

# READE'S REVIEW

James D. Reade, DC PLLC

## INFLAMMATION - THE MAJOR CAUSE OF DISEASE

**Special Points of Interest:**

**Inflammation the Major Cause of Disease**

**Inflammation We are Most Familiar with - Acute Inflammation**

**Causes of Inflammation**

**Chronic Inflammation - a Silent Killer**

**Anti-inflammatory Diet**

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What exactly is inflammation? Simply put, it is the body's normal response to injury. Injury to the tissues of the body are due to trauma, infection (acute and/or chronic), autoimmune, heat/cold, food and/or environmental toxins. This entire inflammatory response is orchestrated by the immune system. In a normally functioning immune system the body will cause swelling, heat, redness and pain. While we may not experience pleasurable sensations the body's immune system is busy attacking an infection, toxin and protecting damaged or traumatized tissue. In a normal, properly balanced immune system the body "cleans up" the effected area and initiates the healing and repair process. However, in an imbalanced and poorly functioning immune system the complete healing process is delayed and often the inflammation now becomes chronic and/or low grade. We are aware sometimes of this chronic inflammation due to persistent pain and malfunction of the tissue. However, often this chronic inflammation is not consciously detected as it does not cause pain, but it is still causing damage to your tissues. A good example of this is hard-

ening of the arteries or known as atherosclerosis. It is only after years of chronic arterial inflammation that we become aware of this process when someone experiences a heart attack. It is unfortunate but, that may be the only outward sign of this inflammatory process. However, running the proper blood chemistries can detect these inflammatory processes in the blood vessels. They can determine your risk factor for cardiovascular disease and/or heart attack years before it becomes life threatening.

What cells or tissues are involved with inflammation? This involves every white blood cell such as: neutrophils, eosinophils (involved with allergies and parasites), basophils, monocytes, mast cells, macrophages, natural killer cells, dendritic cells, B& T lymphocytes and other immune cells such as microglia (found in the brain), osteoclasts (found in the bone) and more. Some of the main organs involved are the spleen, thymus, adrenals, thyroid, brain, lymph nodes, liver and especially the digestive tract. The digestive tract in particular, the **small intestine**, plays a **major** part in the in-



flammatory process. There is about 70-80% of your **entire immune system** located in the lining of your gut!

Is inflammation the major cause of disease? Philip Schauer M.D. , Director of Bariatric & Metabolic Institute at the Cleveland Clinic states, "There are clear indications that inflammation explains why plaque builds up in the arteries in patients with atherosclerosis, chronic inflammation also plays a direct role in diabetes, high blood pressure, sleep apnea, asthma and many other conditions". Inflammation is a body wide phenomena and effects all cells in the body. We only become aware of the inflammation when it reaches a certain level or it elicits pain, but some types of inflammation can exist for months or years without your awareness.

## ACUTE INFLAMMATION

This is the type of inflammation reaction that we are probably most familiar with since this often happens after trauma such as a car accident, repetitive motion, lifting/bending incorrectly, sports injuries, infection or exposure to a toxin or allergen.

Some of the classic symptoms of an acute inflammation are: redness, swelling, heat, pain and loss of function. These reactions are initially helpful for the body but, can become very problematic if they continue or worsen rapidly. This may be a sign of the immune system imbalance and impairment of the body's ability to repair the damaged tissue.

This type of inflammation contains the following events: dilation of blood vessels, increased permeability of the small blood vessels called capillaries, clotting of fluid

and blood "leaked" into the damaged tissue, migration of white blood cells such as monocytes, macrophages, granulocytes and swelling.

Usually at this stage with a musculoskeletal injury it is best to temporarily use the RICE treatment: Rest, Ice, Compress and Elevate. Heat is not recommended as this stage as it often worsens the inflammation. So if in doubt ... use ICE and no longer than 15-20 minutes! However, it is important to start with gentle motion in the damaged area as soon as possible as this will help the repair process. Immobilization for too long is counterproductive.

In the Archives of Internal Medicine, 1992, researchers came to the conclusion that NSAID's (non-steroidal anti-inflammatories) like ibuprofen actual delay muscle regenera-

tion. A study in the American Journal of Sports Medicine, 1995, researchers noted that NSAID's prevented proper healing of tendons that were damaged by over usage. These studies and many others clearly connect NSAID's with interference of the inflammatory repair process. They do have an ability to reduce some aspects of inflammation but, at what cost and not to mention some of the side-effects. There are alternatives for acute inflammation such as: boswellia, devils claw, ginger, tumeric, curcumin, vitamin D, B vitamins, fish oils, magnesium, probiotics, bromelain and other proteolytic enzymes. Having a diet rich in whole unprocessed foods, excluding products that promote inflammation and including those that decrease inflammation often minimizes the level of acute inflammation and speeds recovery.

