predictive aesthetics™

Inflammation & Facial Aging

The upstream driver most practices miss. Patterns, markers, and protocols.

/ 01 · ABSTRACT

Inflammation: the upstream driver most practices miss.

Chronic systemic and skin-level inflammation is a primary upstream driver of facial aging — through collagen breakdown, barrier dysfunction, pigmentation, and vascular changes. This paper presents a clinical review of the inflammation/aging axis, documents the functional lab markers worth running, surveys dietary and lifestyle drivers, and demonstrates how inflammation status fundamentally alters the outcomes of aesthetic treatments.

/ 02 · INFLAMMATION AS A DRIVER

Why aging accelerates when the body is on fire.

Chronic low-grade inflammation, sometimes termed "inflammaging," is increasingly recognized as a central driver of biological aging. In the skin and face specifically, inflammation affects every pillar of aesthetic concern: it accelerates collagen degradation (matrix metalloproteinase upregulation), disrupts barrier function (chronic TEWL elevation), drives post-inflammatory hyperpigmentation, increases facial vascular reactivity, and alters how the skin responds to aesthetic treatments at the cellular level.

Despite this, most aesthetic practice operates without measuring inflammation status. Inflammation is typically inferred only from gross presentation (active rosacea, eczema, acne flares) rather than measured at the laboratory or imaging level. This paper argues that inflammation should be a routine Read parameter and that aesthetic outcomes are materially limited when inflammation is unaddressed.

/ 03 · LABS

What we measure and why.

Functional lab markers worth running

MARKER	INDICATES	FREQUENCY
hs-CRP	Systemic low-grade inflammation	Annual
Ferritin	Iron + inflammatory (acute phase)	Annual
Homocysteine	Methylation + inflammation	Annual
Fasting insulin	Metabolic inflammation	Annual
Vitamin D, 25-OH	Immune regulation + inflammation	Bi-annual
Omega-3 index	Anti-inflammatory fatty acid status	Annual

Thyroid panel (full)	Autoimmune + endocrine inflammation	Annual
ANA, anti-TPO	Autoimmune presence (if symptomatic)	As indicated

These markers form the functional inflammation panel run as part of the Predictive Wellness pillar. None individually is diagnostic — they are read together, against the client's Profile and skin/facial findings, to identify the dominant inflammatory pattern.

/ 04 · CLINICAL PATTERNS

Three patterns, three protocols.

Three patterns of inflammation in clinical aesthetic populations

Pattern 1 — Metabolic inflammation. Driven by elevated fasting insulin, HbA1c, and ApoB. Shows on the face as accelerated mid-face volume loss, dull complexion, and accelerated photoaging. Responds to dietary intervention (lower glycemic load, time-restricted eating) and exercise; aesthetic treatments underperform until addressed.

Pattern 2 — Hormone-driven inflammation. Driven by peri-menopausal or post-menopausal estrogen decline and thyroid dysfunction. Shows as accelerated skin thinning, hair changes, and barrier dysfunction. Responds to hormone optimization (where appropriate) and targeted topical protocols.

Pattern 3 — Lifestyle/stress inflammation. Driven by sleep deprivation, chronic stress, alcohol, and inflammation-driving diet patterns. Shows as chronic redness, facial puffiness, dullness, and slow healing. Responds to sleep architecture intervention and stress reduction protocols; aesthetic treatments have limited long-term effect without lifestyle change.

/ 05 · AESTHETIC IMPLICATIONS

Why the substrate matters more than the treatment.

> *Aesthetic treatments performed on inflamed substrate underperform — and sometimes worsen the underlying problem.*

Specific implications for aesthetic decisions: energy-based devices (CO2, Morpheus8) are deferred until active inflammation is controlled; dermal filler integration is delayed by 30-50% in inflamed tissue; neuromodulator metabolism is accelerated in high-inflammation states (resulting in shorter duration); post-treatment recovery is materially extended. The investment math reverses when inflammation is addressed first.