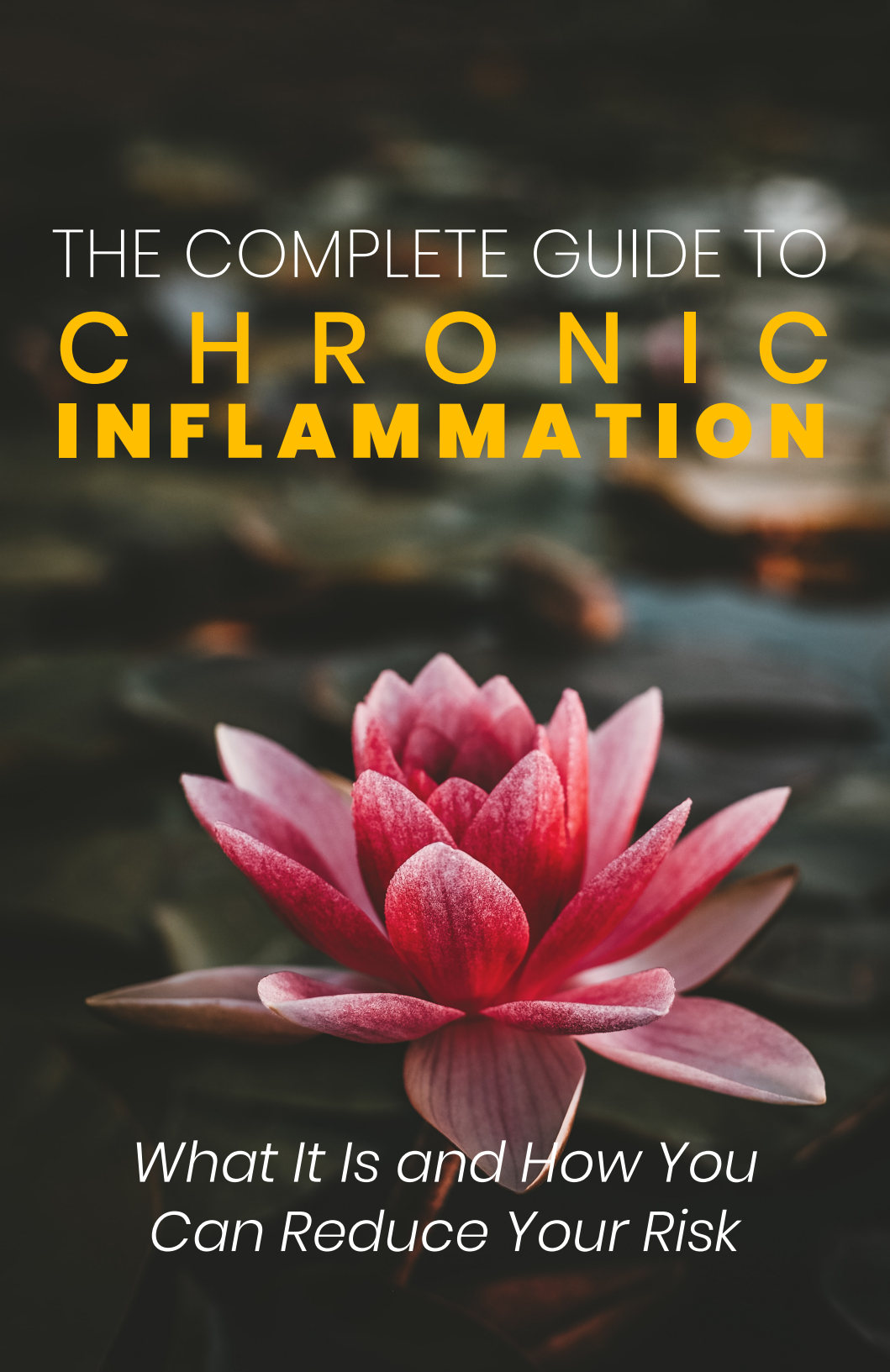
THE COMPLETE GUIDE TO CHRONIC INFLAMMATION



What It Is and How You Can Reduce Your Risk

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Could You Be Suffering From Chronic Inflammation?

