For "lay" therapists starting out intending to specialise in dermal science, or established therapists who want to advance their skills base and expertise, there are excellent accredited courses in skin analysis and diagnosis to suit most needs available at universities and colleges around the country, as well as online.

You must stress to a client that if they can't or won't commit to good sun-safe policies, they be frustrated when the pigmentation returns – maybe even worse than before.
ACNE

There are two fundamental types of acne: the so-called “teenage” and “adult” varieties and they must be treated very differently, according to Matyola Kolara, CEO of Skin Factors, distributors in Australia of Christina Cosmeceuticals from Israel.

For the purposes of this story we are concentrating on the adult condition, which can occur from the 20s through to the 40s+.

ADULT ACNE

"With adult acne, there are no 'zits' to squeeze," says Matyola. "The spots do not fester and are much deeper and more difficult to treat."

"The blemishes tend to be chronic and can be linked to a deficiency of some kind, a hormonal imbalance such as Polycystic Ovary Syndrome (PCOS) or a thyroid condition."

"Stress also plays a big role- it spikes levels of the hormone cortisol, which can trigger breakouts. As a kind of steroid, cortisol also weakens the skin, making it more prone to damage."

"Other factors that can aggravate or even cause acne are clients self-treating using unproven products bought online or inappropriate products purchased OTC without consulting a skin care professional."

"Treatments and home care products should not be aggressive because adult acne is usually not associated with excess oiliness. Indeed, the skin might actually be lacking in oil and very dry."

"Medical checks to diagnose any underlying conditions are advised before starting a client on a course of treatments for best results, and to ensure a therapist is actually able to treat the individual's condition."

"You must also remind clients that should never squeeze deep-seated spots. Not only will it usually not bring the trapped 'plugs' to the surface, it will drive them deeper into the tissue and also contribute to post-inflammatory pigmentation."

THE ANATOMY OF ACNE

The sebaceous glands, which produce sebum, exist inside the pores of the skin. The outer layers of skin are being shed continuously.

Sometimes, dead skin cells are left behind and get trapped in the sticky sebum, causing pore blockage. When more sebum is produced it accumulates behind the blockage.

Blocked sebum has bacteria, including P. acnes, which generally exists harmlessly on the skin. When conditions are "right" it can reproduce more rapidly and become a problem. P. acnes feeds off the sebum, producing a substance that causes an immune response causing inflammation of the skin (spots).

TYPES OF ACNE

Whiteheads. Also known as closed comedo, are small, flesh-coloured papules that remain under the skin.

Blackheads. Also known as open comedo, they are black and sit on the surface of the skin. Some people mistakenly believe they are caused by dirt because of the colour and scrub their faces vigorously. This harms far more than it helps.

Papules. Small, solid rounded bumps that rise from the skin.

Pustules. Pimples full of pus and are clearly visible. The base is red with pus on the top.

Nodules. Similar to papules but larger. They are embedded deep in the skin and can be painful.

Cysts. These are clearly visible on the surface of the skin, filled with pus and are usually painful. Cysts commonly cause scars.

The right light

Before proceeding with any device treatment on a client, it's important to know which type of technology is the most suitable for their condition.

FOR PIGMENTATION

LASER, IPL. (LED doesn't have much impact on pigmentation), or microneedling devices are the most commonly used for treating damned dark spots and patches.

It is strongly recommended that clients sign a consent form stating they have had skin cancer checks within the previous six to 12 months as, if a discoloration is "suspicious", the light-based treatments can accelerate malignancy. Also conduct a consultation to get their medical history and any factors that may contraindicate them for suitability.

The number and frequency of treatments with either technology depends on the power of the device and the extent of the client's condition.

Laser tends to be a more aggressive treatment than IPL but in both cases, clients must be warned to strictly observe sun protection after treatments.

Even an hour’s over-exposure to UV rays can take their skin back to ground zero, or even make it worse than it was before.

Lasers treat pigmentation by delivering an intense beam of light that specifically targets melanin, the pigment molecule that is responsible for pigmentation disorders.

This light is then absorbed and converted into heat, which either disperses the group of melanin cells or destroys the skin cells carrying the pigment molecule.

For pigmentation, the most widely used laser is the Q-switch
Nd:Yag laser. Other effective lasers include CO2, erbium:yag, ruby, thallium, and alexandrite.

IPLs release short pulses of filtered light that is readily absorbed by the high concentration of melanin found within freckles, sun spots or age spots. The rapid absorption of light energy heats the melanin and causes the destruction of the melanin-rich cells.

However, large, dark, mottled or raised pigmentation cannot be treated and may need to be checked by a dermatologist. Large, dark moles should not be treated, nor should lesions covering a large part of the body. The pigmented marks that respond the best are superficial lesions such as those caused by sun damage (sun spots) and freckles.

