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Why Your Heart Risk Score Matters for Your Eyes

Analysis by Dr. Joseph Mercola | February 11, 2026

STORY AT-A-GLANCE

- Your cardiovascular risk score reflects how well blood flows through your smallest vessels, and those same vessels determine whether your retina and optic nerve stay healthy as you age
- People with higher heart risk scores face a much greater chance of developing serious eye diseases years before vision problems become noticeable
- Eye damage builds quietly as vascular and metabolic stress accumulates, which explains why vision loss often appears before obvious heart symptoms
- Improving cellular energy and blood vessel health protects your eyesight by restoring circulation to your retina and optic nerve rather than reacting after damage occurs
- Using a heart risk score as an early vision warning gives you a practical way to act sooner, personalize prevention, and lower your risk of permanent vision loss

The next time your doctor calculates your cardiovascular risk score, don't just think about your heart. That number is also a preview of your future eyesight — and possibly the earliest warning you'll get that vision loss is quietly building. When circulation falters there, vision pays the price long before anything feels wrong in your chest.

Cardiovascular risk scores bundle together markers like blood pressure, blood sugar balance, cholesterol patterns, age, and smoking history. These reflect cumulative stress on your vascular system. Large arteries usually hold up for years. The smallest vessels

don't. Your retina and optic nerve depend on constant, delicate blood flow, and even subtle disruptions reduce oxygen and nutrient delivery where precision matters most.

Vision loss rarely announces itself with symptoms — but it always leaves early evidence inside your tissues. It builds quietly as vascular strain erodes eye health over time. By the time blurred vision, blind spots, or pressure changes show up, the damage has already been underway for years. That is why reactive care falls short and why early signals deserve more attention than they usually receive.

When you understand cardiovascular risk as a window into your future eyesight, eye health shifts from something passive and age-driven into something measurable, personal, and preventable, setting the stage for why this single metric deserves a closer look.

A Routine Heart Score Predicts Vision Loss

A study published in the journal Ophthalmology evaluated whether the Pooled Cohort Equations cardiovascular risk score, a standardized formula doctors use to estimate your 10-year risk of a heart attack or stroke based on age, cholesterol, blood pressure, and other factors, predicts the future development of major eye diseases.[1]

Researchers reviewed years of medical records to see whether this common heart risk score also points to a higher risk of major eye diseases, including macular degeneration, diabetic eye disease, **glaucoma**, blocked retinal veins, and blood pressure-related damage to the retina. The goal: catch eye disease risk years earlier using numbers your doctor already has.

Researchers tracked 35,909 adults between 40 and 79 — all with healthy hearts and eyes at baseline — to see who developed problems over the following years. Each participant had a complete cardiovascular risk profile, allowing researchers to calculate a standardized 10-year heart risk score and then track who later developed eye disease over several years. This large sample size strengthens confidence that the findings apply to real-world patients.

- **Higher cardiovascular risk strongly tracked with higher eye disease risk —** The results showed a clear, stepwise pattern: as cardiovascular risk increased, so did the likelihood of developing serious eye conditions.

  Compared with people in the lowest risk category, those in the highest risk group were more than six times as likely to develop age-related macular degeneration and nearly six times as likely to develop **diabetic retinopathy**.[2]

  The risk of blood pressure-related eye damage, blocked retinal veins — the tiny blood vessels that drain blood from the light-sensing tissue at the back of your eye — and glaucoma also increased, showing that your eye health follows the same blood vessel health as the rest of your body.

- **Timing mattered, and the associations held up over years —** The increased risk for eye disease didn't appear briefly and disappear. Associations remained consistent across follow-up periods of five, six, and seven years, showing that cardiovascular risk scores flag long-term eye vulnerability, not short-lived fluctuations. This long-time horizon gives you a window to act, long before noticeable vision problems appear.

- **Certain risk components explained some diseases more than others —** When researchers adjusted for individual elements within the cardiovascular score, age explained much of the association with macular degeneration, while diabetes and blood pressure remained powerful drivers of diabetic and hypertensive **eye disease**. This comparison shows that different eye conditions reflect different underlying stresses, even though they share a common vascular foundation.

- **The connection centers on small blood vessel damage —** The study explains that cardiovascular risk factors damage the lining of blood vessels, a process known as endothelial dysfunction. Think of your endothelium as a thin, living wallpaper lining every blood vessel. When healthy, it flexes to widen or narrow vessels as needed and patches small injuries. When damaged, it becomes stiff and leaky — like old, cracked wallpaper that can't do its job anymore.