Have you been experiencing symptoms of fatigue or low energy despite getting enough sleep at night? Do you have brain fog or trouble remembering important details? Do you find that you get sick easily or have trouble sleeping at night? Are you prone to frequent headaches or stomach aches?

If you answered yes and you don't know the cause of these symptoms, there's a possibility that you're suffering from something called chronic inflammation.

Chronic inflammation may come in many different forms for many different reasons, so it's important to take a close look at the symptoms that you or a loved one are experiencing.

While some people may not know that they have chronic inflammation, others can feel the damaging effects on a daily basis.

Left unchecked, chronic inflammation can also lead to more serious health conditions.

In this eBook, we'll discuss the importance of inflammation as a healthy response to pain or sickness, as well as the dangers of a long-term inflammatory response. You'll learn about common symptoms, how doctors test for chronic inflammation, reasons why people have chronic inflammation, and how to lower your risk.

What is Inflammation?

In order to define chronic inflammation, we first have to define what acute inflammation is. Once we have a running definition of inflammation, then we can talk about what chronic inflammation is and why it's so detrimental to your health.

WHAT IS ACUTE INFLAMMATION?

Inflammation is your body's normal and healthy response to a foreign intruder or as a response to exercise or injury. When the body senses something foreign to the body, it reacts by sending white blood cells to dispel the foreign material.

Intruders can include things like:

- Thorns
- Irritants

- Pathogens
- Bacteria
- Viruses
- Organisms that cause infections

In the case of *acute* inflammation, the body reacts for a short amount of time. So, for example, when you've had an intense workout, you may experience inflammation in the muscles and joints that were worked more than normal.

Another example would be a bee sting. When you're stung by a bee, the body reacts by sending white blood cells to the area that was stung. The white blood cells release chemicals to fight off the poison from the bee sting. The chemicals damage the tissue around the bee sting causing inflammation and redness – but work to get rid of the poison.

Other types of acute inflammation may be caused by an injury such as a cut or pulled muscle. You may also experience inflammation when you're fighting off a virus or when you have a sore throat.

With acute inflammation, after a short period of time, your body returns to normal and there is no more pain, swelling, or redness. Acute inflammation is a good and natural response that helps heal the body.

WHAT IS CHRONIC INFLAMMATION?

As suggested by the name, chronic inflammation works differently. Instead of working quickly in response to an intense workout, injury, sickness, or bee sting, the body stays in an inflamed state for a long period of time.

Chronic inflammation is a slow, long-term inflammation that can last for months or even years. **The inflammation may be localized, but more often it affects the whole body.**

Sometimes an inflammatory response is triggered when the body *thinks* there is a threat. This can happen with people who have allergies as their body perceives certain foods or pollen as foreign intruders that need to be removed from the body.

Other times chronic inflammation occurs because of an autoimmune issue when the body begins to mistakenly attack healthy tissues. Chronic inflammation can also be in response to long-term exposure to irritants or as a result of untreated acute inflammation.

The challenge with chronic inflammation is that the natural healing process of inflammation is prolonged for too long.

The body is on a constant state of high alert trying to fight off something in your body to return to a normal state of health. This can lead to a host of other issues that we will discuss in greater detail later in this eBook.

What are the Signs and Symptoms of Chronic Inflammation?

It's possible to suffer from chronic inflammation without knowing it, but usually, there are symptoms that act as evidence.

For some, certain things like stomach aches or headaches occur frequently. The person suffering may not know the reason for the ailments, but in some cases, chronic inflammation may be the issue.

Other signs of chronic inflammation include:

- Fatigue or low energy
- Insomnia

- Mouth sores
- Rashes
- Abdominal pain
- Chest pain
- Body pain
- Skin rashes
- Excessive mucus production
- Poor digestion
- Diarrhea

POTENTIAL LONG-TERM DAMAGING EFFECTS OF CHRONIC INFLAMMATION

Chronic inflammation is linked to many long-term and damaging conditions. According to an article published in the National Center for Biotechnology Information (NCBI), "Chronic inflammation is the most significant cause of death in the world."

Dr. Mark Hyman, former editor in chief of *Alternative Therapies in Health and Medicine* is quoted saying, **"Inflammation is a key cause or factor in almost all chronic degenerative and lifestyle diseases."**

This low-level chronic inflammation can continue for years undetected in the body while still causing long-term damaging effects.

