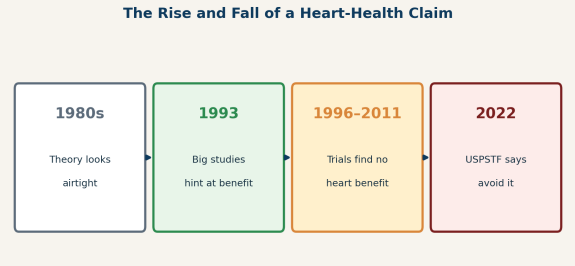
Vitamin E and Your Heart

A promising heart theory, tested by randomized trials, and what they actually found

The theory looked airtight. Large randomized trials say otherwise. Food still counts.



Online: https://go.riasalimd.com/vitamin-e-guide

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Names & Terms You Will Hear

Term	Meaning
Vitamin E.	A family of fat-soluble antioxidant compounds. The body uses only one form: alpha-tocopherol.
Alpha-tocopherol (a-tocopherol)	The only form of vitamin E the body keeps in the bloodstream. A label that just says "vitamin E" almost always means this form.
Tocopherol.	The general chemical family name. There are four types: alpha, beta, gamma, and delta.
Mixed tocopherols	A supplement blend with several tocopherol types, not just alpha. Alpha-tocopherol still does most of the recognized work.
Gamma-tocopherol	The most common form in the American diet, mainly from soybean and corn oil. The body keeps far less of it than alpha-tocopherol.
d-alpha-tocopherol (RRR-alpha-tocopherol)	The natural form, made by plants. One single, fully active shape. Usually labeled "natural" or with a "d-" prefix.
dl-alpha-tocopherol (all-rac-alpha-tocopherol)	The synthetic, lab-made form. A mix of eight shapes; the body can use only some. It is about half as strong, milligram for milligram, as the natural form.
Alpha-tocopheryl acetate / tocopheryl succinate	Vitamin E chemically bonded to another molecule to protect it on the shelf. The body breaks this bond and absorbs the vitamin E just as well.
Tocotrienols.	A related but different family of vitamin E compounds. Sold in some specialty supplements. Far less studied than alpha-tocopherol.
"Antioxidant vitamin"	A marketing phrase for vitamin E and similar nutrients. It describes a lab property, not a proven medical benefit.
IU vs. mg.	Two ways of measuring the same vitamin. They do not convert the same way for natural and synthetic vitamin E, a common source of label confusion (explained inside).

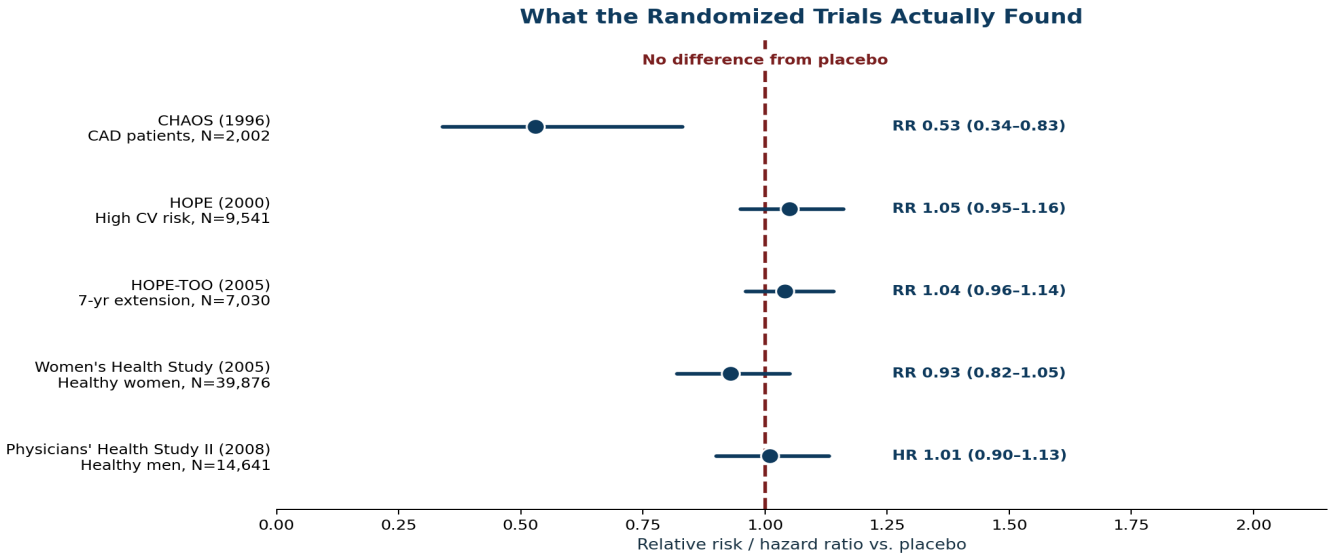
The short version. Vitamin E looked like a promising heart-protective vitamin in the 1980s and 1990s. Large randomized trials tested it directly. They found no drop in heart attack, stroke, or cardiovascular death, and some found real risks. In 2022 the US Preventive Services Task Force recommended AGAINST vitamin E supplements for heart or cancer prevention. Getting vitamin E from food remains completely fine.

