Two Simple Diet Swaps Reversed Biological Age In 4 Weeks

3 MIN READ

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Cutting carbs isn’t the health hack you’ve been sold. Here’s what the science actually says.

We know more than ever about how to eat healthy, but itâ??s increasingly hard to execute a proper plate. Each week, it seems thereâ??s a new food recall striking an ingredient from your grocery list: heads of lettuce contaminated with microscopic *Cyclospora* parasites, or jalapeno peppers spreading *Salmonella*.

If youâ??re feeling a bit lost, youâ??re not alone. Right now, plenty of people are second-guessing their nutritional strategy. But sometimes even a forced pause is a good moment to reassess some of your previously held assumptions.

Take, for instance, the widely-held belief that carbs are the enemy of your health, figure, or longevity.

We **recently wrote** that some refined carbs can affect genes that burn fat, while others are essential for metabolic health. Now, a **new study** published in the journal *Aging Cell* suggests that two simple dietary swaps â?? eating *more* complex carbohydrates and plant-based proteins â?? may positively impact aging biomarkers such as inflammation and oxidative stress.

The 4-week study included 104 people aged 65 to 75 who were randomly assigned to eat one of the following diets:

- Omnivorous + High Fat (OHF)
- Omnivorous + High Carb (OHC)
- Semi-vegetarian + High Fat (VHF)
- Semi-vegetarian + High Carb (VHC)

The researchers used the Klemera-Doubal Method (KDM), which relies on multiple biomarkers, to estimate peopleâ??s' biological age before and after the dietary intervention.

Biological age remained the same in the OHF group, most likely since this was the group whose diet changed the least from their typical diets before the study. Some aging biomarker changes were seen in the three other groups, but the most significant changes occurred in the OHC group.

â??The findings suggest that some physiological processes associated with aging are not completely fixed and may respond relatively quickly to changes in nutrition,â?• said **R. Osvaldo Navia, MD, MBA,** a professor and Myrna L. Daniels Chair in geriatric medicine, division chief of geriatrics and palliative medicine, and director of Tulane Center for Aging at Tulane University School of Medicine, who was not involved in the study.

However, the researchers were clear: interpret the findings with caution. While the study suggests that eating more complex carbs and plant-based proteins in a short period of time, we donâ??t know for sure that the results will hold over time.

â??Because the KDM biological-age measure incorporates biomarkers that can change rapidly with changes in metabolism, inflammation, and other physiological processes, the findings may reflect short-term improvements in health rather than permanent changes in the aging process,â?• Navia told Super Age in an email.

More broadly, the study also highlights the overall importance of diet in aging: â??The rate at which individuals experience age-related decline, relative to their chronological age (CA), can vary widely and is influenced by various factors. Among these, diet stands out as a key modifiable determinant that may influence physiological health and modulate age-associated biomarker profiles,â?• the study authors wrote.

The Two Kinds of Foods That Help Cells Repair

These types of foods give your body the nutrients and fiber it needs to keep cells healthy, reduce inflammation, repair cell damage, and control blood sugar.

1) COMPLEX CARBOHYDRATES

What they are: Carbs built from long chains of sugar molecules, the starches and fiber found in whole, minimally processed plants. Your body breaks them down slowly, so blood sugar climbs gently instead of spiking. In the new study, the high-carb diets drew about 53% of calories from carbohydrates, nearly all from whole-food sources. That detail matters: the researchers specifically caution that their findings don't extend to refined carbs and added sugar.

Put them on your plate: Oats, barley, brown rice, quinoa, farro, whole-grain bread and pasta, lentils, chickpeas, black beans, sweet potatoes, winter squash, and fruit.

Why they work:

- **They steady blood sugar and insulin.** Slow digestion means smaller glucose and insulin swings, and fasting glucose, insulin, and triglycerides are among the biomarkers that feed the biological age score used in the new research.
- **They calm inflammation.** In a **meta-analysis of randomized trials**, adding fiber lowered C-reactive protein, an inflammatory marker the aging score tracks, in adults carrying extra weight.
- **They deliver fiber's full effects.** A **landmark Lancet review** tied higher-fiber diets to lower rates of heart disease, stroke, type 2 diabetes, and early death, with benefits climbing through 25 to 29 grams a day.
- **They improve the whole plate.** Whole-food carbs bring fiber and water along for the ride, lowering the calorie density of meals. In the parent trial, the diets built this way came with improvements in body composition and cardiometabolic markers.

