

## **Anti aging treatment: Wrinkle and Skin Slack treatment**

***A combination approach of mesotherapy, laser and radiofrequency to increase clinical outcomes.***

### ***Introduction***

My belief is that health is beauty and beauty is health. As a naturopathic physician, I have strived to marry the modalities of natural medicine and cosmetic and antiaging medicine. A comprehensive approach to antiaging means not only the assessment of the possible endocrine, metabolic or nutritional imbalances that contribute to aging, especially of the skin or connective tissue; but also to provide effective and safe treatment strategies. This is done as with all other medical interventions through evaluation, history, assessment, physical and laboratory evaluation. As clinicians we are able to address the main cosmetic aspects that patients may chiefly or concomitantly present to the naturopathic office with. With the boom of cosmetic procedures and an increasingly technical antiaging industry our patients have become very well versed in the possible treatments available to them. Cosmetic procedures are suited to naturopathic practice because they are personalized, preventative, non-invasive, low-risk; involve natural or naturally derived substances.

Lines and wrinkles formation is a well-known sign of skin aging, influenced by both intrinsic and extrinsic factors. The numerous intrinsic factors are age, gender, genetic disposition and race. The biological changes attributed to these factors can also be termed chronological aging of the skin. Extrinsic factors include UV light, weather and climatic influences, nutrition, tobacco and alcohol abuse. The severity of aging may be dependant on these extrinsic aspects. This is known as photoaging. Ultimately skin aging is also creates an important physiological aspect such as the decreasing of hydration and the barrier and thus immune function, slower cutaneous metabolic activity and a decrease in activity of the sebaceous and sweat glands.

The cosmetic patient coming in for skin concerns will basically have one or more of the following four issues to improve: colour, tone, texture and tightening of their skin (or to eliminate wrinkled skin).

Problems of skin color or dyschromia may present as situations such as melasma, lentigo, and telengectasia. Usually these develop as a result of the effect of UV radiation. The effect on the melanocyte is alteration and migration of melanin to more superficial levels and the action of free radicals on the blood vessels. This is known as photoaging. Problems with skin tone may be defined as a loss of radiance or uniformity. The most effective treatment for the brown and red spots and loss of skin tone is the use of intense pulse light therapy (IPL) with the use of laser platform. IPL therapies may also be used to correct texture and tighten skin (all depending on the wavelength of light or energy that is delivered to the skin). In this article, I will focus on the use of injectable therapy, RF radiofrequency and a technique called fractional resurfacing, but more on these later.

**Some factors which are responsible for wrinkle development:**

Metabolic factors such as hormonal deficiencies, collagen disorders

Ultraviolet rays (sunlight)

Tobacco (diminishes skin oxygenation)

Inadequate diet – especially lack of adequate quality protein and essential fats

Excess alcohol

Loss of teeth / improper chewing

Environmental dryness

Absence of cosmetic skin care – important for helping hydration

Abrupt weight loss

Gravity (especially affects eyelids and neck).

Sleep lines, caused by prolonged expression during sleep, or accentuation due to side slept on.

**Types of Wrinkles:**

## **Expression Wrinkles**

These occur because the skin on its own does not have muscle structures; it is the underlying muscle contraction that determines its shape. As time goes on due to loss of the underlying tissue tone and elasticity the skin is not able to relax and so the initial wrinkles in the skin remain and worsen.

These may be much more evident at:

The external angle of the eyes (crows feet)

Nasolabial folds

Forehead

Glabella area

Perioral lines

Vertical lines on cheeks

## **Gravitational Wrinkles**

These are wrinkles which are accentuated due to loss of fatty tissue, bone or teeth.

## ***The physiopathology of aging skin leading to collagen deformation:***

### **Changes in the Epidermis:**

Hydrolipidic layer diminishes as the stratum corneum reduces; horny cells and horny substances are reduced. Melanocytes disintegrate or move closer to epidermal cells and finally lead to a spotted pigmentation of the skin. Germinative cells and the Langerhan cells become altered, ultimately resulting in the atrophy of the epidermis.

### **Changes in the Dermis:**

The dermis is a dense network of collagen fibers, providing the skin with tensile strength and resistance. Younger skin shows a more complex network of collagen fibres. With age these begin to demonstrate a disorderly alignment, with loss of density and firmness. Decrease in the elasticity of the elastic nets which are structures accompanying the collagen fibers.