Vitamin E and Your Heart?

- Vitamin E is a fat-soluble antioxidant. It stops a damaging chemical chain reaction called oxidation. This reaction can spread through fat in cell membranes and in LDL ("bad") cholesterol.
- The body has eight natural forms of vitamin E. It keeps and uses only one: alpha-tocopherol. A liver protein, the alpha-tocopherol transfer protein, does the selecting. It sends alpha-tocopherol back into the blood and clears out the other forms.
- Natural vitamin E (d-alpha-tocopherol) is one single active shape. Synthetic vitamin E (dl-alpha-tocopherol) is a lab-made mix of eight shapes, and the body can use only some of them. It takes about twice the milligrams of synthetic to equal the natural form.
- Supplement labels list vitamin E in International Units (IU) or milligrams (mg). The two do not convert the same way for natural and synthetic vitamin E: 15 mg of natural vitamin E equals about 22 IU, while 15 mg of synthetic vitamin E equals about 33 IU.
- Adults need 15 mg a day, the RDA, and food easily covers that. Most vitamin-E-only supplements give 67 mg (100 IU) or more, several times what the body needs.

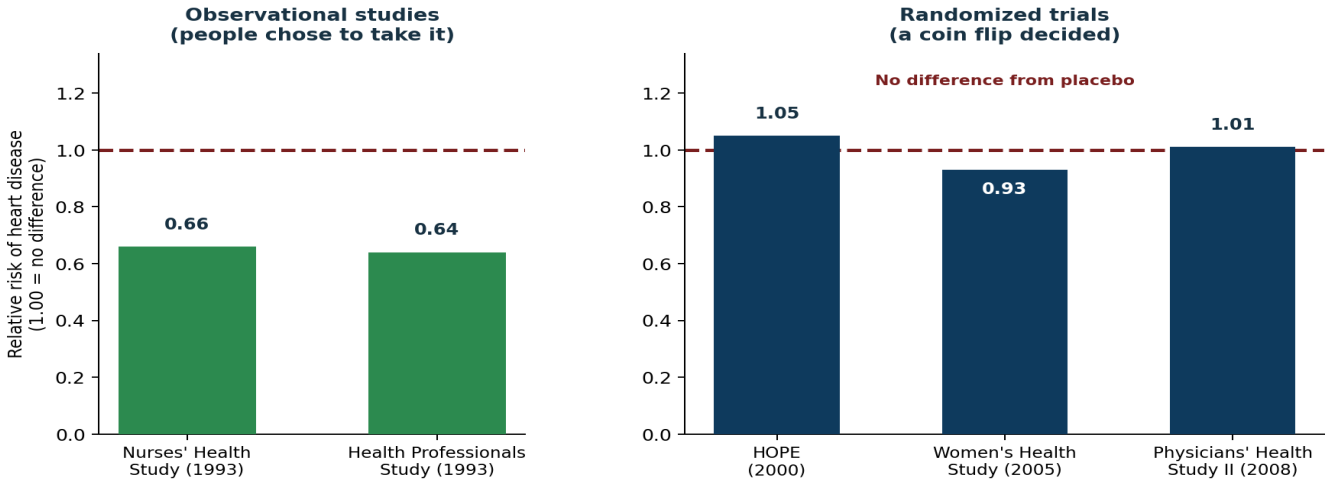
Why It Matters

- Vitamin E is a classic lesson in medicine: a good theory and a hopeful early study are not the same as proof.
- Plain LDL cholesterol does not damage an artery wall on its own. Many researchers came to believe it first must be chemically altered, or "oxidized," inside the wall, an idea called the oxidative modification hypothesis. That idea made an antioxidant like vitamin E look like an obvious heart drug.
- Large observational studies in the early 1990s seemed to back up the theory. People who took vitamin E had much less heart disease. But those studies only watched what people chose to do. They could not tell whether vitamin E was the true reason, since people who take vitamin E often also eat better and see doctors more.
- Randomized trials settle that question. A coin flip decides who gets the pill, not a personal choice. That is the only fair way to test what the pill itself does.
- Randomized trials were run, one after another. They told a very different story than the early observational studies had.