Some of those issues include:

- Cancer
- Rheumatoid arthritis
- Type 2 diabetes
- Obesity
- Asthma
- Alzheimer's disease
- Autoimmune diseases
- Heart disease
- Cardiovascular disease

- Chronic obstructive pulmonary disease
- Stroke

These diseases may seem to be unrelated to chronic inflammation, but they are responses to the body living in a prolonged state of healing.

While inflammation *is* a natural part of healing, when it continues over long periods of time, it can cause the body to weaken or operate incorrectly.

CHRONIC INFLAMMATION AND CARDIOVASCULAR SYSTEM

In recent years, doctors and scientists have been studying the relationship between chronic inflammation and heart disease. They're beginning to find that chronic inflammation is one of the factors

that increase the risk of heart attack or stroke.

Chronic inflammation is linked to cholesterol deposits in coronary arteries which can lead to heart disease. Deepak Bhatt, M.D., chief of cardiology for the VA Boston Health Care System is quoted saying:

> *Exactly how inflammation plays a role in heart attack and stroke remains a topic of ongoing research. It appears that the inciting event in many heart attacks and some forms of stroke is buildup of fatty, cholesterol-rich plaque in blood vessels.*
>
> *The body perceives this plaque as abnormal and foreign — it does not belong in a healthy blood vessel. In*

response, the body tries to wall off the plaque from the flowing blood.

The walling off process is an inflammatory response and meant to contain the damage. As the white blood cells try to remove plaque from the arteries, the walls sometimes break down causing the plaque to rupture. This can lead to a blood clot that is responsible for health crises like heart attacks or strokes.

CANTOS Trial and the Link Between Chronic Inflammation and Heart Disease

In 2017, a trial called Canakinumab Anti-inflammatory Thrombosis Outcomes Study (CANTOS) was published which studied the use of an antibody type of anti-inflammatory drug. The trial included people who had a prior heart attack and

who also had inflammatory markers in blood tests.

The results were that people who took the anti-inflammatory drug were 15% less likely to have a subsequent heart attack or stroke. In addition, the drug decreased the need for more intensive interventions like bypass surgery by 30%.

CHRONIC INFLAMMATION AND ITS LINK TO CANCER

Cancer is another disease that is sometimes linked to chronic inflammation. In a study published in 2007, researchers from the National Cancer Institute concluded that 25% of all cancers can be traced back to infection and chronic inflammation.

Chronic inflammatory bowel diseases like chronic ulcerative colitis and Crohn's disease put people at a higher risk for colon cancer. Reflux esophagitis (Barett's esophagus) is associated with esophageal cancer, hepatitis predisposes individuals to liver cancer, and Helicobacter infection can lead to stomach cancer.

In most cases, the longer someone experiences inflammation the more likely they are to develop cancer.

CHRONIC INFLAMMATION AND AUTOIMMUNE DISEASES

Another risk of chronic inflammation is developing an autoimmune disease.

A study was released in 2019 that included three doctors from around the world. They asserted that recent evidence points to abnormal inflammatory responses leading to autoimmune diseases like rheumatoid arthritis, inflammatory bowel disease, systemic lupus erythematosus, gout, and diabetes.

With autoimmune diseases and chronic inflammation, it can sometimes be the chicken or the egg scenario. Does chronic

inflammation lead to an autoimmune disease or does an autoimmune disease lead to chronic inflammation?

Research is showing that it may be some of both, but there is still much to learn about the relationship between the two.

An autoimmune disease is a condition in which the body's immune system is either under or overactive. **In the case of an overactive immune system, the body mistakes its own body tissue for an invader and attacks it.** This leads to inflammation in the body.

Noel R. Rose, MD, PhD, a professor of molecular microbiology and immunology and director of the Johns Hopkins Autoimmune Disease Research Center, is quoted saying,

In rheumatoid arthritis, is it caused by inflammation and autoimmune disease comes secondarily, or is it caused by autoimmunity? The evidence is unclear.