2) PLANT-BASED PROTEINS

What they are: Protein from legumes, soy, nuts, seeds, and whole grains rather than

from meat and dairy. Here's the nuance most coverage will miss: the study never changed how much protein people ate. All four diets held protein steady at 14% of calories. The semi-vegetarian groups simply got more of theirs from plants. It's a swap, not an add. And in the trial, semi-vegetarian meant dialing animal protein down, not out.

Put them on your plate: Lentils, chickpeas, black and white beans, tofu, tempeh, edamame, green peas, nuts and nut butters, hemp and pumpkin seeds, and protein-rich grains like quinoa.

Why they work:

- **The swap itself pays off.** In the **Nurses' Health Study**, which followed more than 48,000 women for decades, replacing just 3% of calories from animal or dairy protein (or from fat) with plant protein was linked to 22% to 58% higher odds of healthy aging.
- **Better traveling companions.** Research cited by the study authors links animal protein to higher inflammatory and oxidative stress markers, while plant proteins, which arrive packed with fiber and unsaturated fats instead of saturated fat, track with healthier biomarker profiles.
- **Early evidence on the aging clocks, with an asterisk.** In a **Stanford twin study** run with the epigenetic-testing company TruDiagnostic, siblings who ate fully plant-based for eight weeks showed reductions in epigenetic age acceleration while their omnivore twins didn't. The honest caveat, from the authors themselves: the plant-based twins also ate about 200 fewer calories a day and lost roughly four more pounds, and that weight loss, along with the extra fiber and lower saturated fat, may be doing much of the work.
- **The pattern is the point.** The new study's authors note that their plant-forward diets also cut fat and raised fiber, so the benefit likely comes from the full dietary shift rather than protein source alone.

More research is needed to confirm the new findings and determine if the diet swaps reverse biological aging in the long run. In the meantime, you can reference plenty of other studies showing that these foods support longevity.

A **2025 Harvard study** associated diets rich in fruits, vegetables, and whole grains and lower in red meats, sodium, and sugary beverages with better odds of healthy aging. Another **2025 study** published in the journal *JAMA Network Open* found that eating more complex carbs and dietary fiber in midlife also supports healthy aging.

â??Think of your body as a car that you want to keep running well for a very long time. As a car gets older, parts can become worn out, the engine may become less efficient, and small problems can build up. Our cells can experience something similar as we age,â?• he added. â??When cells are better protected and can repair themselves more effectively, they may continue to function like younger cells for a longer time.â?•

4 Food Pairings That Support Cellular Renewal

We tend to focus on specific ingredients as silver bullet solutions to our health. More often, the real magic happens when we pair the right nutrients.

And, instead of cutting out entire food groups, focus on getting plenty of whole foods. â??Don’t be afraid of carbohydrates; choose carbohydrates that still look like the food they came from,â?• Navia urges. â??A bowl of oatmeal, beans, or a piece of fruit is very different metabolically and nutritionally from a sugary drink or pastry, even though both contain carbohydrates.â?•

To help your cells repair and stand the test of time, try any of these powerhouse pairs:

Green tea + citrus

Vitamin C helps stabilize EGCG, green tea’s main catechin, which degrades quickly in the gut. Pairing the two (consider a squeeze of lemon in your cup) means more EGCG survives digestion intact, allowing it to neutralize the free radicals that activate cellular stress-response pathways.

Tomatoes + olive oil

Lycopene is another antioxidant that neutralizes free radicals before they can damage cell membranes and DNA, helping to protect cells from the oxidative stress that accelerates aging. Because itâ??s fat-soluble, **a drizzle of olive oil** substantially increases how much your body actually absorbs versus eating tomatoes alone.

Avocado + salmon

Avocado is one of the highest fruit sources of vitamin E, which **shields fats like omega-3s from oxidative damage**. Paired with an actual omega-3 source like salmon, walnuts, flax, or chia, that vitamin E helps those fats stay intact on their way into your cell membranes instead of breaking down first.

Pomegranate + walnuts

Both are rich in ellagitannins, which gut bacteria convert into **compounds called urolithins**, that support mitochondrial cleanup, or mitophagy, in aging cells. This is a newer, less settled area of research than the lycopene or EGCG mechanisms above, which is worth noting.

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