Five major randomized trials tested vitamin E against a placebo. Each looked at heart attack, stroke, or cardiovascular death. The dashed line at 1.0 marks "no difference." Only CHAOS, the earliest and smallest trial, landed clearly on the benefit side, and even it saw slightly more cardiovascular deaths in the vitamin E group.

Why the Studies Seemed to Disagree



This gap shows up whenever a supplement's early signal does not survive a randomized trial. People who chose to take vitamin E in the 1990s studies likely also made other healthy choices. Researchers could not fully separate those out. This is called the healthy-user effect, a form of confounding, not a dosing failure.

The 1980s: A Theory That Looked Airtight

- Plain LDL cholesterol does not damage an artery wall by itself. Many researchers, led by Dr. Daniel Steinberg, proposed something more: LDL first has to be chemically altered inside the wall, a process called oxidation. This idea became known as the oxidative modification hypothesis.
- Vitamin E is a fat-soluble, chain-breaking antioxidant. In test tubes and animal studies, it blocked exactly this kind of oxidation.
- Only alpha-tocopherol stays in the bloodstream long-term. A liver protein, the alpha-tocopherol transfer protein, selects it out of everything absorbed from food. It sends alpha-tocopherol back into the blood and clears out the other forms.
- The logic seemed clean: if oxidized LDL helps cause plaque, and vitamin E blocks that oxidation, vitamin E should help protect the heart. This is the theory that launched three decades of research.

The 1990s: Observational Studies Raised Hopes

- Two very large studies gave the theory real weight: the Nurses' Health Study, about 87,000 women, and the Health Professionals Follow-up Study, about 40,000 men.
- Women who took the most vitamin E, mostly from supplements, had about a 34% lower rate of major coronary disease than women who took the least.
- Men who took 100 IU a day or more for at least two years had about a 37% lower rate of coronary disease than men who took no vitamin E supplement.
- These were observational studies. People chose for themselves whether to take vitamin E, and researchers only watched what happened afterward. That design cannot tell whether vitamin E caused the lower risk, or whether it was the other habits of vitamin E users.
- The signal was strong. Vitamin E supplement use climbed through the 1990s, well ahead of any randomized proof that it worked.

1996–2011: What the Randomized Trials Actually Found

- A randomized trial is the fair test: a coin flip, not a personal choice, decides who takes vitamin E. This is the only design that can show what the pill itself does.
- CHAOS (1996) was the first randomized result, in patients with known coronary disease. It was hopeful on its main outcome, driven almost entirely by fewer nonfatal heart attacks. But the same trial saw slightly more cardiovascular deaths in the vitamin E group.
- ATBC (Finland, completed 1993) looked at this too, in smokers with a prior heart attack. It found no drop in major coronary events. There was a trend toward more, not fewer, fatal coronary disease.
- GISSI-Prevenzione (1999), HOPE (2000), HOPE-TOO (2005), the Women's Health Study (2005), and the Physicians' Health Study II (2008) all followed. None found fewer heart attacks, strokes, or cardiovascular deaths with vitamin E.
- Several found real harm. HOPE-TOO found more heart failure. The Physicians' Health Study II found more hemorrhagic stroke. SELECT (2011) found more prostate cancer in men. A 2005 analysis pooling 19 trials found more deaths from any cause at 400 IU a day or higher.

Where It Stands Today

- In 2022, the US Preventive Services Task Force reviewed the full body of evidence. They recommended AGAINST vitamin E for heart disease or cancer prevention. That is a Grade D recommendation, their strongest level of "do not do this."
- Getting vitamin E from food is a completely different question. Food-based vitamin E carries none of the risks described here. It is simply part of normal nutrition.
- A few situations still call for supplemental vitamin E, always under a doctor's care. These include a malabsorption disorder, a rare inherited deficiency, or a liver condition called MASH or NASH.
- Outside of those situations, a high-dose vitamin E pill has no proven place in protecting your heart.