Most autoimmune diseases aren't caused by inflammation, although many autoimmune diseases cause inflammation. Some inflammatory processes may enhance the possibility of autoimmune disease in individuals with a genetic predisposition. Having inflammation may raise the likelihood of a subclinical autoimmune response reaching clinical thresholds. For example, this may occur in thyroiditis. We know that inflammation is caused by the same mediators often involved in the autoimmune process.

In other words, there is some evidence that shows that people that have a genetic predisposition may develop an autoimmune disease triggered by inflammation. Still, there is still more research to be done to better understand these processes.

It's also clear that even if the autoimmune disease is responsible for the chronic inflammation, the results can be devastating on the human body.

How is Chronic Inflammation Diagnosed?

If you or someone you know thinks they may be suffering from chronic inflammation, there are a number of tests that doctors can perform.

These tests can reveal chronic inflammation:

- CRP test
- ESR test
- TNF-a test
- IL-6 test
- NLRP-3 inflammasome test
- Plasma viscosity
- Additional diagnostics

Many of these tests sound incredibly complicated because they include

medical and scientific terms that most people may not be familiar with. Here we will discuss in greater detail what each one means, to clarify some of the scientific details.

The main idea is that the body does a lot of amazing things when inflammation is activated. There are also a lot of things happening when the body is in a state of inflammation.

It's not a simple one-step process -- there are parts of the body that alert the body that there is a need to act. There are other parts that respond to the threat (white blood cells), and the white blood cells release chemicals to address the invader.

In a way, **the body leaves behind a road map** of sorts that doctors can use to discover if the process of inflammation is present.

None of the tests can perfectly diagnose chronic inflammation, but combined with symptoms and additional testing, they can help determine what is happening.

CRP TEST

Testing the blood is one of the main ways that doctors can check to see if you have chronic inflammation. One of those blood tests checks something called C-reactive protein, or CRP.

CRP is a protein made by the liver in response to stress or a pathogen. When inflammation is present, CRP levels rise. A regular CRP test can identify major infections or inflammatory diseases like lupus, but they're not sensitive enough to pick up low-grade inflammation.

Sometimes doctors will use a high-sensitivity CRP (hs-CRP) test that can detect low levels of inflammation. These levels are reported in milligrams. A healthy level of CRP is less than 1 mg/L while 10 mg/L and above may point to an infection or high level of inflammation.

One drawback to this test is that it doesn't differentiate between chronic or acute inflammation. So this testing alone may not clearly identify whether or not someone is suffering from *chronic* inflammation. Especially not when the test is only performed one time.

ESR TEST

Another available test is the erythrocyte sedimentation rate (ESR), also referred to as the sedimentation rate test.

The sedimentation test is performed by measuring the rate at which red blood cells sink in a tube of blood. On its own, this test isn't likely to prove that someone has chronic inflammation. The ESR test can be performed in a more localized area, but it doesn't reveal the cause of the inflammation.

TNF-A TEST

Tumor necrosis factor-alpha (TNF-a) is a protein called cytokine. This cytokine is released by multiple types of immune cells when the body experiences stress, injury, or infection.

TNF-a is important for the health of the body when functioning properly, but when it is excessive it can lead to a state of chronic inflammation and increase the risk of blood clots. It has also been associated with tumors and lowers the

strength of the heart's ability to contract naturally.

A blood test can be performed to see if a patient has high levels of TNF-a in the body. If there is no apparent reason for the higher levels (for example a known injury or infection), it could indicate chronic inflammation.

INTERLEUKIN-6 TEST

Interleukin-6 (IL-6) is similar to TNF-a because it's a cytokine released in the body to help regulate immune responses.

High levels of IL-6 may also be an indicator of inflammation in the body.

PV TEST

Plasma viscosity (PV) is another test that can show a presence of inflammation but may not accurately diagnose chronic inflammation.

Viscosity -- or the thickness -- of the blood can be measured to see if inflammation is present. **Increased levels of certain proteins that lead to inflammation will cause the blood to become thicker.**

NLRP3 INFLAMMASOME TEST

An inflammasome is a large multiprotein complex that is part of the body's immune system. When there is a threat to the body, the proteins are activated, and they produce pro-inflammatory cytokines to

help with immunity and signal when they should be released.

