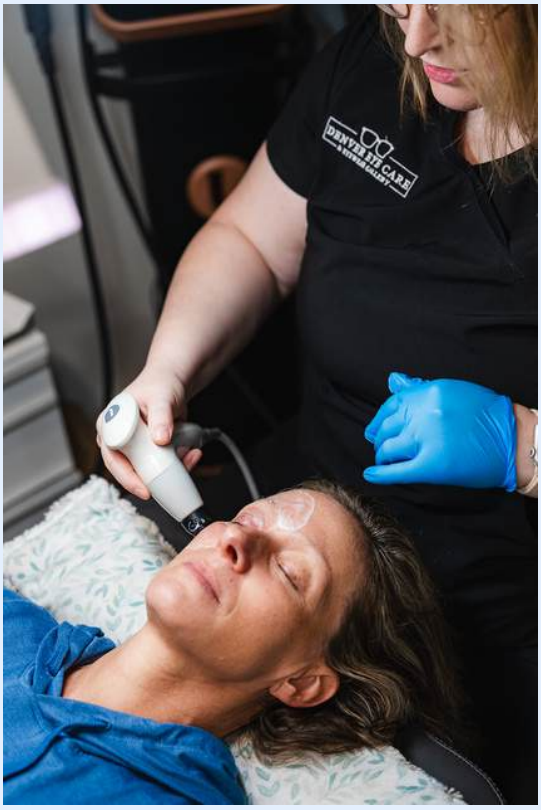
A GUIDE TO FIGHTING INFLAMMATION

Inflammation: How Your Lifestyle, Diet, and Environment Affect Your Health and What to do About It



DENVER EYE CARE
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Inflammation & Your Eye Health

Inflammation is your body's natural defense system. In the short term, it helps you fight off infection and heal from injury. But when inflammation becomes chronic, it can silently damage tissues throughout your body — including your eyes.

Research shows that chronic inflammation plays a role in many common eye conditions:

- **Dry Eye Disease** – inflammation disrupts the tear film and damages the eye's surface
- **Age-Related Macular Degeneration (AMD)** – oxidative stress and inflammatory pathways accelerate retinal damage
- **Glaucoma** – inflammation and oxidative stress contribute to optic nerve injury
- **Diabetic Retinopathy** – high blood sugar triggers inflammation and damages retinal blood vessels

You can take steps every day to lower inflammation through your lifestyle, diet, and environment. Choosing real, whole foods, staying active, reducing stress, and getting enough sleep all make a difference.

This guide was created to give you simple, practical tools to reduce inflammation — from grocery shopping and meal ideas to healthier drink swaps. Even small changes can protect your vision, improve your energy, and support long-term health.

Your eyes are a window into your overall health. By caring for both, you're investing in a clearer, healthier future.

1. TFOS DEWS II Definition & Inflammatory Cycle
The 2017 Tear Film & Ocular Surface Society (TFOS) DEWS II report describes dry eye as a multifactorial disease driven by tear film instability, hyperosmolarity, ocular surface inflammation, and damage IOVSScienceDirect.
2. Immune-Mediated Inflammatory Mechanisms
A JAMA Ophthalmology review (2012) emphasizes how inflammation—through innate and adaptive immune responses—initiates a self-perpetuating inflammatory cycle damaging the ocular surface JAMA Network.
3. Modern Optometry: Inflammation as a Driving Force
A September 2024 article in Modern Optometry reinforces that inflammation becomes a key driver of disease progression in 40–65% of dry eye cases, regardless of the underlying cause Modern Optometry.
4. Molecular Pathways and Cytokines
Literature highlights that inflammatory mediators such as IL-1, TNF-α, IL-6, MMPs, and activation of immune cells (e.g., T-cells) contribute directly to ocular surface damage that perpetuates dry eye inflammation reviewofoptometry.comFrontiers.

Sugar -

Why it's bad: causes insulin resistance/makes it harder for insulin to get sugar *out* of your blood and *into* your cells to be used as energy

- Sticks to important things in your cells and causes tissue damage and inflammation
- Disrupts healthy balance of gut bacteria

Action steps: *eliminate* added sugar from your diet

Reference: **Excessive intake of sugar: An accomplice of inflammation: Xiao, Ma, et al; Frontiers in Immunology, 2022** https://pmc.ncbi.nlm.nih.gov/articles/PMC9471313/?utm_source=chatgpt.com

Seed Oils/High omega-6 Fatty Acids -

Why it's bad: excessive omega-6 fatty acids (biggest source = seeds oils: corn, canola, cottonseed, sunflower, safflower, soy, grapeseed, rice bran), without enough antioxidants to neutralize them, leads to *oxidative stress* inside your cells, potentially damaging the cell's lipids (part of the cell membrane), DNA, or proteins.

