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Natural Senolytics: Can Food-Derived Compounds Like EGCG and Curcumin Clear Senescent Cells?

Fisetin, quercetin, EGCG, and curcumin all show senolytic activity. Here is where the evidence is strong, where it is early, and what that means for you.

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TLDR: Senolytics are compounds that selectively clear senescent cells, the aged, inflammatory cells that drive much of what we call aging. While pharmaceutical senolytics like dasatinib are the most studied, a growing body of research points to natural compounds, including fisetin, quercetin, EGCG, curcumin, and piperlongumine, as having real senolytic activity. Evidence is strongest for fisetin, which extended lifespan in animal studies, while human data remains early. These compounds are a reasonable place to start for most people, but they are not a substitute for medical evaluation or more direct interventions like therapeutic plasma exchange in patients with a significant senescent cell burden.

Why Look for Natural Senolytics

Senescent cells accumulate with age and secrete inflammatory compounds known as the senescence-associated secretory phenotype, or SASP, which drives much of the chronic inflammation associated with aging. Senolytics are drugs and compounds that selectively clear these cells. The most studied combination, dasatinib plus quercetin, is a prescription approach. But researchers have identified a growing list of natural, food-derived compounds with genuine senolytic activity, which is appealing for patients who want to start with a lower-risk, accessible option (Li et al., 2019).

Fisetin: The Strongest Evidence So Far

Fisetin, a flavonoid found in strawberries, apples, and persimmons, has the most compelling data among natural senolytics. In a screen of ten flavonoids, fisetin was identified as the most potent senolytic, reducing senescence markers across multiple tissues in mice. Notably, late-life treatment of

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aged mice with fisetin improved tissue health and extended both median and maximum lifespan, one of the first senolytics to demonstrate this effect with minimal side effects (Yousefzadeh et al., 2018).

Quercetin and the Copper Connection

Quercetin, found in onions and apples, is best known as half of the dasatinib-quercetin combination, but it has senolytic activity on its own. Interesting recent work suggests that quercetin and fisetin's senolytic action may depend partly on their prooxidant activity in the presence of copper and iron, metals that senescent cells tend to accumulate at higher levels. This may explain why these particular flavonoids selectively damage senescent cells while sparing healthy ones (Wang et al., 2021).

EGCG and Curcumin

EGCG, the primary catechin in green tea, and curcumin, the active compound in turmeric, are both included among the emerging natural senolytics, alongside piperlongumine, a compound derived from long pepper. Their proposed mechanisms involve suppressing the anti-apoptotic proteins that allow senescent cells to resist normal cell death, along with independent antioxidant and anti-inflammatory activity that may help reduce the SASP itself (Li et al., 2019).

What This Means in Practice

I want to be direct about where the evidence stands. Most of what we know about natural senolytics comes from cell culture and animal studies. Human clinical trials are still limited, and food-based intake of these compounds is unlikely to reach the concentrations used in research. That does not make them without value. Diets rich in these foods, and in some cases targeted supplementation, are a reasonable part of a broader anti-inflammatory and healthy aging strategy, and the safety profile of these natural compounds is generally favorable compared to pharmaceutical senolytics. In my own practice, I often use our KHOSH EGCG Curcumin formulation alongside KHOSH Inflam-Ex to support this pathway with more consistent dosing than food alone can provide.

For patients with a more significant senescent cell burden, particularly those who are not feeling well despite an otherwise well-optimized health picture, natural senolytics are often a starting point rather than the whole answer. In those cases, I discuss more targeted approaches, including therapeutic plasma exchange, which works through a different mechanism by directly removing circulating SASP factors rather than relying on cellular clearance.

At Holistique, therapeutic plasma exchange is provided by Circulate Health, with our team providing the supportive protocol around it.

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The Bottom Line

Natural senolytics like fisetin, quercetin, EGCG, and curcumin represent a promising, low-risk entry point into addressing cellular senescence. The evidence is strongest for fisetin, growing for quercetin, and still emerging for EGCG and curcumin specifically in this role. For most people, incorporating these foods and considering targeted supplementation is a sensible foundation. For those still struggling despite a strong foundation, it is worth a deeper conversation.

If you want to understand your own inflammatory and aging picture, and whether natural senolytics or more advanced options make sense for you, our team at Holistique Medical Center is here to help.

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