



INTERNATIONAL HEALTH AND FITNESS ASSOCIATION (IHFA)

NEWSLETTER

AUGUST
2023

How acute
inflammation
turns chronic

How sleep deprivation
can cause
inflammation

Why Your Face Ages
and What You Can Do

Meditation and a relaxation
technique to lower blood
pressure



HOW ACUTE INFLAMMATION TURNS CHRONIC

Inflammation may have started as the solution—for example, as a way to rid the body of a dangerous invader—but if it doesn't turn off when it should, it instead can become the problem. The body's immune response may keep inflammation going, long after the thre

Chronic inflammation can develop in any of several ways. One possibility is that the threat remains because the body can't rid itself of the offending substance, be it an infectious organism, an irritant, or a chemical toxin. The immune system is pretty good at eliminating invaders, but sometimes pathogens resist even our best defenses and hide out in tissues, provoking the inflammatory response again and again.

Another possible scenario is that the immune system goes into "threat mode" when no true threat exists. In an autoimmune disorder, the immune system seems to become overly sensitized to the body's own healthy cells and tissue. It reacts against the joints, intestines, or other organs and tissues as if they were dangerous. As the inflammatory response continues, it damages the body instead of healing it.

Unhealthy lifestyle choices, too, can cause ongoing inflammation. Smoking, being sedentary, or eating a diet high in processed foods and refined carbohydrates can contribute to chronic inflammation. This ongoing inflammation increases the risk of many diseases—including heart disease, stroke, diabetes, cancer, and chronic obstructive pulmonary disease.

Signs and symptoms of chronic inflammation

The signs of chronic inflammation are not as obvious as those of acute inflammation. No sharp twinge of pain as when you cut yourself, no swelling or redness will you see to alert you to a problem. Chronic inflammation can be widespread or more localized to specific areas of the body. Some of the symptoms associated with chronic inflammation include:

- fatigue and lack of energy
- depression, anxiety
- muscle aches and joint pain
- constipation, diarrhea, and other gastrointestinal complaints
- changes in weight or appetite
- headaches
- a "fuzzy" mental state (brain fog).





HOW SLEEP DEPRIVATION CAN CAUSE INFLAMMATION

Inflammation is the body's natural response to disease and injury. When you come down with a respiratory infection or cut yourself, your immune system activates white blood cells, which in turn release cytokines and other inflammatory molecules that attack invaders and protect the body's tissues.

When this response is temporary, it serves as an effective defense mechanism. But when inflammation doesn't let up, it can contribute to the development of heart disease, diabetes, stroke, cancer, and Alzheimer's disease.

Sleep deprivation is associated with markers of inflammation, such as increases in inflammatory molecules—including cytokines, interleukin-6, C-reactive protein (a marker of inflammation that's elevated in people at risk for heart disease and diabetes), and others—among people who weren't sleeping well.

While these signs of inflammation could be attributed to other factors—stress, smoking, or obesity, for example—they do suggest that sleep deprivation plays a role in the inflammatory process. And they could help explain why people who sleep poorly are at risk for cardiovascular disease, high blood pressure, and diabetes, among other chronic conditions.

How does a lack of sleep contribute to inflammation? One theory focuses on blood vessels. During sleep, blood pressure drops and blood vessels relax. When sleep is restricted, blood pressure doesn't decline as it should, which could trigger cells in blood vessel walls that activate inflammation. A lack of sleep might also alter the body's stress response system.

In addition, a sleep shortfall interferes with the normal function of the brain's housecleaning system, termed the glymphatic system (not to be confused with the lymphatic system in the rest of the body). In the deepest sleep phases, cerebrospinal fluid rushes through the brain, sweeping away beta-amyloid protein linked to brain cell damage.

Without a good night's sleep, this housecleaning process is less thorough, allowing the protein to accumulate—and inflammation to develop. Then, a vicious cycle sets in. Beta-amyloid buildup in the brain's frontal lobe starts to impair deeper, non-REM slow-wave sleep. This damage makes it harder both to sleep and to retain and consolidate memories.

Just one night of lost sleep can keep beta-amyloid levels higher than usual. The problem is not so much a single night's poor sleep, which you can compensate for, but a cumulative pattern of sleep loss, leading to decreases in the structural integrity, size, and function of brain regions like the thalamus and hippocampus, which are especially vulnerable to damage during the early stages of Alzheimer's disease.



Why Your Face Ages and What You Can Do

How the face ages

Dozens of changes take place as the years add up, some of them obvious and familiar:

- Foreheads expand as hairlines retreat
- Ears often get a bit longer because the cartilage in them grows
- Tips of noses may droop because connective tissue supporting nasal cartilage weakens.



THERE ARE ALSO STRUCTURAL REARRANGEMENTS GOING ON BEHIND THE SCENES. WHEN WE'RE YOUNG, FAT IN THE FACE IS EVENLY DISTRIBUTED, WITH SOME POCKETS HERE AND THERE THAT PLUMP UP THE FOREHEAD, TEMPLES, CHEEKS, AND AREAS AROUND THE EYES AND MOUTH.

