HOME

Scientists Found Microplastics in 84% of Severe Heart Attack Patients—What This Discovery Could Mean for Your Heart

By bestfolkmedicine · 07/11/2026 · 9 min read



Tiny plastic particles have been found circulating in the blood supplying the human heart. Now, a new study suggests that people suffering severe heart attacks may carry significantly more of these particles than those with stable heart conditions.

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Plastic is everywhere. It wraps our food, holds our drinking water, lines countless household products, and breaks down into microscopic fragments that can enter the environment.

But what if some of those tiny particles are also traveling through the blood vessels that keep our hearts alive?

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That question has become increasingly important after Italian researchers published a striking new study in the *European Heart Journal* in July 2026.

The scientists discovered microplastics and nanoplastics in the coronary circulation of patients undergoing heart examinations, with substantially higher detection rates among those experiencing severe heart attacks.

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The findings are raising fresh concerns about the possible relationship between everyday plastic exposure, inflammation, and cardiovascular health.

However, researchers emphasize one crucial distinction: finding plastic particles in the blood does not automatically mean they caused the heart attack.

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The Discovery That Caught Cardiologists' Attention

Researchers from several Italian medical institutions examined 61 adults undergoing coronary angiography, a procedure used to evaluate the arteries supplying blood to the heart.

Participants were divided into three groups:

- 19 patients experiencing a severe type of heart attack known as ST-elevation myocardial infarction (STEMI).
- 20 patients with chronic coronary syndrome.
- 22 patients whose coronary arteries appeared normal during examination.

The researchers analyzed blood samples for microscopic plastic particles.

What they discovered was remarkable.

Microplastics and nanoplastics were detected in:

84.2% of severe heart attack patients.

40% of patients with chronic coronary disease.

31.8% of patients with normal coronary arteries.

This means detectable plastic particles were considerably more common among patients experiencing acute, severe heart attacks.

The heart attack group also had higher measured concentrations and a greater variety of plastic particles.

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The numbers do not mean that 84% of all heart attack patients have microplastics in their blood. They describe 16 of the 19 heart attack patients included in this particular study.

Nevertheless, the findings provide another reason for scientists to investigate how environmental pollutants might interact with the cardiovascular system.

What Exactly Are Microplastics and Nanoplastics?

Microplastics are plastic particles smaller than five millimeters.

Nanoplastics are even smaller, often measured on a scale of billionths of a meter.

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These particles can originate from the breakdown of larger plastic products, synthetic fabrics, industrial materials, packaging, and numerous consumer items.

They have been detected in different environmental settings, including drinking water, food, soil, and air.

Researchers are increasingly investigating how these particles enter the human body through ingestion or inhalation.

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Once inside, some particles may cross biological barriers and reach tissues or the bloodstream.

Scientists are still working to determine which particle sizes, chemical compositions, exposure levels, and durations present the greatest health risks.

Not all microplastics behave identically, and detecting them does not establish that they are causing disease.

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One Common Plastic Appeared Again and Again

Among patients whose blood samples contained detectable plastic particles, polyethylene was identified in approximately 97%.

Polyethylene is one of the world's most widely used plastics.

It is commonly found in everyday products such as plastic bags, packaging films, containers, and bottles.

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Researchers also detected other polymers, including polypropylene, polystyrene, and polyethylene terephthalate.

The presence of these materials in blood samples raises questions about how different types of plastic enter circulation and whether their chemical or physical characteristics influence biological effects.

However, the study did not establish which specific products were responsible for participants' exposure.

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It would therefore be misleading to blame a particular bottle, food container, or household product for the findings.

Could Microplastics Contribute to Heart Inflammation?

One of the most interesting aspects of the study involved inflammation.

Inflammation is part of the body's natural defense system, helping protect against infections and repair damaged tissue.

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But persistent or excessive inflammation can contribute to cardiovascular problems.

Scientists measured inflammatory markers in blood samples, including interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-alpha).

These markers were elevated in patients experiencing severe heart attacks.

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Researchers also observed associations between detectable plastic particles and higher concentrations of certain inflammatory markers in coronary blood.

This raises the possibility that microplastics could interact with biological processes involved in blood vessel injury or inflammation.

Possible mechanisms being investigated include oxidative stress, immune activation, changes in the cells lining blood vessels, and effects on atherosclerotic plaque.

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Still, the relationship is complicated.

Heart attacks themselves trigger strong inflammatory responses.

Therefore, researchers cannot yet determine whether plastic particles contribute to inflammation, whether cardiovascular disease affects how particles accumulate, or whether both reflect other underlying exposures.

Further research will be necessary to separate these possibilities.

Smoking and Air Pollution May Be Part of the Picture

Another important finding involved environmental exposure.

Researchers discovered that participants with a history of smoking and those exposed to higher levels of fine particulate air pollution tended to have greater microplastic detection.

Fine particulate matter, also called PM2.5, consists of airborne particles small enough to travel deep into the lungs.

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Long-term exposure to PM2.5 has already been associated with cardiovascular and respiratory disease.

In this study, smoking history emerged as an independent predictor of detectable microplastics.

This matters because cigarette smoke and air pollution are themselves established cardiovascular hazards.

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It becomes difficult to determine whether microplastics are independently contributing to heart disease or simply accompanying other environmental risk factors.

That uncertainty is one of the reasons experts caution against interpreting the results as proof of causation.

Is This the First Study to Connect Plastic Particles With Heart Disease?

No.

Scientific interest in microplastics and cardiovascular health has increased significantly in recent years.

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Earlier research detected plastic particles within atherosclerotic plaques removed from arteries.

Some observational findings have linked the presence of these particles with increased rates of cardiovascular events during follow-up.