The single most important lesson here: the gap between the hopeful 1990s studies and the later randomized trials is not a dosing failure. It is the **healthy-user effect**, a form of confounding. People who chose to take vitamin E in the 1990s were also, on average, people who exercised more and smoked less. They saw doctors more regularly too. Observational studies could not fully separate the vitamin from those healthy habits. "Studies showed it" is not the same thing as "it works," until a randomized trial confirms it.

Risk Factors

Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

Risk Factor	Why It Increases Risk
Taking warfarin or another blood thinner.	Vitamin E can work against vitamin K-dependent clotting factors. This adds to bleeding risk on top of the blood thinner.
Taking aspirin or another antiplatelet medicine.	Vitamin E can mildly reduce platelet clumping on its own. Combined with aspirin, the bleeding risk stacks up.
Scheduled for surgery, a dental procedure, or a colonoscopy.	The same bleeding effect means a high-dose supplement should stop ahead of time. This is the same advice we give for fish oil, garlic, and ginkgo.
A man considering a high-dose supplement.	The SELECT trial found significantly more prostate cancer in men taking 400 IU of vitamin E a day.
A history of hemorrhagic (bleeding) stroke, or a bleeding disorder.	Two separate randomized trials found more hemorrhagic stroke in people taking vitamin E.
A malabsorption condition, or an inherited deficiency.	Crohn's disease and cystic fibrosis are two examples. These can mean you truly need more vitamin E, in a dose your doctor sets and checks.

Before any surgery or procedure: vitamin E can thin the blood, like fish oil, garlic, and ginkgo. Tell your surgical team you take it. You may need to stop it about a week before any procedure, the same guidance we give for other blood-thinning supplements.

Treatment Options

- Get your vitamin E from food. Nuts, seeds, vegetable oils, and leafy greens easily cover the 15 mg a day you need, with none of the risks in this guide.
- A standard multivitamin with vitamin E near the RDA is not a concern. The harm signals in the research came from separate, high-dose vitamin E pills.
- Do not take a high-dose vitamin E supplement (400 to 800 IU a day) to try to prevent a heart attack or stroke. Large randomized trials found no benefit, and some found real harm.
- If you already take a high-dose supplement for your heart, there is no evidence it helps. Bring it up at your next visit and ask whether there is any reason to continue.
- Two situations are the exception, always under a doctor's care: a documented deficiency, and a liver condition called MASH or NASH, where a randomized trial (PIVENS) showed real benefit.
- "Natural" and "more" are not automatically safer. Trials that found harm used both natural and synthetic vitamin E, and the risk of dying from any cause rose at the higher doses.
- Tell your doctor about every vitamin E product you take, including the amount in any multivitamin. This matters most if you take a blood thinner or have surgery coming up.

Vitamin E, by Form and Dose: What the Evidence Actually Shows

Form	Typical Dose	What the Evidence Shows	Verdict
Food (nuts, seeds, vegetable oils, greens).	About 15 mg/day. Meets the RDA.	Normal part of a heart-healthy diet. No risk signal in any trial.	Recommended.
Multivitamin-level supplement.	About 30 IU a day or less.	No proven added heart benefit once diet already meets the RDA.	Not necessary.
High-dose single vitamin E supplement.	About 400 to 800 IU/day, the trial doses.	No drop in heart attack, stroke, or CV death in large trials. Linked to more hemorrhagic stroke, heart failure, and prostate cancer.	Not recommended. USPSTF Grade D.
Prescribed for a documented deficiency.	Set by your doctor, individualized.	Corrects a true deficiency from fat malabsorption or a rare transfer-protein defect.	Appropriate. Doctor-directed.
Prescribed for diagnosed MASH/NASH.	About 800 IU a day, the PIVENS dose.	Significantly improved liver inflammation on biopsy in a randomized trial: 43% vs. 19%.	Ask your doctor. Not a heart use.

Comfort Measures at Home (No Medication Needed)

These simple steps support healing and ease symptoms. Use them alongside any medication your doctor prescribes.