The most studied inflammasome is NLRP3. This inflammasome can detect microbes that cause many illnesses including influenza, E. Coli, and fungal infections.

When activated incorrectly, the NLRP3 inflammasome has been linked to inflammatory disorders like:

- Alzheimer's disease
- Diabetes
- Atherosclerosis
- Arthritis
- Gout
- HIDS

The Benaroya Research Institute at Virginia Mason released a video that described the inflammasomes like a

smoke alarm. The metaphor works like this:

> *When there's a fire, the smoke alarm alerts everyone to an issue. If it's a small fire that can easily be extinguished, you don't need multiple fire departments to come and flood your whole house.*

In the case of your body, if the inflammasome is telling the body to react too strongly, it may cause unnecessary inflammation in the body.

When the NLRP3 inflammasome numbers are elevated, it means that it's telling the body to respond to a number of issues. It may be sending cytokines to multiple parts of the body to address a number of ongoing issues.

Knowing that this number is high is a good indication that a person has chronic inflammation, especially in the case where an obvious sickness or injury isn't present.

ADDITIONAL DIAGNOSTIC TESTS

Sometimes inflammation can be determined for specific locations in the body that a person is suffering from. For example, if someone is experiencing numbness in a specific area, a doctor may call for an MRI.

Here are some ways that chronic inflammation cases can be diagnosed in localized places:

- **Gastrointestinal inflammation** may be diagnosed through procedures to see inside a digestive tract like:

    - Colonoscopy
    - Sigmoidoscopy
    - Upper endoscopy

    - You can also find out if there's inflammation in the intestines with a fecal test that checks for something called calprotectin. Calprotectin is a protein released by white blood cells when inflammation is present in the gastrointestinal tract.

- **Gingivitis or periodontitis** is another form of chronic inflammation that can be diagnosed by a dentist.

- **Psoriasis** is an example of an autoimmune disease in which the immune system attacks the skin. A

dermatologist can examine the skin to determine if it is psoriasis or not.

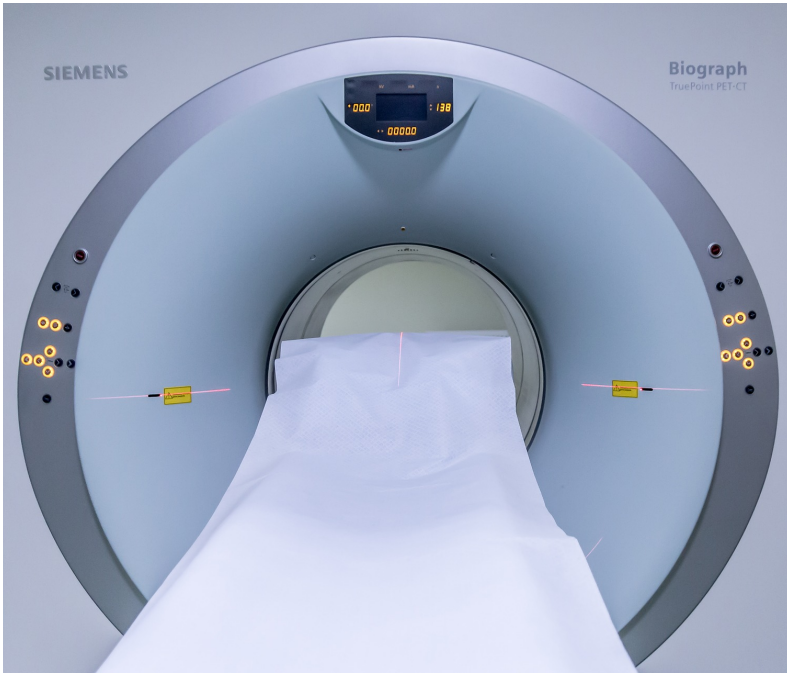
- **Hashimoto's disease,** also known as chronic lymphocytic thyroiditis, is an autoimmune disease that causes inflammation in a person's thyroid. This can be diagnosed by studying symptoms and the results of blood tests. The blood tests check hormone levels and antibodies that may be affected by the disease.