The dermis holds blood and lymph vessels, the nervous network, connective tissue cells and defense cells. It is rich in glycosaminoglycans which are in charge of retaining water in the cells. The amount and chemical composition of the intercellular substance changes: dehydration and a decrease in glycosaminoglycans. The net result is a diminishment in fundamental substance. Aging may also induce changes in the amount of fibroblast in this substance responsible for reorganization and maintenance of the tensile components. The vascularity may also be negatively impacted by aging thus reducing nutrient delivery and oxygenation to all cells of the augmentery system.

Changes in the skin's appearance are a net result of the aging process of the connective tissue and underlying fat atrophy.

### ***Theories of why the phenomenon of aging (skin) occurs:***

1. **Programmatic** – the programming of cellular destruction and death lies in the genetic code.
2. **Degenerative** – aging is especially influenced by the photoaging and exogenous aspects and endogenous factors such as hormonal fluctuations and immunological factors that together create metabolic failure. Free radical formation especially subsequent to UV radiation exposure causes a drastic reduction in the storage of elastin and collagen; by possibly affecting post-transcription mechanisms.

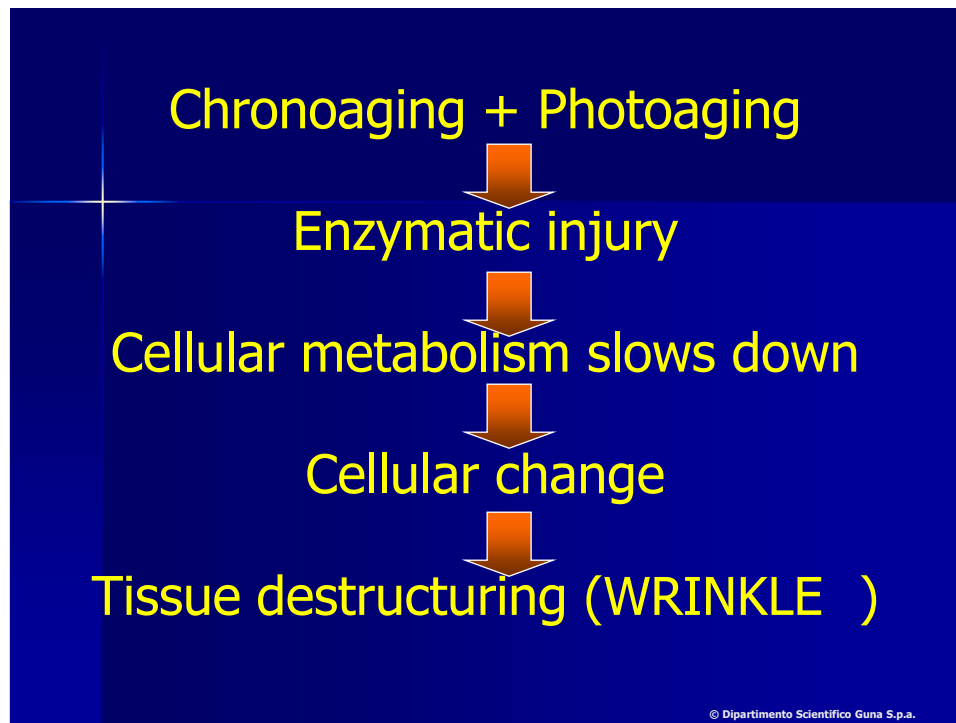
### ***Phases of development of wrinkles – The etiopathogenic process:***

**Phase 1:** a reduced supply of O<sub>2</sub> and nutrients to the dermis due to congestion in the interstitial spaces or matrix, caused by catabolites of cellular damage (due to chronoaging)

and by undrained toxins caused by free radical photoaging; causes a slowing and alteration of intracellular metabolisms and subsequent enzymatic damage

**Phase 2:** Subsequent metabolic distress signals for a reduction in the fibroblastic activity thus creating a dramatic decrease in collagen and elastin.

**Phase 3:** There is an overall weakening of connective tissue especially in the deeper dermal levels (reticular dermis) and ensuing dehydration, due to the loss of the hydrophilic molecules like hyaluronic acid and glycosaminoglycans. There is further vascular compromise at this level and the lymphatic drainage is slowed. The result is a cycle which is difficult to break.