Your retina and optic nerve depend on dense networks of tiny vessels, making them especially sensitive to chronic vascular strain. Over time, reduced oxygen and nutrient delivery leads to structural damage and vision loss.

- **Metabolic stress accelerates this vascular injury inside your eye —** Elevated blood sugar, unbalanced cholesterol, and sustained high blood pressure create oxidative stress, meaning excess reactive molecules — essentially biological "sparks" that damage cells the way rust corrodes metal. Your body produces some naturally, but metabolic dysfunction creates a firestorm of them.

  In the eye, this stress weakens vessel walls, disrupts blood flow, and triggers inflammatory responses that degrade retinal tissue. These processes explain why eye disease often follows years of silent metabolic dysfunction. Researchers emphasized that the "beauty of this approach" lies in its simplicity, noting that the cardiovascular risk score is "already calculated in millions of doctor visits each year" and requires no additional testing.

Practical Steps That Protect Your Heart and Your Eyesight

These findings could easily feel fatalistic — as if eye disease is simply written into your **cardiovascular numbers**. But the opposite is true. Because the damage accumulates through mechanisms you can influence, you have years of opportunity to change the trajectory.

The real problem is not a single lab value like **cholesterol** or a blood pressure reading. It's important to look deeper than that. The damage starts inside your cells, where stressed mitochondria lose the ability to produce clean energy. When that happens, blood vessels stiffen, circulation falters, and the smallest vessels suffer first. That includes the tiny vessels that nourish your retina and optic nerve. When you fix cellular energy, you protect your heart and your eyes at the same time.

While the featured study didn't examine dietary interventions, the mechanisms it identifies — oxidative stress, endothelial dysfunction, and metabolic strain — are precisely what these strategies target. Improving mitochondrial function reduces the oxidative burden on retinal vessels; stabilizing blood sugar prevents the glycemic swings that damage small vessels over time.

1. **Remove linoleic acid (LA) because it damages cellular energy and eye circulation** — If you make one change, make it this. LA from vegetable oils breaks down mitochondrial membranes and accelerates vascular aging. That damage shows up early in your eyes because retinal vessels are extremely delicate. Here's why this matters: your mitochondria have delicate inner membranes made largely of fats.

   When those membranes incorporate unstable LA instead of stable saturated fats, they become vulnerable to oxidative damage — like building a wall with crumbling bricks instead of solid ones. I recommend removing corn, soybean, canola, sunflower, and safflower oils from your kitchen and assuming restaurant meals use them unless proven otherwise.

   Replace them with grass fed butter, ghee, or beef tallow. Your target is less than 5 grams of LA daily, ideally under 2 grams, because lowering this burden restores mitochondrial function and improves blood flow to eye tissue. To track your intake, I recommend signing up for my Mercola Health Coach app when it becomes available. It will have a feature called the Seed Oil Sleuth, which monitors your LA intake to a tenth of a gram so you can stay in charge of your metabolism.

2. **Fuel your mitochondria with enough carbohydrates to stabilize retinal blood flow** — Starve your mitochondria of glucose and they shift into a stressed, inefficient backup mode — producing more oxidative waste while delivering less clean energy. That stress worsens oxidative damage inside blood vessels, including those in your eyes. I recommend about 250 grams of carbohydrates daily for most adults, and more if you're active.

Start with fruit and white rice, then slowly layer in root vegetables and other starches. Watch for bloating or digestive discomfort — signs to slow down and let your gut microbiome adapt. When glucose supply stabilizes, blood sugar swings calm down, vascular stress drops, and retinal tissue receives steadier energy support.

3. **Walk daily to improve circulation to your retina and optic nerve —** If you want to protect your eyesight, daily movement isn't a bonus — it's a requirement. Walking improves circulation, lowers the resistance your blood encounters as it moves through vessels, clears metabolic waste, and boosts mitochondrial energy production.

   All of that directly benefits your eyes, which depend on constant blood flow. If you're sedentary, start with 10-minute walks and build toward an hour a day. Walking outdoors adds another layer of benefit by improving light signaling and circulation at the same time.

4. **Use sunlight strategically to restore cellular energy without harming your eyes or skin —** Sunlight supports nitric oxide production, lowers blood pressure, and increases melatonin inside mitochondria, which protects blood vessels from oxidative damage. That protection extends to your retina. This isn't the melatonin that makes you sleepy — that's produced by your pineal gland at night.

