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**Collagen in the 21st Century**

**What is collagen?**

Collagen is the most abundant protein in the body. Collagen is part of the connective tissue in the skin that is essential for the constant renewal of skin cells and skin elasticity so it looks healthy and feels smooth and firm. The dermis, the inner layer of the skin, is almost entirely made of collagen whose fibers form a supporting mesh or scaffold responsible for skin’s mechanical characteristics such as strength, texture and elasticity. It provides the basic foundation for skin, cushioning and supporting the epidermis (the skin’s surface) and also preventing the epidermis from collapsing in on the muscles and bones underneath.

Collagen production naturally decreases by approximately one percent each year and this loss is accelerated by sun exposure and hormonal changes during the menopause. Without correction, this inevitably contributes to a reduction in the skin’s elasticity, the development of wrinkles and dermal volume loss.

**Collagen is recognized as the optimal biomaterial for tissue repair because of its skin friendly properties: it forms a scaffold or matrix to allow natural cellular interaction, movement and regeneration.**

**Historical background**

Collagen has been used across a broad therapeutic range from wound healing to orthopedics. In aesthetic medicine, collagen dermal fillers were the first to be introduced in the 1980s but had short duration of effect, only around 4 months, and required pre-treatment skin tests. Collagen for cosmetic use declined in popularity with the advent of longer lasting hyaluronic acid (HA) dermal fillers. However, there has been a growing awareness recently of late onset post treatment problems with HA fillers including skin discoloration (the Tyndall effect) and lumps and bumps when used in delicate and thin skin areas. The emergence of new, skin friendly, advanced collagens, which provide immediate results lasting over a year and long-term skin health benefits, is timely and awaited by physicians and consumers alike.

**Bio-Dermal Restoration with Advanced Collagen: a logical choice in soft tissue augmentation**

Collagen is recognized as the optimal biomaterial for tissue repair and has a proven safety track record. Naturally occurring in the skin, collagen is responsible for skin health, notably its strength, texture and elasticity. Its production in the skin naturally decreases at 1.5% per year and is further exacerbated during menopause when collagen loss accelerates to 30% over 5 years.

With over 85% of the inner layer of the skin(the dermis) comprising collagen, Bio-Dermal Restoration with Rapid Polymerizing Collagen (RPC) is skin friendly and allows for optimal integration and tissue regeneration making it a rational and logical treatment option for soft tissue augmentation. When RPC is injected into the skin it is recognized by the body; the implanted clear gel is accepted as endogenous, which has significant advantages over the use of foreign synthetic substances.

Collagen replenishment does not cause trauma or damage to the skin to stimulate collagen production. It creates a natural environment at a cellular level for the production of new collagen to support and strengthen the skin to resist the formation of lines and wrinkles. Whilst providing instant skin volume which immediately softens the appearance of lines and wrinkles, natural collagen production is also stimulated over time to improve skin health and condition leading to smoother, firmer, healthy skin.

**Collagen’s role in regenerative dermatology**

The regenerative dermatology treatment approach focuses on encouraging the skin to build more collagen and elastin itself, rather than ‘pumping up’ wrinkles, tightening skin or ‘freezing’ the face. This trend has seen the introduction of new collagen stimulating techniques. Micro or medical needling, using needle roller devices, traumatizes the skin’s surface and causes the production of new collagen to effect repair. Platelet Rich Plasma involves the re-injection of the patient’s own blood rich in platelets which release growth factors and stimulate the skin to produce more collagen and elastin.

EternoGen’s Bio Dermal Restoration treatment with RPC is a regenerative dermatology approach. It not only makes the skin look younger and more beautiful, but also slows down ageing processes at a cellular level to tackle the causes of skin ageing, resisting the formation of lines and wrinkles caused by a weakened skin structure. Whilst providing instant skin volume, natural collagen production is encouraged leading to improved skin health and condition over time. The advanced collagen integrates naturally with the skin’s vasculature to stimulate natural skin cell production and regeneration which strengthens the skin’s own collagen scaffolds.

Other popular fillers based on hyaluronic acid remain as a distinct implant under the skin and are not integrated easily into the skin’s natural structure, which may present problems in thin skin areas. Collagen is particularly suited for delicate and challenging treatments in the peri-orbital and peri-oral areas where the risk for lumps and product migration needs to be minimized.

**Collagen v hyaluronic acid**

Naturally occurring in the skin’s dermis (85%), collagen is recognized as the optimal biomaterial for tissue repair and is responsible for skin health; its strength, texture and elasticity. EternoGen’s RPC is skin friendly. It is recognized by the body as endogenous, not as a foreign substance, which minimizes the risk of inflammatory reactions. RPC promotes natural cellular interaction, movement and regeneration. It integrates naturally with the skin and anchors with the patient’s dermis to stimulate natural skin cell production and renewal, which in turn strengthens the supporting collagen scaffolds. From the physician’s perspective RPC is easy to inject and is predictable; it does not swell or inflate when injected; it provides immediate contour stability. It is particularly suitable for challenging treatments in thin skin areas.

In contrast skin contains less than 1% hyaluronic acid. In hyaluronic acid based filler treatments, which have gained popularity in recent years in the absence of collagen, the injected gel remains as a distinct implant to inflate and lift the skin. Implanted hyaluronic acid gel does not integrate easily into the skin’s natural structure and may cause problems in thin skin areas, such as product migration, skin discoloration due to the Tyndall effect and post treatment lumps and bumps. Bio Derrmal Restoration with RPC is the perfect compliment to hyaluronic acid treatment and the two approaches can be combined to maximize aesthetic outcomes.

**New generation collagen**

In its purified state, collagen is mechanically weak and prone to rapid enzymatic degradation.

EternoGen’s unique purified collagens are designed to provide high biocompatibility with integral shielding protection, which inhibits collagenase degradation. The natural open microstructure of collagen is retained forming a highly biocompatible matrix or scaffold that facilitates cellular integration and regeneration.

Pre clinical studies have shown that the EternoGen’s collagen portfolio has the potential to last up to twice as long as cross-linked collagens and synthetic materials. Research indicates that EternoGen’s advanced collagens have the ability to overcome the limitations and short duration associated with collagen of yesteryear to offer high clinical effectiveness and optimal aesthetic treatment results demanded today by physicians and consumers alike. Rapid Polymerizing Collagen (RPC) restores skin volume loss to provide immediate results whilst stimulating natural collagen production over time to improve overall skin health and strength, leaving it looking firmer, smoother and more lustrous.

**The future**

The future for Bio Derrmal Restoration using EternoGen’s unique, long lasting collagens looks promising with the trend towards a regenerative dermatology approach in aesthetic medicine gaining popularity. EternoGen’s RPC is able to meet the needs of both physicians and consumers seeking a more natural, long lasting and logical way to slow down the skin ageing process. Recent research demonstrates that the problems associated with earlier generations of collagen can be overturned which heralds the long awaited return of advanced, purified collagen for cosmetic use.

Whilst soft tissue augmentation using RPC is EternoGen’s primary market, there are many other avenues waiting to be explored. Collagen has been used widely on a therapeutic basis for many years but now new indications are being discovered, particularly in advanced wound care, whilst more pioneering uses of collagen are being developed in stem cell technology and orthopedics.

Ends

For more information about EternoGen Aesthetics please visit [www.eternogen.com](http://www.eternogen.com) or contact:

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