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Prediabetes Remission May Finally Become a Central Goal of Diabetes Prevention

Analysis by Dr. Joseph Mercola | November 17, 2026

STORY AT-A-GLANCE

- Prediabetes isn't an inevitable step toward Type 2 diabetes; restoring normal glucose regulation is emerging as a more meaningful prevention goal than simply slowing disease progression
- Diabetes risk builds across your lifetime, starting even before birth, making early attention to metabolic health important long before blood sugar reaches the prediabetes range
- People who reached prediabetes remission had a 53% lower adjusted risk of cardiovascular death or hospitalization for heart failure when results from long-term U.S. and Chinese studies were combined
- Among people who all lost at least 7% of their body weight, those who also reached remission had a 76% lower probability of developing Type 2 diabetes over six years than those who remained prediabetic
- Improving insulin sensitivity and metabolic health matters beyond weight loss alone, so your strategy should address food quality, daily movement, cellular energy and insulin resistance rather than focusing only on the scale

Type 2 diabetes doesn't appear overnight. The disease develops as your body loses its ability to keep blood glucose within a healthy range, often after years of worsening metabolic function. Before diabetes develops, you pass through prediabetes, meaning

blood glucose is already elevated but remains below the diagnostic threshold for diabetes. Left unchecked, this metabolic dysfunction raises your risk not only of Type 2 diabetes but also cardiovascular disease, heart failure and premature death.

Conventional prevention programs have long treated prediabetes as a warning to slow down — delay diabetes, hit a weight-loss target — rather than as a condition worth fully reversing. But evidence from long-term prevention trials challenges that thinking on two fronts. First, the small percentage of people who actually reached remission from prediabetes carried substantially lower cardiovascular risk for decades afterward.

Second, even among people who lost the same amount of weight, those whose glucose regulation returned to normal fared far better than those who remained prediabetic. At the same time, an international expert framework published in Nature Medicine argues that the entire timeline of prevention needs to shift.[1]

Rather than waiting for a blood test to turn abnormal in middle age, the researchers make the case that metabolic risk accumulates across your lifetime, starting before birth, and that prevention strategies need to reflect that reality. Together, these findings point toward a more ambitious standard: Identify metabolic dysfunction earlier, target remission rather than stabilization, and recognize that restoring healthy glucose regulation reflects metabolic improvements that the scale alone doesn't capture.

Researchers Argue That Diabetes Prevention Starts Too Late

The Nature Medicine article brought together an international group of experts to rethink when **Type 2 diabetes** prevention needs to begin.[2] Rather than treating prevention as something that starts after abnormal blood sugar appears, the researchers developed a 10-point framework that follows **metabolic health** across the life course.

Their central point is straightforward: Biological, behavioral and environmental influences accumulate for years, so prevention needs to account for what happens long before diabetes develops.

- **Your metabolic health starts taking shape before birth —** The researchers identified especially important periods that include the time before pregnancy, pregnancy, early childhood, adolescence, young adulthood and midlife. Researchers explained that the metabolic health of both parents before pregnancy influences the future metabolic health of their child. Pregnancy and breastfeeding provide additional periods when the health trajectory of both mother and child is shaped.[3]

- **Some stages of life leave you more vulnerable than others —** The researchers describe "windows" when metabolic health is especially susceptible to change. In simple terms, your diabetes risk doesn't rise at the same speed throughout your entire life.

  Certain developmental and transitional periods exert greater influence, which makes them valuable opportunities to identify problems and strengthen metabolic health early. The framework therefore calls for risk assessment that changes with your stage of life rather than relying on the same prevention strategy for everyone at every age.

- **Different causes call for different prevention strategies.** The paper emphasizes what researchers call "mechanistic heterogeneity," a technical way of saying that people arrive at metabolic dysfunction through different biological pathways. One person's dominant drivers won't necessarily match another person's.