   Your mitochondria produce their own melatonin in response to near-infrared light from the sun, and this form acts as a powerful local antioxidant, protecting the very organelles that generate your cellular energy.

   If your tissues still hold years of LA, harsh midday sun increases burn risk. I recommend morning and late afternoon light and avoiding peak sunlight hours until you have been off seed oils for at least six months. As mitochondrial membranes recover, your tolerance improves and your cells use light as a clean energy signal instead of a stressor.

5. **Track insulin resistance with HOMA-IR to protect small vessels before vision loss starts —** Recognizing insulin resistance early is essential, as it's a warning sign for your metabolic health. The HOMA-IR (Homeostatic Model Assessment of Insulin Resistance) test is a valuable diagnostic tool that helps assess insulin resistance through a simple blood test, so you can spot issues early and make necessary lifestyle changes.

   Created in 1985, it calculates the relationship between your fasting glucose and insulin levels to evaluate how effectively your body uses insulin. Unlike other more complex tests, HOMA-IR requires just one fasting blood sample, making it both practical and accessible. The HOMA-IR formula is as follows:

   HOMA-IR = (Fasting Glucose x Fasting Insulin) / 405, where

   - Fasting glucose is measured in mg/dL
   - Fasting insulin is measured in μIU/mL (microinternational units per milliliter)
   - 405 is a constant that normalizes the values

   If you're using mmol/L for glucose instead of mg/dL, the formula changes slightly:

   HOMA-IR = (Fasting Glucose x Fasting Insulin) / 22.5, where

   - Fasting glucose is measured in mmol/L
   - Fasting insulin is measured in μIU/mL
   - 22.5 is the normalizing factor for this unit of measurement

   Anything below 1.0 is considered a healthy HOMA-IR score. If you're above that, you're considered insulin resistant. The higher your values, the greater your insulin resistance. Conversely, the lower your HOMA-IR score, the less insulin resistance you have, assuming you are not a Type 1 diabetic who makes no insulin.

Interestingly, my personal HOMA-IR score stands at a low 0.2. This low score is a testament to my body's enhanced efficiency in burning fuel, a result of increased glucose availability. By incorporating additional carbohydrates into my diet, I provided my cells with the necessary energy to operate more effectively.

This improved cellular function has significantly boosted my metabolic health, demonstrating how strategic dietary adjustments lead to better insulin sensitivity and overall metabolic performance.

Why does this matter for your eyes specifically? Insulin resistance silently damages the tiny vessels in your retina years before you'd ever fail a vision test. Catching it early with HOMA-IR gives you a window that no eye exam can provide.

FAQs About Cardiovascular Risk and Vision Health

Q: How does a cardiovascular risk score relate to eye disease?

A: Your cardiovascular risk score reflects long-term stress on your blood vessels. The smallest vessels are affected first, including those that supply your retina and optic nerve. When these vessels lose flexibility and proper blood flow, the risk of eye diseases such as macular degeneration, diabetic retinopathy, glaucoma, and blood pressure-related retinal damage rises.

Q: Why do eye problems often appear before heart symptoms?

A: Large arteries usually tolerate years of metabolic stress without obvious symptoms. The tiny vessels in your eyes don't have that margin for error. Reduced circulation, oxidative stress, and vessel wall damage show up earlier in vision-related tissues, which is why eyesight often declines before chest pain or other heart-related warning signs appear.

Q: Which factors drive both cardiovascular and eye disease risk?

A: Elevated blood sugar, high blood pressure, abnormal cholesterol patterns, smoking history, and insulin resistance all strain blood vessels throughout your body. These same factors damage retinal circulation, linking cardiovascular risk scores directly to future vision loss.

Q: Can lifestyle changes lower both heart and eye disease risk?

A: Yes. Reducing LA from vegetable oils, eating enough healthy carbohydrates to support cellular energy, walking daily, using sunlight strategically, and improving insulin sensitivity all reduce vascular stress. These steps improve blood flow and energy production in the same small vessels that protect your eyesight.

Q: Why is early action more effective than waiting for vision symptoms?

A: By the time vision changes are noticeable, damage inside your eye has often progressed for years. Using your cardiovascular risk score as an early signal allows you to act while retinal tissue is still resilient, shifting eye care from damage control to prevention.

Sources and References

- [1] Ophthalmology December 29, 2025
- [2] UCLA Health January 7, 2026