- **Multiple sclerosis (MS)** is a neurodegenerative and inflammatory immune condition. MS causes the breakdown of the protective cover around the nerves that can cause many different debilitating symptoms like:

    - Brain interruptions
    - Emotional changes

- Vision problems
- Weak bladder control
- Muscle weakness
- Fatigue
- Dizziness

- MS is sometimes difficult to diagnose but is usually discovered based on symptoms and a number of diagnostic tests including MRIs, bloodwork, spinal taps, and electrical impulses.



What Causes Chronic Inflammation?

There are a number of factors leading to chronic inflammation. Some of these factors can be controlled -- such as diet -- but others are as a result of unresolved acute inflammation, or as a symptom of an autoimmune disease.

There are many things that may lead to chronic inflammation, including these:

1. **Sensitivity and hypersensitivity.** Sensitivity can be a contributor to chronic inflammation. This would be the case with people who have allergic reactions to things which other bodies wouldn't identify as a threat, such as seafood or pollen.

2. **Exposure to irritants.** These irritants might be chemicals, pesticides, or pollution that cause an inflammatory response.

3. **Acute inflammation.** Acute inflammation can sometimes turn into chronic inflammation if the body doesn't heal properly or is unable to dispel a bacteria or virus.

4. **Foreign material in the body.** For example, an unremoved surgical suture or implanted biomedical device may cause some people to experience chronic inflammation.

5. **Autoimmune disorders.** These disorders often lead to chronic inflammation as discussed earlier. Examples include:

    - Rheumatoid arthritis

- Lupus
- Inflammatory bowel disease (IBD)
- Multiple sclerosis (MS)
- Type 1 diabetes
- Guillain-Barre syndrome
- Psoriasis
- Grave's disease
- Hashimoto's thyroiditis
- Myasthenia gravis
- Vasculitis

6. **Parasitic infections and harmful bacteria that the body does not fully remove.** These conditions can also lead to chronic inflammation.

7. **Obesity.** As a body gains weight, it produces additional body fat. One of the types of body fat is called white adipose tissue. White adipose tissue has many functions not limited to hormone control, growth,

inflammation, and immune system.

- When a body becomes obese or excessively overweight, fat cells called adipocytes increase in size and number. These fat cells compromise the body's blood supply, which causes a reduction in oxygen and an increase in cell death.

- **The body then secretes cytokines (TNF alpha, IL-6)** that stimulate the immune system and trigger an inflammatory reaction throughout the body.

8. **Prolonged stress.** Carnegie Mellon University released a study in 2012 that discovered that **chronic psychological stress aids in the**

body losing its ability to regulate its inflammatory response.

- Robert E. Doherty Professor of Psychology within CMU's Dietrich College of Humanities and Social Sciences, explains, “Inflammation is partly regulated by the hormone cortisol and when cortisol is not allowed to serve this function, inflammation can get out of control.”

9. **Alcohol.** New studies suggest that alcohol can cause inflammation in the intestines and impairs the body’s ability to regulate this inflammation.

10. **Poor diet.** An unhealthy diet can also cause chronic inflammation.

- Harvard Health Publishing quoted Dr. Fred Tabung, a visiting researcher with the Department of Nutrition at Harvard's T.H. Chan School of Public Health, saying, "A lot of chronic pain is the result of chronic inflammation, and the evidence is quite strong that your diet can contribute to increased systemic inflammation."

- **A poor diet can cause your immune system to behave abnormally because your body reacts to unhealthy foods similar to the way it reacts to a bacterial infection,** causing your body to release an inflammatory response indefinitely.

11. **Smoking.** An article in a 2016 issue of the *Journal of Leukocyte Biology* explains that nicotine activates white blood cells that release molecules that increase inflammation in the body.

12. **Lack of sleep.** Sleep loss leads to the release of cytokines and acute-phase proteins. These proteins cause a low-grade ongoing level of inflammation.

13. **Long-term diseases and ailments (apart from autoimmune ones).** Other long-term diseases can also play a role in chronic inflammation, such as:

    - Gingivitis/periodontitis
    - Bladder infection
    - Stomach ulcers

- Type 2 diabetes (although new research suggests this may also be an autoimmune disease)
- Asthma
- Tuberculosis

Sometimes the reason for chronic inflammation is unknown and difficult to diagnose. Such may be the case when someone is unknowingly exposed to an irritant like chemicals or pollution.