  That distinction matters because a one-size-fits-all program overlooks the reasons your metabolic health started to deteriorate in the first place. The researchers instead call for precision prevention, with interventions matched more closely to individual risks while remaining practical, affordable and adaptable across different economic and social settings.

- **Personalized tools could make early risk easier to spot —** Among the 10 priorities, the researchers call for better life-course risk assessment, individualized prevention strategies and greater use of digital and artificial intelligence-supported tools.

Think of this as moving from an occasional metabolic snapshot to a more personalized picture of how your risk changes over time.

Those tools could help identify when intervention deserves greater attention and support strategies suited to the person rather than relying solely on broad population recommendations. The researchers also stress that effective approaches need to remain accessible rather than becoming options available only to people with greater financial resources.

- **The framework is a roadmap, not a clinical trial —** That distinction is important when you interpret the findings. The researchers reviewed existing evidence and developed an international expert framework for future research, prevention and health care; they didn't test one treatment in a new group of participants.

  As a result, the paper doesn't tell you that one specific intervention reduces diabetes risk by a certain percentage. Instead, it reframes the bigger strategy: Track metabolic risk earlier, recognize that those risks change across your lifetime and target the factors driving metabolic dysfunction before disease becomes established.

Prediabetes Remission Was Linked to Lasting Heart Benefits

An analysis published in The Lancet Diabetes & Endocrinology used data from two landmark diabetes prevention trials in the U.S. and China.[4] Researchers examined whether reaching remission was associated with cardiovascular death or hospitalization for heart failure.

The U.S. Diabetes Prevention Program Outcomes Study included 2,402 adults, while the DaQing Diabetes Prevention Outcomes Study included 540 adults. Remission was assessed after one year in the U.S. study and after six years in the Chinese study, with cardiovascular outcomes tracked over roughly 20 and 30 years, respectively.

- **Remission was uncommon, making the long-term difference especially striking —** In the U.S. cohort, 275 participants, or 11.5%, reached remission after one year, while 2,127, or 88.5%, did not. After a median 20 years of follow-up, those who reached remission had a 59% lower adjusted risk of cardiovascular death or hospitalization for heart failure. Researchers then looked for the same pattern in the Chinese cohort and found a 51% lower risk among those who reached remission.

- **Combining both studies strengthened the finding —** When researchers pooled the U.S. and Chinese results, remission was associated with a 53% lower adjusted risk of cardiovascular death or hospitalization for heart failure. The benefits extended beyond that combined heart outcome: The pooled analysis also found a 37% lower adjusted risk of death from any cause among people who reached remission.

  The cardiovascular association remained after researchers accounted for numerous differences between participants, including age, smoking, body size, blood pressure, cholesterol, medication use and weight changes.

- **The benefit lasted long after the original interventions ended —** This wasn't simply a short-term improvement seen while participants were actively changing their lifestyles. The association emerged during decades of follow-up, leading the researchers to describe it as a "legacy effect," the idea that restoring metabolic health at an earlier point reduced cumulative cardiovascular stress in ways that continued to pay dividends long after the original intervention ended.

  The pattern was also consistent across two populations with different cultural and ancestral backgrounds, strengthening the evidence that remission identifies a meaningful improvement in metabolic health rather than a temporary change on a laboratory report.

- **The scale isn't the only measure of metabolic progress —** The researchers explain that remission appears to capture improvements that body weight alone misses. Previous work discussed in the paper found that people who reached remission had

greater improvements in insulin sensitivity — how effectively your cells respond to insulin — and larger reductions in visceral fat, the harmful fat stored around internal organs, even when weight loss was similar between groups.

They also had lower levels of chronic, low-grade inflammation. These changes matter because insulin resistance and excess visceral fat are closely tied to cardiovascular disease and heart failure.