- Check the label for both the dose and the form. "d-alpha-tocopherol" is natural; "dl-alpha-tocopherol" is synthetic. The same number of milligrams is not the same number of IU.
- Add up vitamin E from every bottle you take. A multivitamin plus a separate vitamin E pill can quietly stack into a high dose.
- Bring your supplement bottles, or photos of the labels, to your next visit so we can check the total amount.
- If you take a blood thinner or an antiplatelet medicine, do not start a high-dose vitamin E supplement on your own. Check with us first.
- Plan to stop a high-dose vitamin E supplement before any planned surgery, on the same timeline your care team gives for other blood-thinning supplements.
- If you have a fatty liver diagnosis, do not start high-dose vitamin E on your own. It is a real option for that specific diagnosis (MASH/NASH), but your doctor needs to confirm it first.

Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
High-dose vitamin E (400–800 IU/day) to prevent a heart attack or stroke.	More hemorrhagic stroke, more heart failure, and more bleeding with blood thinners. At the highest doses, a small rise in death from any cause.	None shown. Large randomized trials found no drop in heart attack, stroke, or cardiovascular death.	Proven steps instead: no smoking, blood pressure control, a statin if needed, regular activity, heart-healthy eating.
Vitamin E for a diagnosed MASH/NASH liver condition.	The same bleeding-risk and (in men) prostate-cancer signals seen in other trials apply. Long-term safety past about two years is less well studied.	A randomized trial (PIVENS) found significantly better liver inflammation on biopsy: 43% improved vs. 19% on placebo.	Weight loss, treating diabetes or prediabetes, and other liver-directed treatments your doctor may discuss.
Getting vitamin E from food instead of a pill.	Essentially none for a person eating an ordinary diet.	Meets the daily requirement. Comes packaged with the fiber and unsaturated fat that pills do not provide.	A standard multivitamin if your diet is genuinely limited.
Continuing a high-dose supplement without telling your doctor.	A hidden bleeding risk before surgery or with a blood thinner, and no one checking whether it helps.	None demonstrated in the research.	Bring the bottle to your visit, ask whether there is a reason to continue, and stop it if there is not.

Common Misconceptions

Myth	Reality
It is an antioxidant, so it must protect my heart.	The mechanism looked airtight in the 1980s: block LDL oxidation, block the first step of plaque buildup. But large randomized trials tested this directly, including HOPE, the Women's Health Study, and the Physicians' Health Study II. None found fewer heart attacks, strokes, or cardiovascular deaths.
Natural vitamin E is safer than the synthetic kind.	Natural vitamin E is more active per milligram, a potency difference, not a safety difference. HOPE-TOO found more heart failure, and it used natural vitamin E. The Physicians' Health Study II found more hemorrhagic stroke, and it used the synthetic form. The form did not prevent either signal.
It is just a vitamin, so it cannot hurt me.	Randomized trials found real harms at high doses: more hemorrhagic stroke, more heart failure, and more prostate cancer in men (SELECT). A small rise in death from any cause showed up too, at 400 IU/day or more. A vitamin at a high enough dose can act like a drug, risks included.
More vitamin E is better.	A 2005 analysis pooled 19 randomized trials. It found the opposite: risk of death from any cause began rising above about 150 IU a day. It was clearly higher at 400 IU or more.
It thins the blood like aspirin, so it must help my heart.	Vitamin E does have a mild effect on platelets and clotting. In the actual trials, that property showed up as more bleeding, including hemorrhagic stroke, not as fewer heart attacks. It has never been proven or approved as a blood-thinning heart treatment.

Myth	Reality
If one study hints at a benefit, the supplement works.	A closer look at the ATBC trial suggested fewer prostate cancers in men taking vitamin E. That hopeful hint is why the SELECT trial tested it directly, in 35,000 men. SELECT found the opposite: significantly more prostate cancer with vitamin E. This is exactly why a promising signal needs a head-on test before it becomes a recommendation.

Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Hemorrhagic stroke (bleeding into the brain).	Vitamin E's mild antiplatelet effect raises bleeding risk. The Physicians' Health Study II found this risk rose significantly, about 74% higher, with 400 IU every other day.
Heart failure.	In the HOPE-TOO extension, people taking vitamin E were significantly more likely to develop heart failure, about 13% more. They were also more likely to be hospitalized for it, about 21% more.
Prostate cancer (men).	The SELECT trial found a significant, roughly 17% higher rate of prostate cancer in men randomized to 400 IU of vitamin E a day.
Bleeding with blood thinners or around surgery.	Vitamin E adds to the effect of warfarin and antiplatelet medicines. It can raise surgical bleeding if not stopped ahead of time.
Death from any cause, at high doses.	A pooled analysis of 19 randomized trials found a small but real rise in death from any cause, at doses of 400 IU a day or more.

