

Chronic pain / Diseases

WHAT YOU NEED TO KNOW ABOUT INFLAMMATION

Experts explain its causes, types, symptoms, treatment for chronic cases, its link to cancer and autoimmune diseases – and how to reduce it

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Heart disease, type 2 diabetes, Alzheimer's disease and cancer are all serious conditions that share a link with chronic inflammation.

Inflammation isn't actually a bad thing – it's when acute inflammation doesn't resolve and becomes chronic that it starts to have a negative impact on our health.

"We need inflammation to fight infections and injuries," says Maxi Schoenteich, an osteopath and functional medicine practitioner at Integrated Medicine Institute in Hong Kong. "However, when inflammation does not stop and persists beyond the initial infection or injury, we run into problems."

When we catch a cold or flu, for example, our immune system is triggered and sends out white blood cells to the infection site where they secrete pro-inflammatory molecules called cytokines to fight the virus.

Some of these molecules travel through our body to our brain to trigger an increase in body temperature – this is why we get a fever when we have a cold or flu.

A higher body temperature makes it more difficult for viruses and bacteria to survive; the fever, aches, pain and brain "fog" that you experience during a cold or flu are not actually caused by the virus, but by your immune system, to fight the infection and force you to stay in bed and rest.

Once the infection has been successfully fought, our body sends out what's called "pro-resolution" molecules that communicate with our immune system to stop the acute inflammatory response and return to baseline.

"Our immune system is actively down-regulated," Schoenteich adds. "In some people, this doesn't happen successfully and their immune system keeps fighting despite no infectious agent being present. If the inflammatory response doesn't subside afterwards and instead continues, we start to experience chronic inflammation."

Typical symptoms of acute inflammation include redness, pain, heat, swelling and loss of function. Chronic inflammation is harder to identify as its symptoms are multifactorial and non-specific. These include brain "fog", forgetfulness, chronic fatigue, widespread aches and pains, frequent infections, insulin resistance, blood clotting and hardening of the arteries (atherosclerosis), and digestive issues.

Schoenteich says inflammation is highly taxing on the body; to keep the process going, the body requires a lot of energy and resources.

Inflammatory molecules are also damaging to our tissues.

"Thus, with ongoing inflammation we start to see issues like insulin resistance, hardening of the arteries and joint pain. Inflammatory molecules can also damage our blood-brain barrier – a tight barrier that protects our brain – and lead to inflammation in the brain," she says.

This is why many chronic diseases – such as cancer, autoimmune diseases like psoriasis and multiple sclerosis, neurodegenerative diseases such as dementia and Alzheimer's disease, and cardiometabolic conditions like type 2 diabetes and atherosclerosis – are associated with chronic inflammation.

Chronic inflammation has a lot to do with lifestyle factors, which is why health experts use the term "lifestyle diseases" to describe conditions like heart disease and cancer.

Being overweight or obese, for instance, is a potential cause of chronic inflammation because body fat stores pro-inflammatory molecules, says Naras Lapsys, a consultant dietitian and longevity medicine practitioner at The Integrative Medical Centre in Singapore.

Other big contributors to chronic inflammation include smoking, an excess consumption of alcohol, not exercising enough or at all, poor-quality or insufficient sleep, loneliness and isolation, and chronic stress.

A diet high in unhealthy and processed foods is another huge contributor. In some people, eating gluten and grains can cause inflammation, too.

"Our gut houses 80 per cent of our immune system," Schoenteich says. "Whatever enters your mouth has the potential to calm or trigger your immune system, and processed foods are pro-inflammatory."

Poor oral hygiene is also linked to chronic inflammation. The oral cavity is a major source of bacterial infection. When we don't take care of our teeth and gums, these bacteria are more likely to enter our bloodstream and set off the inflammatory process.

"Bacteria found in the oral cavity have been found in the plaques of heart attack patients. This is how far these bacteria can travel, and if not kept in check, they can cause a lot of damage," Schoenteich says.

New research, published in April in the journal *Cell*, found one inflammatory disease may raise the risk of having another. Using mice, scientists found that an inflammatory disorder like gum disease led to changes occurring in cells in the bone marrow that increased the animals' risk of developing arthritis, another chronic inflammatory disorder.

The researchers say these cell alterations are "a central mechanism, a unifying principle underlying the association between a variety of comorbidities".

To prevent or minimise chronic inflammation, it helps to adopt healthier lifestyle habits. Lapsys says losing excess body fat slowly and steadily is a good start. You should also look at what you're eating and fill your plate with anti-inflammatory whole foods, especially colourful, antioxidant-rich fruit and vegetables, green tea, and foods like walnuts and oily fish, which are full of omega-3 fatty acids.

"Omega-3 fatty acids create some of the most powerful anti-inflammatory molecules and are important to curb inflammation in the body," Schoenteich says. "Other excellent sources include flaxseed, chia seed, hemp seed, fortified eggs and algae."

Supplements such as curcumin, fish oil and vitamin D may also help.

And remember to brush your teeth twice or thrice a day, floss daily, and schedule regular dental check-ups to keep your teeth and gums healthy.

"You should also make it a point to get seven hours of uninterrupted quality sleep every night, as this sets the foundation for a healthy immune system," Schoenteich adds.

"If you have sleep apnoea, consult a sleep specialist. This condition is associated with episodes of no breathing at night – this temporary lack of oxygen in the body is a powerful inflammatory trigger. Loud snoring, waking up with a dry mouth, excessive daytime sleepiness and excessive waking at night can all point toward sleep apnoea."

Finally, to prevent or minimise chronic inflammation, get physically active; stop smoking; eliminate alcohol; manage stress by deep breathing, meditating or engaging in other relaxing activities; and stay socially connected.

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