- **The findings show an association, not proof of cause and effect —** Researchers performed a post-hoc analysis, meaning they went back and examined existing trial data to answer a new question rather than randomly assigning people specifically to achieve remission or remain in prediabetes. People who reached remission also differed in some ways from those who didn't, including having glucose levels closer to normal at the beginning.

  The researchers adjusted for many of these differences and the association remained, but the number of cardiovascular events was limited. They concluded that large prospective randomized trials are needed to confirm whether deliberately targeting remission produces the same long-term cardiovascular benefits.

Prediabetes Remission Offered More Protection Than Weight Loss Alone

A 2024 research letter published in Diabetologia examined whether losing a substantial amount of weight provides the same protection against Type 2 diabetes when prediabetes persists.[5] Researchers analyzed data from the U.S. Diabetes Prevention Program, focusing specifically on 480 people with prediabetes who had already lost at least 7% of their starting body weight after one year.

This design allowed them to compare people who achieved similar weight-loss goals but differed in one important respect: whether their glucose regulation returned to normal.

- **Only about one-quarter reached remission despite substantial weight loss —** Among the 480 participants who lost at least 7% of their body weight, 114 reached normal glucose regulation after one year, while 366 remained prediabetic. That means roughly three-quarters of people who hit the weight-loss target still had impaired glucose regulation, a reminder that losing weight and restoring metabolic health aren't necessarily the same achievement.

- **Diabetes developed far less often among people who reached remission —** By the fourth year of follow-up, 42 of the 366 participants who remained prediabetic had developed Type 2 diabetes. Among the 114 who reached normal glucose regulation, just one developed the disease during that period.

  The researchers reported that less than 1% of those who reached remission developed diabetes within the first four years. This occurred even though both groups had already achieved at least 7% weight loss.

- **Remission added substantial protection over six years —** After researchers accounted for whether participants had been assigned to the lifestyle intervention or placebo group, those who reached remission had a 76% lower probability of progressing to Type 2 diabetes over six years than those who lost at least 7% of their weight but remained prediabetic.

  The difference between the groups became apparent from year 2 onward and continued to grow over time. In other words, hitting a weight-loss target was useful, but reaching normal glucose regulation identified a group with substantially greater protection.

- **Improved insulin sensitivity appears central to remission —** The researchers point to their earlier analysis showing that lifestyle-induced weight loss greater than 5% led to remission in 43% of participants in the Prediabetes Lifestyle Intervention Study. Remission rates increased as weight loss increased, but the researchers identified improved insulin sensitivity — meaning your cells respond more effectively to insulin — as key to resolving prediabetes.

They also note that younger age and stronger insulin secretion at baseline were previously associated with a greater likelihood of remission.

- **The findings support tracking metabolic recovery alongside weight —** Current prevention strategies discussed by the researchers emphasize losing at least 7% of body weight, but the researchers argue that weight and glucose targets belong together.

  Their analysis suggests that two people could lose the same percentage of body weight yet face very different diabetes risks depending on whether healthy glucose regulation returns. Because this was a secondary analysis of existing Diabetes Prevention Program data rather than a trial designed to randomly assign participants to remission or non-remission, it demonstrates an association rather than proving that remission itself caused the lower diabetes risk.

Take Control of Your Metabolic Health

Prediabetes gives you an opportunity to change your metabolic trajectory before Type 2 diabetes develops. The goal isn't simply to lose weight. It's to improve insulin sensitivity, support your mitochondria — the tiny structures inside your cells that produce energy — and restore healthier glucose regulation. The research makes that distinction important because people who reached remission had better long-term outcomes, while metabolic improvements associated with remission extended beyond changes on the scale.[6,7]

1. **Remove vegetable oils and processed foods from your plate —** Your first step is to reduce **linoleic acid** (LA), a polyunsaturated fat found in high amounts in soybean, corn, sunflower, safflower and other seed oils. If you regularly eat fast food, packaged snacks or restaurant meals, these foods are major places to look first. Replace them with minimally processed foods and fats such as tallow, ghee or grass fed butter.