In some cases, a body may struggle to heal from an acute injury or sickness, and the process of inflammation becomes prolonged.

How to Prevent and Manage Chronic Inflammation

For some, preventing chronic inflammation may not be possible. This may be the case with individuals who have already developed irreversible autoimmune disorders. What scientists and doctors do know is that **even in people who can't eradicate chronic inflammation, it *can* be managed.**

Besides medication prescribed by doctors to help with symptoms, there are other things that can help manage or even prevent the onset of chronic inflammation.

Some of these practices include:

- A healthy diet

- Regular exercise
- Healthy stress management
- Giving up smoking
- Cutting down on or eliminating alcohol
- Getting enough sleep

CHOOSING AN ANTI-INFLAMMATORY DIET

A healthy diet is a great way to reduce inflammation. Just as eating unhealthy food can lead to inflammation, **eating healthy foods can help reduce inflammation.**

Anti-Inflammatory Foods

Some foods, such as these beneficial foods, are better than others at helping reduce inflammation:

1. **Berries.** Blueberries, blackberries, and strawberries are high in antioxidants. Antioxidants are known for reducing inflammation and helping regulate the immune system.

2. **Fatty fishes.** Fish is a good source of protein and omega-3 fatty acids. Omega-3 acids EPA and DHA found in fish help reduce inflammation. The best fish options are:

   - Salmon
   - Sardines
   - Herring
   - Mackerel
   - Anchovies

3. **Cruciferous vegetables.** These vegetables are very healthy for your body and have been associated with lowering the risk of heart

disease and cancer. Examples of cruciferous vegetables are:

- Broccoli
- Cauliflower
- Brussel sprouts
- Kale
- Green cabbage

4. **Avocados.** Avocados are considered a superfood. With high levels of potassium, magnesium, fiber, and healthy fats, these are especially good to include in a healthy diet. Some studies also show that they may have an anti-inflammatory compound.

5. **Green tea.** Research shows that green tea can help reduce the risk of heart disease, cancer, Alzheimer's disease, and

obesity. Green tea has an antioxidant called EGCG that helps inhibit inflammation.

6. **Peppers.** Peppers are high in vitamin C and antioxidants known for reducing inflammation.

7. **Grapes.** Grapes are thought to reduce the risk of heart disease, obesity, Alzheimer's, and eye disorders. They also contain anthocyanins, a compound that has antioxidant effects.

8. **Tomatoes.** Tomatoes are packed with vitamin C, potassium, and lycopene which is an antioxidant that is good for reducing inflammation.

9. **Nuts.** Nuts include healthy fats and vitamin E that have anti-inflammatory effects. The best kinds of nuts for anti-inflammation are:

    - Almonds
    - Hazelnuts
    - Pecans
    - Peanuts

10. **Extra virgin olive oil.** This oil is a healthy fat that has been linked to reduced risk for heart disease, brain cancer, and stroke. Extra virgin olive oil contains antioxidants and oleic acid that studies show can help reduce inflammation.

11. **Whole grains.** Whole grains like oatmeal, brown rice, and whole wheat bread are considered a

healthy alternative to refined grains. The fiber in these grains may also help fight inflammation.

12. **Herbs and spices.** Some herbs and spices thought to reduce inflammation are:

    - Turmeric
    - White willow bark
    - Maritime pine bark
    - Chili peppers
    - Frankincense
    - Black pepper
    - Rosemary
    - Cloves
    - Ginger
    - Cinnamon

In general, a healthy diet that consists of vegetables and dark leafy greens, fruits,

whole grains, fish, healthy fats, and nuts is beneficial for reducing inflammation.

FOODS TO AVOID THAT MAY CAUSE INFLAMMATION

There are also foods and ways of preparing food that can increase inflammation in the body.

Some things to avoid when trying to have an anti-inflammatory diet are:

- Refined carbohydrates like white bread or pastries
- Fried foods
- Sweetened beverages
- Red meat
- Processed meat like hot dogs and sausage
- Margarine, shortening, and lard

- Foods that are highly processed, like boxed cereals and other meals
- Sugar and sweeteners
- Trans fats

HOW EXERCISE CAN HELP REDUCE INFLAMMATION

Since exercise causes acute inflammation it may seem counterintuitive to include it on the list of things to help with chronic inflammation.