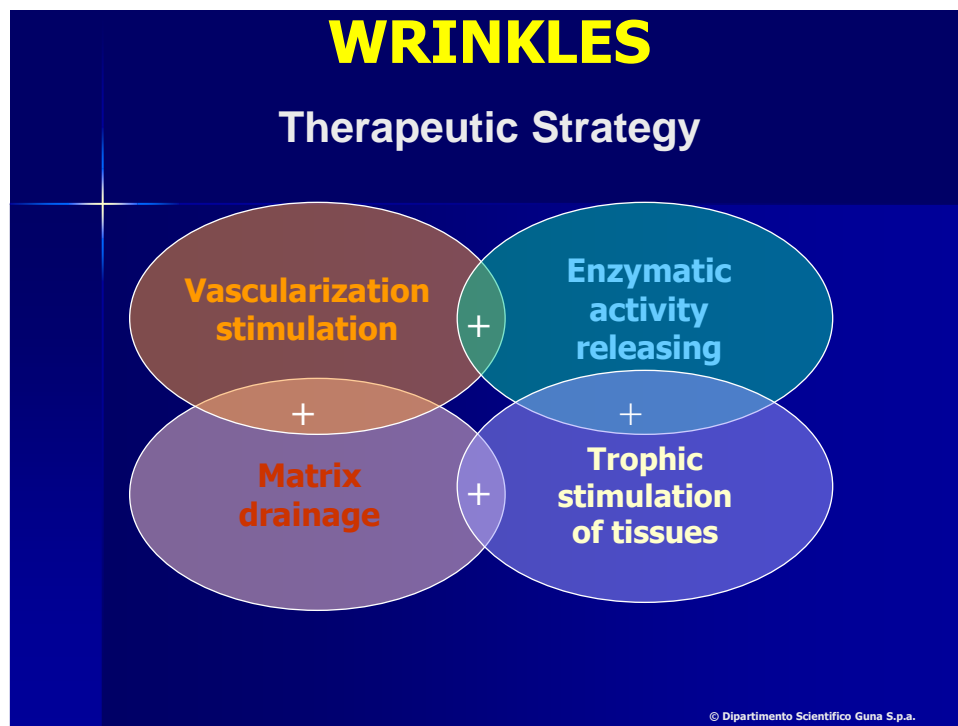


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## Our Treatment goals:

Our therapeutic endpoint for wrinkle treatment then must take into consideration all of these elements and treat the wrinkle for what it is a primary metabolic alteration as a result of cellular aging:

1. Correction of cellular deficiencies and enzymatic stimulation.
2. Drainage of the connective tissue (matrix)
3. Stimulation and support for the lymphatic and circulatory systems
4. Provide structural or dermal strengthening and stimulation of neosynthesis (trophic stimulation)



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## ***Mesotherapy as a delivery system to the skin***

Active dermatological and cosmetic ingredients can only act when they penetrate at least the outermost layer of the skin. The efficacy of topical products is often suboptimal because the transport into the skin is slow due to the resistance of the stratum corneum. Most small water-soluble non-electrolytes diffuse into the systemic circulation a thousand times more rapidly when the outer horny layer is absent.

Mesotherapy is a treatment that stimulates organs derived from the **mesoderm** by superficially injecting (no more than 4mm) into the dermis. This is achieved with the use of specialty needles. The skin is injected with homeopathic agents (microdoses) or allopathic medicines. For wrinkle treatment medications used can include hyaluronic acid, glycosaminoglycans, vitamin C, DMAE, lipoic acid, b vitamins, silicea, ginko biloba, to name a few generics. In my practice I use a combination of nutraceuticals and complex homeopathic remedies including sarcodes and Krebs cycle intermediates from Germany and Italy.

The use of the microdose injections also provides physical stimulation by the trauma of puncture to stimulate fibroblastic activity and vascular and immune components.

- Synthesis of glycosaminoglycans and proteoglycans
- Skin hydration
- Collagen production
- Destruction of free radicals
- Tissue regeneration.
- Stimulation of vascular and lymphatic systems.

## **Technologies:**

I will include a brief summary of these techniques, each topic on its own is a separate paper all together; for the understanding of the combination approach I will discuss radiofrequency, laser, and connective tissue massage devices.

### ***Radiofrequency:***

Radiofrequency is the use of electromagnetic waves that stimulate bio-electric tissue activity, accelerating ion motion with a targeted and efficacious thermal effect.

Developments in this technology have made possible the selective delivery of energy to deep dermis and subdermal layers while protecting the epidermis, especially by the use of bipolar head pieces. In contrast, **Laser** (Intense pulsed light) energy tends to scatter or absorb in the upper layers of the skin, making it difficult to deliver sufficient energy to the deep layers without damaging the skin's surface. The effect of the Radiofrequency energy is to cause skin tightening by causing collagen contraction and remodeling by the breaking on reconstituting of the disulfide bonds. Other effects include vasodilatation and hyperemia for increased cellular oxygenation and metabolism and fibroblastic stimulation.