Action steps: eliminate seed oils from your diet; supplement with healthy omega 3 fatty acids (fish oil supplement); cook/bake/prepare food using butter, beef tallow, or olive/coconut/avocado oil

Reference: **The Importance of Maintaining a Low Omega-6/Omega-3 Ratio for Reducing the Risk of Autoimmune Diseases, Asthma, and Allergies: DiNicolantonio, James, et al: Missouri Medicine, 2021** https://pmc.ncbi.nlm.nih.gov/articles/PMC8504498/?utm_source=chatgpt.com

Gut Dysbiosis "Leaky Gut" -

Why it's bad: gut lining can be damaged (become "leaky") from aspirin/Advil/etc., what we eat (processed foods, sugar, low fiber diet, preservatives, food coloring, high omega 6 fatty acids - seed oils), and this can cause bacteria and toxins to leak from our gut into our bloodstream and trigger inflammation - being seen by the body as "foreign"

Action steps: limit aspirin/Advil/etc.; avoid food categories listed above; eat whole food sources of fiber (examples: chia seeds, flaxseeds, avocados, raspberries, beans/lentils, almonds/hazelnuts/pecans/pistachios)

Reference: **Microbial dysbiosis in the gut drives systemic autoimmune diseases:** https://pmc.ncbi.nlm.nih.gov/articles/PMC9632986/?utm_source=chatgpt.com

Leaky gut in systemic inflammation: exploring the link between gastrointestinal disorders and age-related diseases: Escalante, Johnathan, et al; GeroScience, 2024. https://pmc.ncbi.nlm.nih.gov/articles/PMC11872833/?utm_source=chatgpt.com

Alcohol -

Why it's bad: directly damages mitochondria - the part of the cell that makes energy; disrupts healthy balance of gut bacteria; increases inflammatory cytokines in the blood

Action steps: avoid drinking alcohol

Reference: *"Good Energy: The surprising connection between metabolism and limitless health."* by Dr. Casey Means (2022)

Inflammation, oxidative stress and gut microbiome perturbation: A narrative review of mechanisms and treatment of the alcohol hangover Alcohol: Turner, Benedict R.H.; Clinical & Experimental Research, 2024. https://onlinelibrary.wiley.com/doi/10.1111/acer.15396?utm_source=chatgpt.com

Trans Fat -

Why it's bad: increases inflammatory cell signals, damages blood vessel inner linings, increases risk of coronary artery disease

Action steps: eliminate ultra-processed foods, packaged foods, and fried foods from your diet

Reference: **Inflammatory Markers Are Positively Associated with Serum *trans*-Fatty Acids in an Adult American Population: Mazidi, Mohsen; Journal of Nutrition and Metabolism, 2017.** https://pmc.ncbi.nlm.nih.gov/articles/PMC5525085/

Associations between trans fatty acids and systemic immune-inflammation index: a cross-sectional study :Zhu, Xiao-Feng, et al; Lipids in Health and Disease, 2024. https://lipidworld.biomedcentral.com/articles/10.1186/s12944-024-02109-w?utm_source=chatgpt.com

Obesity -

Why it's bad: visceral fat (builds up around your internal organs) secretes inflammatory cell signals to the rest of your body; "overnutrition" (eating too much) puts strain on your mitochondria (the part of your cells that makes energy) and creates oxidative stress which can damage your lipids, DNA, and protein

Action steps: eat whole foods - prioritize whole food sources of protein and get physical activity to achieve and maintain a healthy weight

Reference: *Young Forever: The Secrets to Living Your Longest, Healthiest Life* by Dr. Mark Hyman (2023)

Obesity and inflammation: the linking mechanism and the complications. Ellulu, Mohammed; Archives of Medical Science, 2016. https://pmc.ncbi.nlm.nih.gov/articles/PMC5507106/

Smoking -

Why it's bad: damages blood vessel lining; causes oxidative stress; activates immune/inflammatory cells
Action steps: stop smoking!!!! Replace smoking with a healthier habit (walking, painting, reading, knitting, gardening, chewing gum)
Reference**: The effect of smoking on chronic inflammation, immune function and blood cell composition. Elisia, Ingrid, et al; Scientific Reports, 2020.** https://www.nature.com/articles/s41598-020-76556-7?utm_source=chatgpt.com

Chronic Stress -

Why it's bad: can activate immune/inflammatory cells; releases stress hormones (cortisol and adrenaline) which can inhibit genes involved in making new mitochondria
Action steps: decrease stress in your life through prayer, meditation, a hobby/sport/other physical activity (walking!)
Reference: **Inflammation: The Common Pathway of Stress-Related Diseases, Liu, Yun Zi, et al; Frontiers in Human Neuroscience, 2017.** https://pmc.ncbi.nlm.nih.gov/articles/PMC5476783/

Sleep Deprivation -

Why it's bad: increases inflammatory cells signals, raises cortisol levels in the blood (cortisol = your body's stress hormone)
Action steps: aim for 7-8 hours per nights; go to bed/wake up at the same time (within 1 hour), turn off all computer screens, phones, and blue light devices 1-2 hours before bedtime
Reference: **Sleep Inconsistency and Markers of Inflammation. Dzierzewski, Joseph M, et al; Frontiers in Neurology, 2020.** https://pmc.ncbi.nlm.nih.gov/articles/PMC7525126/