While exercising can result in acute (short-term) inflammation, it's a healthy part of growing muscles and getting stronger.

As long as you avoid long-term injury while exercising, it can help decrease your risk of chronic inflammation. Research published in a journal *Brain,*

Behavior, and Immunity found that even 20 minutes of exercise a day can help the body's immune system.

A 20-minute-a-day exercise routine also helped produce an anti-inflammatory response in the body and reduced the evidence of cytokine TNF. **The study found that the workout does not have to be intense.** In fact, fast walking can be enough to help with inflammation.

Exercising also helps you stay healthy by reducing your risk of disease and helps with weight control.

SLEEP AND REDUCING CHRONIC INFLAMMATION

Poor sleep habits, not getting enough sleep at night, or struggling with insomnia can increase your risk of inflammation.

Reduced sleep can lead to many challenges including increased stress, reduced productivity, decreased cognitive function, and fatigue. Not getting enough sleep can also make you feel irritable which can affect relationships, creating more stress.

As mentioned earlier in this eBook, stress is one of the drivers of inflammation. This is one reason why a lack of sleep can lead to inflammation, but there are others as well.

Scientists have learned that sleep, immune function, and inflammation are all regulated by our circadian rhythm. The circadian rhythm helps your body know when to go to sleep and when to wake up, and it also tells the immune system and consequently the inflammatory response when to function.

Michael J Breus, Ph.D., DABSM of *The Sleep Doctor* explains it this way:

> *Laboratory studies have tested acute, prolonged sleep deprivation —conditions under which sleep is restricted for 24 hours or more—and found this severe degree of sleep loss increases inflammation activity in the body. Scientists have also studied partial sleep deprivation, the kind of chronic, insufficient sleep that so many people experience in their daily lives. While the study results are mixed, many studies show this form of everyday sleep loss also elevates inflammation.*

Getting enough sleep is not always so simple. If you struggle with going to bed at night or sleeping through the night you

may be wondering how you can improve your sleep.

There are many reasons why people struggle to get enough sleep, and not all of them can be addressed here. However, we will provide some simple solutions for getting sleep at night and lowering the risk of chronic inflammation.

Consider these sleep tips:

1. **Turn off screens before bed.** Watching TV or scrolling on your phone before bed can make it difficult to fall asleep or sleep well. Screens can emit a blue light that tells your brain that it's daytime. This can affect your sleep negatively. **Cut out screens for an hour or two before you go to bed.**

2. **Exercise.** Daily exercise can help you get the sleep you need at night. Just try to avoid working out too close to bedtime as this can have the opposite effect and make it difficult to fall asleep.

3. **Establish a bedtime routine.** Those with kids know the importance of a bedtime routine to help kids fall asleep at night. A bedtime routine can also help adults get the rest they need. Your bedtime routine may involve a warm shower, a cup of hot tea, meditation, prayer, or whatever is soothing to you.

4. **Limit caffeine, especially in the afternoon or later evening.** Some people are very sensitive to caffeine, and too much consumed during the day can make it hard to sleep at night. It may also help to

only drink caffeine in the early morning as opposed to closer to bedtime.

5. **Go to bed at the same time.** It's not always easy as an adult to go to bed or wake up at the same time, but **science shows that a set sleep schedule can help with falling asleep and staying asleep.**

6. **Talk with your doctor.** If sleep is an ongoing issue for you, talk with your doctor about getting the sleep you need each night.

Living With Chronic Inflammation

Chronic inflammation can lead to many health challenges in the body, including heart disease, cancer, and possibly autoimmune disorders.

If you or someone you care about is experiencing symptoms of chronic inflammation, it may be time to talk to a doctor. A doctor can evaluate symptoms and run diagnostic tests to help determine if inflammation is present.

A change in lifestyle is an excellent way to help combat many health issues including chronic inflammation. A **healthy diet, an ongoing exercise routine, and adequate sleep are good first steps.** Start today! These lifestyle changes can produce great benefits for your health.