### ***Laser technologies:***

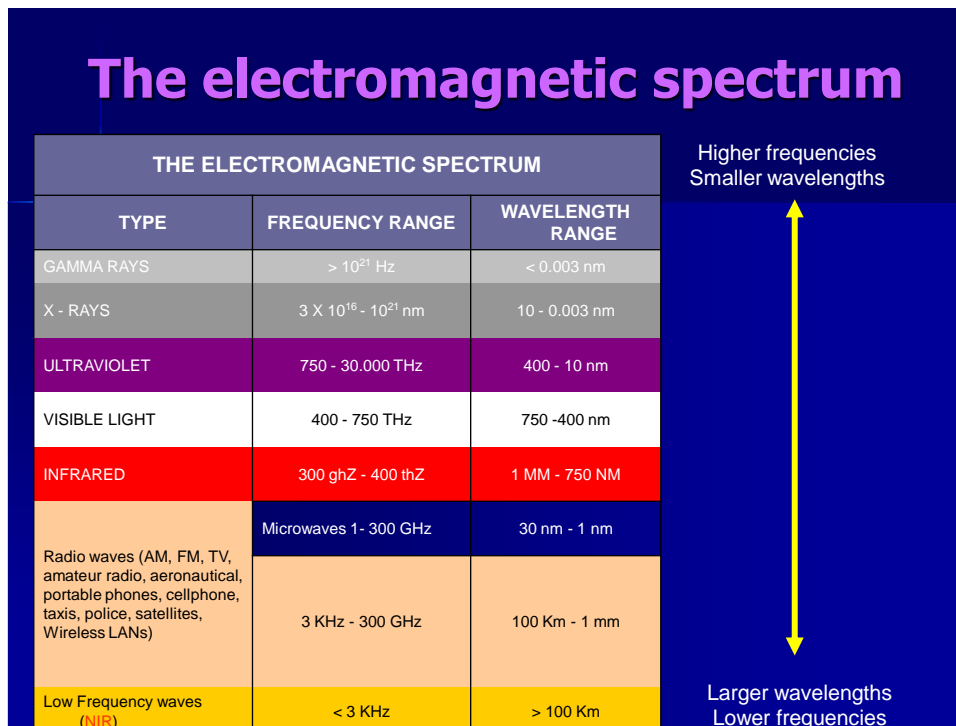
The use of laser has become increasingly popular in cosmetic care; gone are the days of high energy emitting devices with invasive, potentially harmful effects. The devices of today are non-ablative light emitting devices, many of which are multifunction and multiplatform devices. The device I have in my practice is a very reputable device with the capacity to do hair removal, treat vascular and pigmented lesions, use near infrared for skin tightening, acne treatments and fractional resurfacing of the skin.

These devices emit different wavelengths of light which have different targets, for example the red light 650 nm targets the hair follicle and the spectrum of 540 and 570 target the vascular (via oxyhemoglobin) and pigmented (melanin) lesions.

Fractional or pixel treatments utilize a headpiece emitting 2940 nm, its target is water, and it impacts in pixel like pattern which allows a portion of the skin to remain intact from the laser. It



is especially a valuable treatment in the treatment of the fine lines and creases including the perioral and periorbital lines. This allows for the skin to in essence be traumatized and stimulated to regenerate in a controlled manner, without much discomfort and social downtime. Another advantage to this procedure unlike deeper ablative laser treatments or chemical peels is the patient can easily camouflage the skin.



### ***Connective Tissue Massage***

I believe that the connective tissue massage is singly the most important treatment which can be done manually or aided by technology. The machines can be described as vacuum-like in their action, essentially picking up the tissue creating increased vascular and lymphatic drainage and initiating the detoxification mechanisms of the skin. The massage component essentially allows us to target most goals of our wrinkle therapy as previously listed.

### **Our treatment strategy**

In my practice, my general approach to wrinkle and skin slack treatment includes a full medical history and lab workup to ensure that nutritional, biochemical and hormonal status are in

balance. A typical prescription can include: the antioxidants for skin health such as C, E, lipoic acid, glutathione and the nutraceuticals such as fish oils and glutamine just to name a few. Assessment of dietary and lifestyle factors are also addressed .My combined therapy is as follows and personalized:

**For facial treatments:**

1. Connective tissue massage
2. Mesotherapy
3. IPL treatments for treatment of colour and tone
4. Radiofrequency or near infra red for tightening
5. Pixel treatment for textural influence

**Proposed Frequency:**

- 4-6 treatments once a week
- 2 treatments every other week.
- Then one monthly treatment for 2 for a total of 10 treatments

Forehead before



Results:

Forehead after 10 sessions



Before



After 1 treatment (1 week after the treatment )

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- Dr. Michael Rahman , BSc, ND, January 2009