With age, that fat loses volume, clumps up, and shifts downward, so features that were formerly round may sink, and skin that was smooth and tight gets loose and sags. Meanwhile other parts of the face gain fat, particularly the lower half, so we tend to get baggy around the chin and jowly in the neck.

What can I do about my aging face?

While a gracefully aging face is a beautiful thing, there are changes that occur with age that we might like to slow down.

One approach is to simply celebrate our age and appearance for what they are. Age-related changes in our facial appearance reflect our joys and challenges in life. But not everyone is comfortable with that, and some might like to postpone embracing those changes.

The age-defying facelift, which surgically removes excess tissue and lifts sagging skin in the lower part of the face, is one way to try to stem the tides of time. Facelifts have improved, so the results tend to look more natural. But the surgery is expensive, and other procedures may be needed to achieve the desired results.

Creams and lotions. Moisturizers soothe dry skin and may temporarily make wrinkles less noticeable. Moisturizers for the face contain water to make them less greasy, and many have substances – glycerin, for example – that may help bind water to the skin. Exfoliant creams can improve the appearance of older skin by getting rid of dead skin cells that don't slough off as readily as they did when we were young.

Nonsurgical alternatives

The facelift procedure is just one of the more popular cosmetic procedures. There are plenty of alternatives for altering the aging face, including rejuvenating treatments. Although most rejuvenating procedures are nonsurgical, they're not inexpensive – especially when you factor in the need for repeat treatments.

Here is just a sample of some of the things that you can do – or get done – to give your face a more youthful appearance:

Sun protection. Protecting your face from the sun is the single best way of keeping it youthful. Much of the damage comes from the UVA part of the light spectrum, so you need to put on sunscreen that protects against it and UVB light, which causes sunburn. Wearing a wide-brimmed hat is also a good idea.

Botulinum toxin injections. These injections are used to treat the expression lines of the forehead and between the brows. They work by partially immobilizing the muscles that form expression lines so the skin smoothes out, although some deep expression lines may not go away. Botox is the familiar brand name. Other FDA-approved botulinum toxins are Myobloc and Dysport.



Dermal fillers. Dermal fillers are used to treat lines created by lost collagen and fat. After botulinum toxin injections, dermal filler injections are the most common cosmetic procedure performed in the United States. Prime locations for the injections are two sets of parentheses: the pair of lines that extend down from the nose to the corners of the mouth, known as the nasolabial folds, and another pair that extends down from the corners of the mouth to the chin, known as marionette lines.

Many different materials are used as dermal filler. Collagen has fallen out of favor. Currently, the most popular one is hyaluronic acid, a complex sugar found naturally in many tissues. Hyaluronic acid is more expensive than collagen but lasts longer—up to six months in the nasolabial folds. Like botulinum toxin injections, the effect of the dermal filler shots wears off after several months. How long it lasts depends on the injection site—but with repeat injections it seems to last a little longer.

Laser treatments. Lasers can be used on certain pigments: brown, if the goal is to get rid of freckles and liver spots, red if the target is broken capillaries. They're also used for wholesale resurfacing of facial skin. The uppermost layers are stripped away, and with them, wrinkles from sun damage and scars from acne. The energy from some "non-ablative" resurfacing lasers passes through the outer layer of the skin to work at a deeper level, in the dermis, to stimulate inflammation, which leads to collagen formation.

Skin needs time to recover after most laser treatments. It can take a couple of weeks to heal, depending on the type and extent of the treatment. The non-ablative treatments tend to heal a bit faster.



Ref



Harvard Health Publishing
HARVARD MEDICAL SCHOOL

Trusted advice for a healthier life

Meditation and a relaxation technique to lower blood pressure



Meditation and a relaxation technique to lower blood pressure

Several practices that help calm the mind can also lower blood pressure. All are types of meditation, which use different methods to reach a state sometimes described as "thoughtful awareness" or "restful alertness."

Blood pressure benefits of quieting the brain

A related technique, designed to evoke the so-called relaxation response, has been found to be helpful with high blood pressure and other disorders caused or made worse by stress. The technique, developed by Dr. Herbert Benson, director emeritus of the Harvard-affiliated Benson-Henry Institute for Mind Body Medicine, is the opposite of the stress-induced fight-or-flight response. This self-induced quieting of brain activity has aspects of both transcendental meditation and mindfulness meditation.

Further research revealed that when blood pressure falls during the relaxation response, inflammation and blood vessel constriction become less active and blood vessels widen. This benefit appears to be mediated by nitric oxide, a molecule made in the body that (among other things) helps relax and widen blood vessels, keeping blood pressure under control.



IHFA New Course Launch

CERTIFIED REHAB NUTRITION SPECIALIST (CRNS)



We think that nutrition could also be important in strength and in rehabilitation