Aim to keep your LA intake below 5 grams per day, and ideally below 2 grams, to support healthier mitochondrial function and address a key driver of poor metabolic health.

2. **Fuel your body with the right kinds of carbohydrates —** Carbohydrates aren't the enemy when you choose sources that your metabolism and gut handle well. If your gut health is impaired, start with easy-to-digest options such as ripe fruit and white rice.

   As your digestion improves, gradually add root vegetables and other whole-food carbohydrate sources that you tolerate well. Getting enough carbohydrates also supports cellular energy production rather than forcing your body into unnecessary metabolic stress. A useful target for most adults is around 250 grams of carbohydrates per day.

3. **Move your body every day —** Physical activity directly addresses metabolic dysfunction rather than focusing solely on the number on your scale. The U.S. Diabetes Prevention Program used in the long-term analysis targeted at least 150 minutes of moderate-intensity physical activity per week as part of its intensive lifestyle intervention.[8]

   Build toward about 60 minutes of walking each day and add strength training twice a week. If you sit for long periods, break that time up with brief bouts of movement. Consistency matters more than turning every workout into an exhausting session.

4. **Reduce everyday stressors that interfere with cellular energy —** Plastics, synthetic chemicals and unnecessary electromagnetic field exposure add stress that your cells have to manage. Use glass or stainless steel to store food and drinks, and don't heat food in plastic. Keep your phone away from your body when possible and turn off Wi-Fi at night. Sunlight is another important part of supporting cellular energy, but use it intelligently.

If your diet has been high in seed oils, avoid intense midday sun exposure (10 a.m. to 4 p.m.) until you have reduced those foods for at least six months. This is because LA oxidizes easily, builds up in your skin and increases your risk of skin damage.

5. **Measure your progress with HOMA-IR —** 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. I attribute this, in part, to my body's efficiency in using glucose for fuel. By incorporating additional carbohydrates into my diet, I aimed to give my cells more readily available energy. In my experience, this shift has supported my metabolic health, an example of how dietary adjustments may influence insulin sensitivity and metabolic performance, though individual results vary.

Talk to your healthcare provider about whether this testing is appropriate for you.

FAQs About Prediabetes Remission

Q: What does it mean to put prediabetes into remission?

A: Prediabetes remission means restoring glucose regulation to the normal range rather than simply slowing progression toward Type 2 diabetes. Researchers argue that this gives you a clearer metabolic goal and shifts prevention toward restoring health before diabetes becomes established.

Q: Does reaching prediabetes remission affect long-term heart health?

A: Long-term evidence found a strong association. In U.S. and Chinese cohorts followed for roughly 20 and 30 years, respectively, people who reached remission had substantially lower adjusted risks of cardiovascular death or hospitalization for heart failure than those who remained prediabetic.

Q: Is losing weight enough to substantially lower diabetes risk?

A: Not necessarily. Among 480 people who all lost at least 7% of their body weight, those who also restored normal glucose regulation had a 76% lower probability of progressing to Type 2 diabetes over six years than those who lost the weight but remained prediabetic.

Q: How early does Type 2 diabetes prevention need to begin?

A: Researchers argue that metabolic risk starts taking shape before birth and continues to change through childhood, adolescence and adulthood. Identifying and addressing metabolic problems during these different stages could shift prevention from reacting to abnormal glucose levels toward protecting metabolic health throughout life.

Q: What steps support better metabolic health if you have prediabetes?

A: Focus on improving insulin sensitivity and cellular energy production rather than watching body weight alone. The strategies outlined include reducing seed oils and processed foods, choosing well-tolerated whole-food carbohydrates, moving daily, reducing everyday environmental stressors and tracking insulin resistance with HOMA-IR.

This article is for informational purposes only and does not constitute medical advice. Consult a qualified healthcare provider before making changes to your health regimen.

Sources and References

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