After both laser and IPL treatments, pigmented lesions will darken and may appear more obvious before they fade and “flake” away.

These devices come with a list of possible side-effects. So we stress again that your level of expertise and training should dictate the types of devices best suited to your business. It is also absolutely essential that during treatments protective eye wear is worn by both operator and client.

If you buy a machine from a company that doesn’t offer prudent advice (or pay one second hand or online) and start operating it without a thorough understanding of its capabilities – or yours – there is a considerable risk of making a client’s condition worse. Much worse, injuring them. Not to mention the ramifications for your business.

There is a possibility that the skin undergoing treatment becomes darker (or even lighter) than the surrounding skin, or it could burn, blister and then scar.

FOR ACNE AND ACNE SCARS

Laser, IPL and LED devices work on the premise of “exciting” compounds called porphyrins, which live inside acne bacteria. The porphyrins damage the bacteria wall, effectively killing it. This should help reduce symptoms of acne.

Your level of skill will determine what devices are most appropriate for your business and client base.

A reputable supplier will guide you on this matter, and whether you need more training or other qualifications.

The kinds of lasers used on acne patients include diode, pulsed dye, fractional, KTP, infrared, and pulsed light with heat energy (LHE), as well as a newer “vacuum” laser called Isolaz.

Sometimes ALA (aminolevulinic acid) is applied prior to laser treatment as it makes the skin more sensitive to light, and may help produce more porphyrins within bacteria. This is called Photo Dynamic Therapy (PDT).

Lasers are less effective with non-inflammatory acne (whiteheads and blackheads) and severe lesions (cysts and nodules). The general consensus is that clients presenting with severe lesions should consult a doctor or specialist dermatologist, as treatments provided by a salon, spa or clinic could actually be detrimental.

According to Andrea Stuth, national trainer for Spectrum Science and Beauty, one of the best treatments for acne is IPL “but not many people use it. It is anti-bacterial, killing the P acne. The light also stimulates generation of new collagen and elastin, regulates sebum production and helps refine large pores (a signature of acne).

“Also make sure when treating acne clients that they are not on a photo-sensitising medication as it could make their skin worse.”

Blue LED light can be helpful for acne by reducing colonies of P acne, particularly when used with ALA, and by exerting anti-inflammatory effects on the skin.
What's the difference?

DO YOU CHOOSE a laser, IPL or LED device? Again, the best guide to your choice will be a reputable supplier with a wide range of devices on offer.

Laser devices generate a single, very concentrated wavelength (colour) of light to target melanin. Lasers have a spectrum of light - violet, blue, green, yellow, orange, and red. Ultraviolet has a shorter wavelength than the visible violet light. Infrared has a longer wavelength than visible red light. White light is a mixture of the colors of the visible spectrum.

The wavelength (in some cases, two are combined) used depends on the condition being treated.

IPL produces a broad spectrum (band) of wavelengths as opposed to a single one.

In saying that, the effectiveness of laser over IPL only really applies to those who have both very dark skin and dark hair follicles. If a client has olive or lighter-coloured skin, both devices can provide the same results. But this also depends on the power of the individual device and the knowledge, skill and experience of the operator.

The difference between IPL and LED machines is the power delivery and actual power.

IPL, as the name suggests, uses intense broad band light that is pulsed, thus the power outputs of IPL are much higher, delivered over a very short time, measured in hundredths of a second.

LED on the other hand is more “background” broadband light measured over minutes.

It does not deliver high-heat energy to injure, destroy or burn specific skin tissues or chromophores to achieve results.

Rather, the skin cells are stimulated by absorbing specific wavelength energies to begin the rejuvenation process.

IPL is great for pigmentation, while LEDs can help with acne and help with gradual collagen stimulation and healing times after more aggressive treatments such as IPL and laser.

LEDs such as Omnilux and Healite II are renowned for giving clients a radiant glow after treatment and, over weeks and months, help soften lines and wrinkles and firm the skin for a more youthful look.

They can be had as often as once a week and operators say their clients become “addicted” to the results, making for a good ROI.

Consultation is key

THE MOST IMPORTANT part of any skin therapy treatment is the initial consultation, says dermindividuals® corneotherapist Robyn McAlpine. She explains:

When a client visits my clinic with concerns of acne or pigmented lesions, the first thing is to begin to understand the journey they have been on – their skin story started long before what I see.

My consultation begins with a discussion to determine the length of time they have been suffering from their skin condition, how it has evolved and presented over time and how it has made them feel.

Having a clearer idea about a client’s diet, health and lifestyle history – also what treatments they have tried or what skin care regime they have maintained - gives leading clues as to the underlying cause or contributing factors.