Physical Inactivity -

Why it's bad: INactivity decreases muscles mass which is ANTI-inflammatory; causes mitochondrial dysfunction and oxidative stress
Action steps: incorporate strength training into your routine 1-3x/week; aim for 8,000-10,000 steps per day, preferably broken up into several different walks throughout the day (for best blood sugar regulation, aim for walking for at least 10 minutes after meals)
Reference: **Inflammation, physical activity, and chronic disease: An evolutionary perspective, Burini, Roberto Carlos et al; Ke Ai - Sports Medicine and Health Science, 2020.** https://pmc.ncbi.nlm.nih.gov/articles/PMC9219305/?utm_source=chatgpt.com

Environmental toxins -

Why it's bad: body sees pollutants/toxins/plastics as foreign and reacts via an immune response
Action steps: avoids pesticides like glyphosates; avoid storing food in plastics or drinking/eating from plastics; avoid synthetic food dyes
References: **The Impact of Environmental Chemicals on the Gut Microbiome. Chiu, Karen, et al: Toxicological Sciences, 2020. https://pmc.ncbi.nlm.nih.gov/articles/PMC7416318/#:~:text=In%20support%20of%20the%20disease,is%20a%20trigger%20to%20inflammation**

Your Anti-Inflammatory Pantry Guide

Healthy Fats:
- Extra virgin olive oil, avocado oil, coconut oil, grass-fed butter, beef tallow
- Avocados, olives, nuts (almonds, pecans, pistachios, hazelnuts), seeds (chia, flax)

Protein:
- Wild-caught fish (salmon, sardines, mackerel — rich in omega-3s)
- Pasture-raised poultry, grass-fed beef, pasture-raised eggs
- Beans, lentils, chickpeas

Anti-Inflammatory Produce:
- Leafy greens: spinach, kale, arugula, Swiss chard
- Cruciferous veggies: broccoli, cauliflower, Brussels sprouts
- Berries: blueberries, raspberries, blackberries
- Colorful veggies: bell peppers, beets, carrots, sweet potatoes
- Fresh herbs & spices: turmeric, ginger, garlic, rosemary, basil

Gut-Healthy Foods:
- Fermented foods: sauerkraut, kimchi, kefir, plain Greek yogurt (no added sugar)
- High-fiber options: oats, quinoa, whole flaxseeds, chia seeds

Extras to Replace Ultra-Processed Options:
- Unsweetened nut butters
- Sparkling water, herbal teas
- Natural sweeteners (if needed) — raw honey, monk fruit, or stevia (sparingly)

Sample Meals

Breakfast:

- Greek yogurt bowl topped with chia seeds, blueberries, crushed almonds, drizzle of raw honey
- Veggie omelet with spinach, tomatoes, and avocado on the side
- Overnight oats with flaxseeds, raspberries, and walnuts

Lunch:

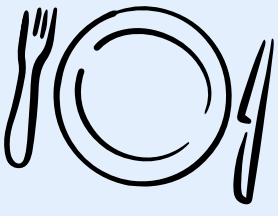
- Grilled salmon over mixed greens with quinoa, cherry tomatoes, cucumbers, olive oil & lemon dressing
- Lentil & veggie soup with a side of sourdough (optional, if gluten is tolerated)
- Mason jar salad: kale, shredded carrots, chickpeas, bell peppers, pumpkin seeds, balsamic vinaigrette

Dinner:

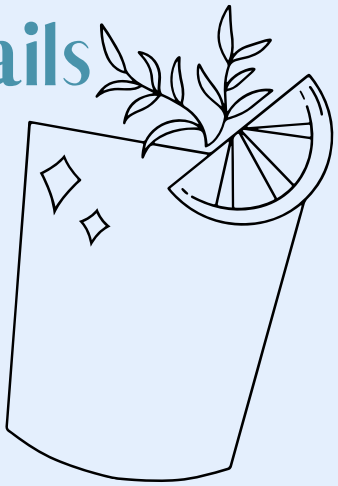
- Roasted chicken thighs with garlic & rosemary, sweet potato wedges, and steamed broccoli
- Grass-fed beef stir fry with peppers, broccoli, and coconut aminos served over cauliflower rice
- Chickpea & spinach curry with brown rice

Snack Ideas:

- Handful of pistachios & berries
- Veggies with hummus
- Apple slices with almond butter



Inflammatory Fighting Mocktails



Turmeric Ginger Sparkler

- ½ tsp grated fresh turmeric
- ½ tsp grated fresh ginger
- Juice of ½ lemon
- Top with sparkling water over ice
- Garnish with mint

Blueberry Basil Cooler

- Muddle fresh blueberries & a few basil leaves
- Add splash of 100% cranberry juice (unsweetened)
- Top with sparkling water, ice, garnish with extra basil

Cucumber Mint "Mojito"

- Muddle cucumber slices & mint
- Squeeze of lime
- Top with sparkling water, ice, garnish with lime wedge

See the difference healthy choices can make — for your eyes, your energy, and your future. Take it one step at a time, celebrate the wins, and know you're doing something powerful for your health. We're honored to be part of your journey.

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