Laboratory investigations have also explored whether tiny plastic particles can influence oxidative stress, cellular injury, and inflammatory signaling.

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The newer Italian research adds a different perspective by examining particles circulating in blood obtained from patients undergoing coronary procedures.

Together, these findings suggest an area of cardiovascular research that deserves greater attention.

They do not yet establish that reducing microplastic exposure will prevent heart attacks.

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7 Practical Ways to Reduce Everyday Plastic Exposure

Complete avoidance of microplastics is unrealistic in the modern world.

However, reducing unnecessary exposure is a reasonable precaution, particularly when the changes are simple and inexpensive.

1. Choose Glass or Stainless Steel for Food Storage

Consider replacing frequently used plastic food containers with glass or stainless-steel alternatives.

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These materials can reduce direct contact between food and plastic surfaces.

2. Avoid Heating Food in Plastic Containers

Heat can increase the release of particles and chemicals from some plastic materials.

Whenever practical, transfer food into suitable glass or ceramic cookware before reheating.

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3. Reduce Reliance on Single-Use Plastic Bottles

Reusable stainless-steel or glass bottles can help reduce dependence on disposable plastic packaging.

Safe tap water, where available, may also reduce the need for bottled water.

4. Avoid Leaving Plastic Bottles in Hot Cars

High temperatures may accelerate changes in certain plastic materials.

Store beverages according to the manufacturer’s instructions and avoid unnecessary heat exposure.

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5. Replace Heavily Scratched Plastic Containers

Over time, repeated washing, abrasion, and everyday wear can damage plastic surfaces.

Consider replacing deteriorating containers, especially those used frequently with hot foods.

6. Reduce Household Dust

Indoor dust can contain particles from textiles, household materials, and other sources.

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Regular cleaning with a damp cloth and vacuuming with suitable filtration may help reduce indoor particle accumulation.

7. Make Small Changes Instead of Chasing a Perfect Detox

There is no scientifically established home detox, supplement, or herbal cleanse proven to remove microplastics from human arteries.

A more practical approach is to reduce avoidable exposure while maintaining well-established cardiovascular health habits.

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These steps may help limit contact with some plastic sources, but evidence that they reduce heart attacks specifically remains unavailable.

What Actually Protects Your Heart?

Although microplastics are attracting scientific attention, many established causes of cardiovascular disease are already well understood.

Smoking, high blood pressure, elevated LDL cholesterol, diabetes, physical inactivity, and certain dietary patterns can all influence cardiovascular risk.

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Fortunately, several protective habits have strong scientific support.

Regular physical activity can improve blood pressure, blood sugar regulation, and cardiovascular fitness.

A balanced diet rich in vegetables, fruits, legumes, nuts, whole grains, and appropriate sources of healthy fats supports long-term heart health.

Avoiding tobacco exposure remains one of the most important preventive steps.

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Managing blood pressure and cholesterol, maintaining adequate sleep, and receiving appropriate medical care are also essential.

Reducing plastic exposure can be considered an additional environmental precaution, not a replacement for proven cardiovascular prevention.

Why This Study Does Not Prove Plastic Causes Heart Attacks

The research has important limitations.

First, it included only 61 patients, and just 19 were experiencing severe heart attacks.

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Second, it was an observational, cross-sectional investigation. Researchers measured exposures and clinical conditions at approximately the same time.

That design cannot establish which came first or demonstrate cause and effect.

Third, factors such as smoking, pollution exposure, age, existing cardiovascular disease, and other environmental influences may affect the results.

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Finally, scientists still need better information about the long-term behavior of plastic particles in human tissues.

Larger studies following people over time will be needed to determine whether microplastic exposure independently predicts cardiovascular events.

Controlled research may also help clarify possible biological mechanisms.

The findings are concerning enough to investigate, but not conclusive enough to justify claims that everyday plastic use directly causes heart attacks.

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The Bigger Question Scientists Are Now Asking

For decades, cardiovascular prevention has largely focused on familiar factors such as cholesterol, blood pressure, smoking, and lifestyle.

These remain critically important.

But researchers are increasingly studying how environmental exposures may interact with traditional cardiovascular risks.

Air pollution, industrial chemicals, and now microplastics are part of that expanding conversation.

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The discovery of plastic particles within the coronary circulation of severely ill heart patients is not something researchers can easily ignore.

It suggests that the relationship between modern environmental pollution and heart health may be more complex than previously recognized.

The next challenge is determining whether these particles actively contribute to disease, how much exposure matters, and whether reducing exposure produces measurable health benefits.

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Final Thoughts: A Warning Worth Investigating, Not a Reason to Panic

Finding microplastics in the blood of 84% of a small group of severe heart attack patients is an important scientific observation.

But it is not proof that plastic particles caused those heart attacks.

The research highlights an emerging environmental health concern while reminding us how much remains unknown.

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For now, the most sensible response is to continue protecting heart health through well-established measures while reducing unnecessary plastic exposure where practical.

Small changes, such as choosing reusable containers, avoiding unnecessary heating of plastics, and reducing indoor pollution, can be reasonable choices without making unsupported promises about disease prevention.

The question is no longer simply whether tiny plastic particles can enter the human bloodstream. Scientists have detected them there. The more important question is what those particles may be doing once they arrive.

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Medical Disclaimer: This article is provided for educational purposes only and does not constitute medical advice. The research discussed identifies associations rather than proving that microplastics cause cardiovascular disease. Consult a qualified healthcare professional about personal cardiovascular risk and prevention. Seek emergency medical care for possible heart attack symptoms, including chest discomfort, shortness of breath, fainting, or pain radiating to the arm or jaw.

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