A note from Dr. Ali. This is not a case against vitamins. It is a case for evidence. Vitamin E has a real, narrow medical role. It corrects a true deficiency. It treats one specific, diagnosed liver condition. What it has not earned, after more than a dozen large randomized trials, is a place as a heart-protection pill. If a product promises to protect your heart because it is "an antioxidant," ask what randomized trial backs that claim. For vitamin E, we now have the answer, and it is not the one the 1990s expected.

Points to Know

If you remember nothing else, remember these key points.

- Vitamin E looked promising through the 1980s and 1990s, but large randomized trials found no drop in heart attack, stroke, or cardiovascular death.
- In 2022, the US Preventive Services Task Force recommended AGAINST vitamin E for heart or cancer prevention, its strongest "do not do this" grade.
- High-dose vitamin E (400 to 800 IU a day) has been linked to more hemorrhagic stroke, more heart failure, and, in men, more prostate cancer.
- "Natural" does not cancel out these risks. Trials using natural-source vitamin E still found harm.
- Food sources (nuts, seeds, vegetable oils, greens) safely meet the 15 mg a day you need. A separate pill is not necessary for most people.
- Two situations remain a legitimate, doctor-directed use: a documented deficiency, and a diagnosed MASH/NASH liver condition.
- Tell your doctor about any vitamin E you take, especially before surgery or if you take a blood thinner.

When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- Call 911 for sudden severe headache, weakness or numbness on one side, trouble speaking, or sudden vision changes. These can be signs of a stroke.
- Call us before starting a high-dose vitamin E supplement, especially if you take a blood thinner or aspirin.
- Call us before any surgery, dental procedure, or colonoscopy if you take a vitamin E supplement.
- Call us if you notice unusual bruising, bleeding gums, blood in your urine or stool, or nosebleeds while taking vitamin E.
- Call us if you were told you have a fatty liver condition and want to know whether vitamin E applies to you.
- Bring your supplement bottles, or a photo of the labels, to your next visit.

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See also: our companion guides. For the fuller picture on supplements and your heart, see https://go.riasalimd.com/supplements-heart-guide. To understand your cholesterol numbers, see https://go.riasalimd.com/cholesterol-guide. For the medicine with actual proven benefit for high cholesterol, see https://go.riasalimd.com/statins-guide.

Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- NIH Office of Dietary Supplements — Vitamin E (Consumer Fact Sheet) - Federal, evidence-based overview covering dosing, food sources, safety, and drug interactions.
- US Preventive Services Task Force — Vitamin, Mineral, and Multivitamin Supplementation Recommendation (JAMA 2022) - The current national guidance behind this guide: vitamin E is not recommended for preventing heart disease or cancer.
- MedlinePlus — Vitamin E - US National Library of Medicine plain-language overview.
- Mayo Clinic — Vitamin E (Drugs and Supplements) - Patient-facing summary of uses, dosing, and safety.

Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- Steinberg D. The LDL Modification Hypothesis of Atherogenesis: An Update (J Lipid Res 2008) *[Mechanism Review]*
  Authoritative statement of the oxidative modification hypothesis by the scientist who proposed it — the mechanistic reasoning (oxidized LDL, not native LDL, drives early atherosclerosis) that made an antioxidant like vitamin E look like a plausible heart drug. PMID 19011257.
- Stampfer MJ, et al. Vitamin E Consumption and the Risk of Coronary Disease in Women (NEJM 1993) *[Cohort Study]*
  Nurses' Health Study: 87,245 women, up to 8 years follow-up. Top vs. bottom quintile of vitamin E intake RR 0.66 (95% CI 0.50-0.87); supplement users >2 years RR 0.59 (0.38-0.91). The observational signal that fueled 1990s enthusiasm. PMID 8479463.
- Rimm EB, et al. Vitamin E Consumption and the Risk of Coronary Heart Disease in Men (NEJM 1993) *[Cohort Study]*
  Health Professionals Follow-up Study: 39,910 men, 4 years follow-up. Intake >60 IU/day RR 0.64 (0.49-0.83) vs. <7.5 IU/day; supplement users >=100 IU/day for >=2 years RR 0.63 (0.47-0.84). Companion observational paper to the Nurses' Health Study, same NEJM issue. PMID 8479464.
- Stephens NG, et al. Randomised Controlled Trial of Vitamin E in Patients With Coronary Disease: CHAOS (Lancet 1996) *[Randomized Trial]*
  Cambridge Heart Antioxidant Study: 2,002 patients with angiographically proven CAD, alpha-tocopherol 800 then 400 IU/day, median 510 days. Composite CV death + nonfatal MI RR 0.53 (0.34-0.83), driven entirely by nonfatal MI; nonsignificant EXCESS of cardiovascular death (27 vs 23, RR 1.18) and more all-cause deaths in the vitamin E arm (36 vs 27). The first RCT, and the only one with a positive primary endpoint — with an important caveat. PMID 8622332.
- ATBC Cancer Prevention Study Group. Design, Methods, Participant Characteristics, and Compliance (Ann Epidemiol 1994) *[Randomized Trial]*
  Design paper for the Alpha-Tocopherol, Beta-Carotene trial: 29,133 Finnish male smokers, 1985-1993, alpha-tocopherol 50 mg/day + beta-carotene 20 mg/day in a 2x2 factorial, median follow-up 6.1 years. Source for trial size, dates, dose, and design cited in this guide's history section. PMID 8205268.
- Rapola JM, et al. Randomised Trial of Alpha-Tocopherol and Beta-Carotene on Major Coronary Events in Men With Previous MI (Lancet 1997) *[Randomized Trial]*
  ATBC coronary-events substudy: 1,862 male smokers with a prior heart attack. No reduction in major coronary events with alpha-tocopherol (p=0.25); nonsignificant trend toward MORE fatal CHD (RR 1.33, 0.86-2.05). The cardiology-specific outcome data from the ATBC trial used in this guide's history arc. PMID 9193380.
- GISSI-Prevenzione Investigators. Dietary Supplementation With n-3 PUFA and Vitamin E After Myocardial Infarction (Lancet 1999) *[Randomized Trial]*
  11,324 patients surviving a recent MI, 4-arm factorial (n-3 fatty acids, vitamin E 300 mg/day, both, or neither), 3.5 years. Omega-3 significantly lowered the primary endpoint; vitamin E did not ("Vitamin E had no benefit"). PMID 10465168.
- Yusuf S, et al. (HOPE Investigators). Vitamin E Supplementation and Cardiovascular Events in High-Risk Patients (NEJM 2000) *[Randomized Trial]*

Heart Outcomes Prevention Evaluation trial: 9,541 patients >=55y at high cardiovascular risk, natural-source vitamin E 400 IU/day, mean 4.5 years. Composite MI/stroke/CV death RR 1.05 (0.95-1.16), p=0.33 — no benefit. Central negative RCT in this guide's history arc. PMID 10639540.

