



The growth factor

Dr Ahmed Al-Qahtani on using growth factors alongside laser treatments to encourage healing

The discovery of lasers in the 1960s was a monumental breakthrough for biotechnology. Continued biomedical advancements through the 1980s turned these lasers into a revolutionary instrument within the field of surgery, ophthalmology and dermatology because of their therapeutic potential in tissue remodification and skin resurfacing. These new, non-surgical, laser systems used in dermatology emit brief pulses of intense laser energy onto the skin. These different light energies depend on wavelength properties. As the light is changed into heat energy, the heat vaporises thin sections of skin tissue, layer by layer, promoting collagen formation and retraction of the dermis and epidermis to tighten the skin. As a result, the appearance of wrinkles, lines, rhytides, pigment changes are reduced in the targeted area.

Traditional ablative lasers, also known as carbon dioxide lasers, act more aggressively and produce the most dramatic outcomes as it vaporises the tissue. In a parallel fashion, ablative laser resurfacing

unfortunately comes with longer downtime for recovery and the greatest risk of side effects and complications, such as scarring, bleeding, hyper- or hypopigmentation and difficulty in healing. To further develop these

high-peak power CO₂ lasers, variations in the parameters, power, pulse dwell time and spot density, permit improved clinical results, utilising a more precise, controlled method.

The development of both non-ablative resurfacing lasers and fractionated lasers proved to become a more popular alternative in recent years, even though the results are not as equivalent. While non-ablative lasers have minimal downtime for recovery, they require more

treatments in intervals to produce more mild to moderate results. Fractionated

lasers have a moderate downtime for recovery with moderate risk of complications because it targets a fraction of the epidermal surface, using consistent arrays. With different classes of dermatologic lasers comes a >

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new frontier for skin rejuvenation, including tattoo, mole and hair removal.

Laser skin resurfacing has become a leading preference among surgical skin procedures because this technology yields equal advantages of re-epithelialisation with little to no bleeding, in comparison to the competing dermaplaning alternatives. These types of exfoliation procedures were developed to maintain dead skin cell buildup that has accumulated laterally, leaving the skin looking dull. Since the implementation of lasers in dermatological procedures, dermatologists and plastic surgeons have found that this controlled method of removing skin, layer by layer, can remove wrinkles, fine lines, blemish scars, and blotching, leaving the skin feeling smooth and revitalised.

It is essential to ensure lasers are used with caution. Like any medical device, there are limitations to its usage. The cost of the procedure in itself is already steep due to the cost of the surgeon, anaesthesia and facility, with the pre- and post-operative care. Though the price of lasers and servicing are expensive, the real limitations lie with the application of the machine on the client. It is imperative that professionals make certain that the laser machine is compatible with the skin type of the client. In older lasers, it was found that darker skin was often times damaged after laser treatments because of the abundance of melanin in surrounding untargeted cells, which absorb excess laser energy. However, now that laser companies have advanced their wavelength technology, laser treatments are available to multiple skin types, but should still be used with vigilance. Failure to do research on the laser machine and its limitations in relationship to the client's existing medical conditions and prescriptions can lead to an increased risk of adverse side effects like blistering, second-degree burns, permanent skin discolouration, and scarring. To ensure all necessary steps are taken to minimise the risk of damaged untargeted cells and laser burns, consult with an experienced dermatologist to classify your skin type and the associated risks prior to performing a laser procedure.

The application of growth factors in dermatology came in critical time to provide lasers with huge advantages. Growth factors are cytokines, interleukins and small proteins naturally excreted from various cells of the body, particularly fibroblast cells, that signal cells to proliferate and grow. While the discovery of growth factor technology was at the forefront of immunology, the application of growth factors proved to be an equal breakthrough for therapeutics and dermatology because of the benefits – high-speed recovery, reduced downtime and improved results.

Accompanying the right growth factor product with dermatological procedures have proven to be beneficial for the skin because most times, post-procedural skin is left fragile and exposed. Growth factors are proven to act more effectively in conjunction with collagen induction therapy and skin resurfacing procedures, such as microdermabrasion,



Pre-Treatment

Week 1



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and laser treatments, because of the increased ability to easily penetrate bare skin and enhance the immune system response (triggered secretion of growth factors to repair the skin). Products containing growth factors should stimulate a cooling sensation, minimise the risk of scarring, and signal re-epithelialisation for better results and a quicker recovery period. Growth factors also help stimulate to produce collagen in connective tissue cells, which will result in tighter, younger looking skin. Laser companies have too acknowledged growth factor technology as a pivotal component to skin resurfacing treatments, as the results and the laser experience are both improved.

The images above are a before and after illustration of a laser mole removal procedure from a patient nose in conjunction with growth factor technology provided by AQ Skin Solutions Inc, a US based company known as the leading company in growth factor development and technology. During laser mole removal, the laser essentially burns off the mole, which results in a high possibility of scarring and a one-month healing recovery time. However, with the application of growth factor serum, the wound healed in one week with no signs of scarring or discolouration.

Being meticulous about selecting the appropriate growth factor product, which includes the optimum ingredients and correct growth factor complementation, is imperative in order to achieve those results. Due to copyright infringement and protected patents, authentic growth factor technology is limited to two companies all US based. When considering a laser skin resurfacing treatment, ensure that:

- The company has the right to the technology it is selling
- The doctor is licensed for Growth Factor Therapy
- The facility has experience with Growth Factor Therapy

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>> **Dr Ahmed Al-Qahtani** is a National Institutes of Health (NIH) scientist for numerous NIH grants for research and development. He is accredited with numerous scientific publications. A longstanding member of the American Association of Immunologists, Dr Al-Qahtani has spoken and presented research at congresses around the world. He started AQ Skin Solutions through extensive work in medical applications of growth factors for healing wounded tissue and creating artificial skin grafts. As a researcher in immunology, he applied his knowledge and experience in GF biotechnology to develop a process for producing the highest quality GF media available, which contains growth factors that have been identified to be the most effective for rejuvenating skin.