It also allows me to determine the level of cellular damage and the correct course of treatment – or if indeed their skin will respond at all to my customised treatment program.

There are many causes of acne and hyperpigmentation. Some we can improve, others we cannot.

An incorrect treatment choice can make a client’s condition worse - sometimes in the case of pigmentation this can be irreversible.

An intimate knowledge of cell structure and function is extremely important as a skin treatment therapist, more so than any other skill.

Many therapists graduate with the hands-on “how” to perform a treatment using particular modalities, but they fail to understand what this technology is doing on a cellular level.

How does that modality affect the keratinocyte and the wound-healing cascade? Is there collateral damage that is going to have a detrimental effect on the function of your client’s skin and leave long term cellular damage?

Without a solid base understanding of anatomy and physiology, a skin consultation can become like a sales pitch for the modality in which a therapist is most confident performing, not a bespoke skin solution.

* dermindividuals® creates customised skin solutions with products free of emulsifiers to ensure penetration of active ingredients. Therapists trained in dermindividuals protocols create bespoke treatment for clients’ individual needs and prescribe home care maintenance that is adapted as their skin improves and changes.
**The pointy end**

MICRO-NEEDLING, also known as collagen induction therapy (CIT), introduces ultra-fine needles to the skin to create microscopic channels. In doing so, the dermis is encouraged to produce new collagen and elastin, regenerating skin.

The effect is similar to fractional laser treatments, but not as deeply penetrating.

It is very effective for skin rejuvenation, reducing scarring and breaking up pigmentation (acne scarring is often accompanied by the post-inflammatory variety).

First generation micro-needling used dermal rollers but these have been largely superseded by dermal "stamps" or "pens", such as DermaStamp and Eclipse Micropen.

"With Dermastamp there is no heating of the skin, unlike laser and IPL, so there is no risk of burning or tissue coagulation," says Sydney plastic surgeon Dr James Southwell-Keely, whose practice includes non-surgical treatments. "Therefore it is suitable for all skin types and ethnicities."

The feeling associated with micro-needling is similar to light sandpaper being moved across the skin, according to Stephanie Sherlock of Avention Global, Australian distributor of the Eclipse.

"While some areas are more sensitive than others, the speed of the reciprocating needle tip reduces discomfort while the applied hydrating gel makes the treatment more comfortable."

"Eclipse Micropen can be used on all parts of the body: face, neck, décolleté, arms, hands, legs, abdomen and back."

**CLINICCARE.COM.AU FOR DERMASTAMP; AVENTIONGLOBAL.COM**

---

**THE GO-TO**

The devices and skincare products/treatments to deal with pigmentation, acne and acne scars could fill a magazine in their own right.

Hence we urge you to go to our website to find out more details from the following companies, but by no means limited to them (and you will also find many wonderful products for these conditions in Spotlight, from Page 116):

**DEVICES**

ADVANCEDCOSMECEUTICALS.COM.AU (for Lutronic, Healite ll and Spectra)
ALLUREMEDICAL.COM.AU
BRANDPOINT.COM.AU (for Purosonic)
CLINICCARE.COM.AU (for Dermastamp)
CUTERA.COM.AU
CBEAUTY.COM.AU
FRANCEMEDICAL.COM.AU
HIGHTECHLASER.COM.AU
MEDICALBEAUTYEQUIPMENT.COM
MEDTEL.COM.AU
SPECTRUMSCIENCESBEAUTY.COM.AU
TRUE-SOLUTIONS.COM.AU (for Omnilux)

**SKINCARE**

ADVANCEDCOSMECEUTICALS.COM.AU (for Medik8, SkinCeuticals, DNA Renewal)
AROMATHERAPYASSOCIATES.COM.AU
BABOR.COM.AU
BIOGRAHA.COM.AU
BRANDPOINT.COM.AU (for Elemis)
CLINICCARE.COM.AU (for DermaQuest)
DAVINC/21.COM.AU
DERMAVIDUALS.COM.AU
EMINENCEORGANICS.COM.AU
INSKINCOSMEDICS.COM (for OCosmedics and emerginC)
INTRACEUTICALS.COM
KLAPPAUSTRALIA.COM.AU
MILADOPIZAUSTRALIA.COM.AU
OMVEDA.COM.AU
PEVONIA.COM.AU
PHOTOMER.COM.AU
SKINFACTORS.COM.AU (for Christina cosmeceuticals)
TRUE-SOLUTIONS.COM.AU (for Elizabeth Arden Pro)
ULTRAMID.COM.AU

VISIT SPACLINIC.COM.AU/CURRENT ISSUE FOR MORE INFORMATION ON THIS TOPIC AND RELATED ARTICLES