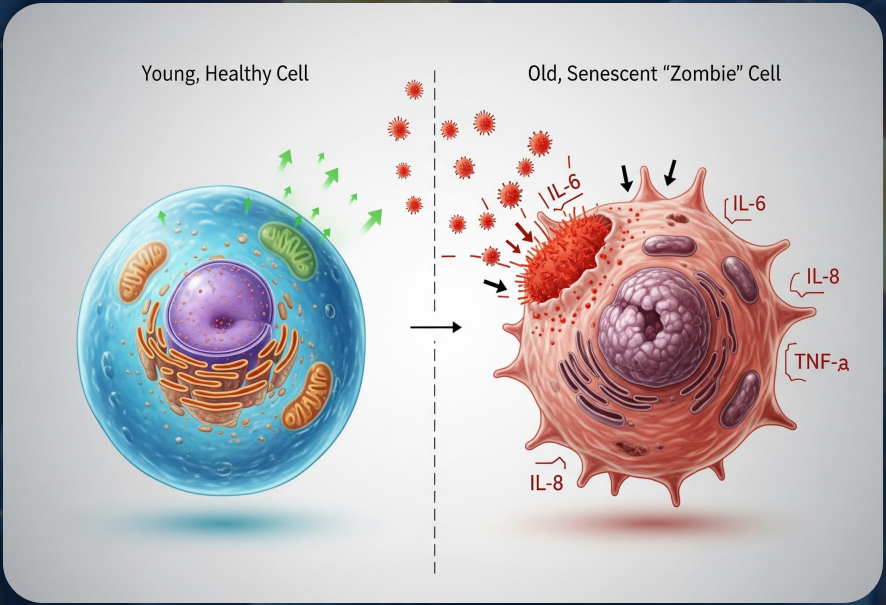
Understanding Inflammaging

The hidden link between chronic inflammation and biological aging.



What is Inflammaging?

A state of sterile, low-grade, chronic inflammation that develops with advanced age without overt infection.

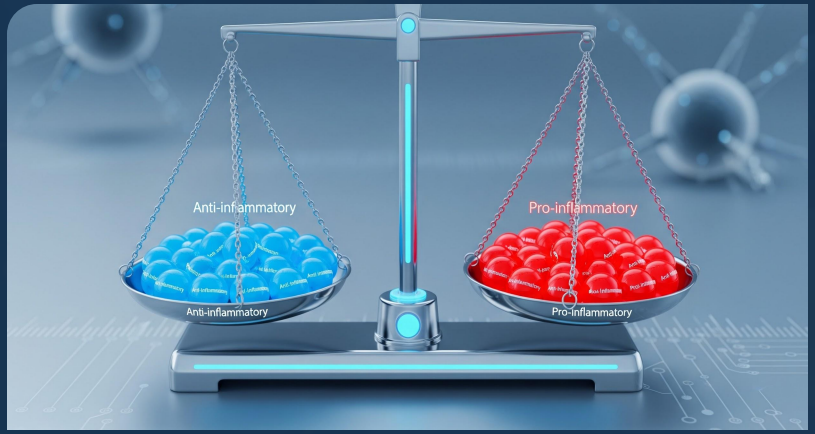
The Imbalance

A shift where pro-inflammatory agents (IL-6, TNF-α) begin to prevail over anti-inflammatory defenses.

The Geroscience Hypothesis

Targeting these cellular changes can modify the development of age-related multi-morbidity.

The Shifting Balance of Inflammaging



Youth: Homeostasis

In youth, the immune system maintains a perfect equilibrium between pro-inflammatory triggers and anti-inflammatory resolution.

Aging: Inflammaging

Chronic stressors tip the scale:

Chronic Activation • Infections • Senescent Cells (SASP) • Thymic Involution

Timeline

The Immune System in Decline

Chronic decline in immune function prevents effective tissue repair, resulting in progressive loss of structure and function, and an increased risk of infection and cancer.

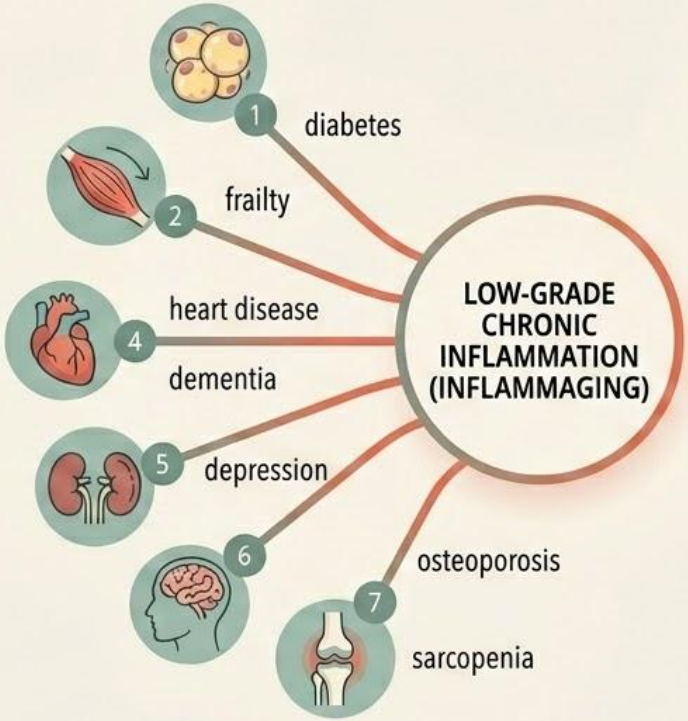
Blood Markers That Change With Age

- Albumin
- Creatinine
- Glucose
- C-Reactive Protein
- Lymphocytes (% of WBC)
- Mean Cell Volume (MCV)
- RDW
- Alkaline Phosphatase
- WCC (Higher end of range)

The Shifting Balance of Inflammaging

EFFECTS OF INFLAMMATION WITH AGE: INFLAMMAGING & THE BODY.

1. Adipose Tissue
2. Sarcopenia (loss of active muscle mass)
3. Insulin Resistance
4. Cardiovascular Disease
5. Chronic Kidney Disease
6. Neurodegenerative Disease
7. Degenerative Joint Disease



ANTI-INFLAMMAGING TREATMENTS

Curcumin***
Astaxanthin***
Melatonin*** DOSE?
Palmitoyl Ethanolamide** PEA