- Lonn E, et al. Effects of Long-Term Vitamin E Supplementation on Cardiovascular Events and Cancer: HOPE-TOO (JAMA 2005) *[Randomized Trial]*
  HOPE extension to a median 7.0 years. No benefit on cancer incidence, cancer death, or major cardiovascular events. Heart failure RR 1.13 (1.01-1.26, p=0.03) and heart-failure hospitalization RR 1.21 (1.00-1.47, p=0.045) SIGNIFICANTLY increased — the heart-failure harm signal cited in this guide. PMID 15769967.
- Lee IM, et al. Vitamin E in the Primary Prevention of Cardiovascular Disease and Cancer: The Women's Health Study (JAMA 2005) *[Randomized Trial]*
  39,876 healthy women >=45y, natural-source vitamin E 600 IU every other day, 10.1 years. No significant effect on major cardiovascular events (RR 0.93, 0.82-1.05), MI, stroke, cancer, or total mortality; a significant 24% reduction in cardiovascular death (RR 0.76, 0.59-0.98) was a secondary finding. Conclusion: does not support recommending vitamin E for CVD or cancer prevention. PMID 15998891.
- Sesso HD, et al. Vitamins E and C in the Prevention of Cardiovascular Disease in Men: Physicians' Health Study II (JAMA 2008) *[Randomized Trial]*
  14,641 male physicians >=50y, synthetic vitamin E 400 IU every other day, mean 8 years. No effect on major cardiovascular events (HR 1.01, 0.90-1.13) or total mortality. Hemorrhagic stroke SIGNIFICANTLY increased (HR 1.74, 1.04-2.91, p=0.04) — the bleeding-stroke harm signal cited in this guide. PMID 18997197.
- Klein EA, et al. Vitamin E and the Risk of Prostate Cancer: The Selenium and Vitamin E Cancer Prevention Trial, SELECT (JAMA 2011) *[Randomized Trial]*
  Updated analysis of 34,887 men randomized to selenium, vitamin E (400 IU/day synthetic), both, or placebo. Vitamin E group had significantly MORE prostate cancer: HR 1.17 (99% CI 1.004-1.36), p=0.008; absolute increase 1.6 per 1,000 person-years. The prostate-cancer harm signal cited in this guide. PMID 21990298.
- Miller ER 3rd, et al. Meta-Analysis: High-Dosage Vitamin E Supplementation May Increase All-Cause Mortality (Ann Intern Med 2005) *[Meta Analysis]*
  Dose-response meta-analysis, 19 RCTs, 135,967 participants, doses 16.5-2,000 IU/day. High-dose trials (>=400 IU/day) pooled all-cause mortality risk difference +39 per 10,000 persons (95% CI 3-74, p=0.035); risk began rising above ~150 IU/day. The mortality dose-response figure cited in this guide. PMID 15537682.
- Sanyal AJ, et al. Pioglitazone, Vitamin E, or Placebo for Nonalcoholic Steatohepatitis: PIVENS Trial (NEJM 2010) *[Randomized Trial]*
  247 adults with NASH without diabetes, vitamin E 800 IU/day vs. pioglitazone 30 mg/day vs. placebo, 96 weeks. Vitamin E significantly improved NASH histology (43% vs 19%, p=0.001); pioglitazone did not meet its prespecified significance threshold. Source for this guide's one legitimate, evidence-backed non-cardiac use of high-dose vitamin E. PMID 20427778.
- Mangione CM, et al. (USPSTF). Vitamin, Mineral, and Multivitamin Supplementation to Prevent CVD and Cancer: Recommendation Statement (JAMA 2022) *[Guideline]*
  Current US Preventive Services Task Force guidance: "The USPSTF recommends against the use of beta carotene or vitamin E supplements for the prevention of cardiovascular disease or cancer" — a D recommendation, its strongest grade against a practice. Source for this guide's central current-guidance claim. PMID 35727271.

- O'Connor EA, et al. Vitamin and Mineral Supplements for Primary Prevention of CVD and Cancer: Updated Evidence Report for the USPSTF (JAMA 2022) *[Systematic Review]*
  Evidence base behind the 2022 USPSTF statement: vitamin E not significantly associated with lower all-cause mortality (OR 1.02, 0.97-1.07; 9 RCTs, n=107,772), cardiovascular events (OR 0.96, 0.90-1.04), or cancer incidence (OR 1.02, 0.98-1.08); harms included hemorrhagic stroke. PMID 35727272.
- NIH Office of Dietary Supplements — Vitamin E, Fact Sheet for Health Professionals *[Federal Resource]*
  Federal source for the RDA (15 mg/day, adults), the Tolerable Upper Intake Level (1,000 mg/day of any supplemental form), the mg-to-IU conversion for natural vs. synthetic vitamin E, the alpha-tocopherol transfer protein mechanism, AVED and abetalipoproteinemia as deficiency states, and the warfarin/antiplatelet interaction language used in this guide. Fetched and confirmed live 2026-09-23.
- NIH Office of Dietary Supplements — Vitamin E, Consumer Fact Sheet *[Patient Page]*
  Plain-language federal companion to the professional fact sheet; used for patient-facing framing and as a trusted resource link. Verified reachable 2026-09-23.
- MedlinePlus — Vitamin E *[Patient Page]*
  US National Library of Medicine consumer overview of vitamin E; trusted-resource link for patients. Verified reachable 2026-09-23.
- Mayo Clinic — Vitamin E, Drugs and Supplements *[Patient Page]*
  Patient-facing overview used for plain-language framing and reading-level calibration; trusted-resource link. Verified reachable 2026-09-23.

About This Guide

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Reviewer note: Reviewed against the NIH Office of Dietary Supplements fact sheet, the 2022 USPSTF recommendation statement, and MedlinePlus and Mayo Clinic. This guide adds: a trial-by-trial forest plot against the null line, a chart showing why observational studies and randomized trials disagreed, a form/dose/evidence/verdict table, and the ATBC-to-SELECT prostate-cancer story showing why one hopeful signal still needs a head-on test.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

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