**NSAID's (non-steroidal anti-inflammatories) like Ibuprofen actual delay muscle regeneration.**

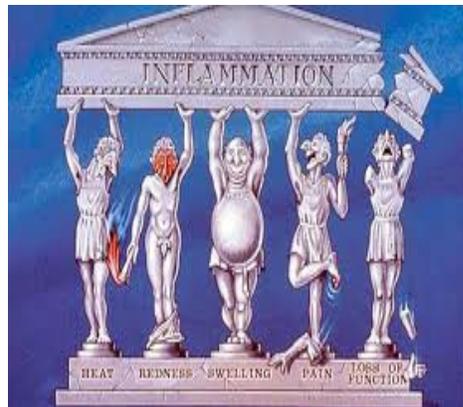
## TRIGGERS OF INFLAMMATION

The following are some major triggers of acute and chronic inflammation:

1. Trauma/injury
2. Viral/Bacterial/ Fungal infections
3. Diet containing processed chemicalized foods, sugar, gluten, alcohol and food allergens
4. Lack of sleep
5. Lack of adequate exercise
6. Psychological stress.
7. Radiation and low level electromagnetic frequencies (EMF).
8. Oxidative stress. This is a condition where the body produces excessive

amounts of inflammatory compounds called reactive oxygen species.

9. Leaky or hyperpermeable gut.
10. Environmental toxins in air, water and food.
11. Pathogen-associated molecular patterns (PAMPs), these are compounds that come from microorganism that lead to inflammation.



## CHRONIC INFLAMMATION

This type of inflammation is much more insidious but, just as destructive as acute inflammation if not corrected. This type of inflammation is more destructive since it does not result in significant pain and is often ignored until months or years later. Chronic inflammation is not recognized until a heart attack occurs from years of atherosclerotic changes in the coronary arteries. Chronic inflammation reveals itself as Alzheimers, Parkinsons, depression, fibromyalgia, osteoporosis, ulcerative colitis, Crohn's, psoriasis, cardiovascular disease, diabetes, asthma, allergies, obesity, osteoarthritis, rheumatoid arthritis, other autoimmune diseases like lupus, and cancer. Often these diseases can be recognized years before they manifest by doing the proper blood analysis looking for inflammatory markers, antibodies to different tissues, and genetic testing for gene defects that can potentially effect future health.

### Mechanisms of Inflammation :

Almost all of the inflammation is controlled and orchestrated by our immune system. The immune system uses protein messengers to communicate with other immune cells and all other cells called cytokines. These cytokines are known as interleukins, lymphokines, chemokines, interferons, and tumor necrosis factors. These messengers cause the cells to migrate, multiply, stimulate other cells to fight infections, neutralize foreign proteins and are inti-

mately involved in the inflammatory process.

When we are exposed to viruses, bacteria, fungi, foreign proteins (antigens) the body will attack these foreign invaders via the innate and acquired immune system. The white blood cells release antibodies and many other compounds that are inflammatory. If left unchecked this can lead to chronic inflammation, cell destruction and auto-immune diseases such as Hashimoto's, celiac, Sjogren's, rheumatoid arthritis and others.

An important molecule that effects many pro inflammatory genes in the cell is called nuclear factor kappa B (NFkB). It is estimated that it turns on about 400 plus genes inside our cells once simulated. It is turned on by excessive insulin, increased blood glucose, environmental toxins, radiation, free radicals (reactive oxygen species), such as glycosylated hemoglobin which is also known as an advanced glycosylated end product (AGE). AGE's are highly inflammatory and turns on NFkB. So it is important to balance your blood sugar in order to control inflammation.

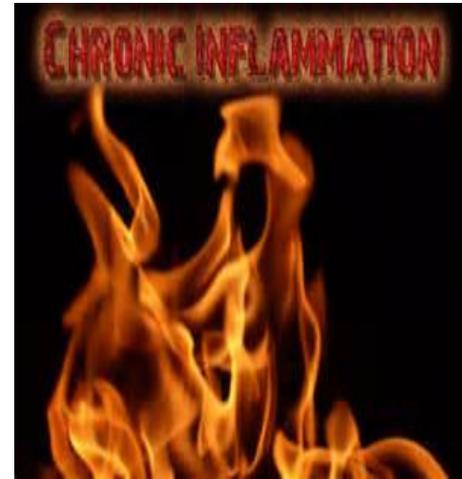
Another group of compounds that turns on NFkB are called pathogen activated molecular patterns (PAMP's) which are compounds that come from bacteria, viruses and other microbes. One of the most potent of these is derived from abnormal bacteria found in the intestines called lipopolysaccharides (LPS). LPS levels

can be increased dramatically after taking antibiotics or with a poor diet. So, it is important to maintain a balanced and healthy gut flora. Lastly, increased levels of free fatty acids or increased fatty hormones called prostaglandins can also increase NFkB and increase cellular inflammation. Eating fried foods, highly saturated fatty foods and those that promote omega 6/omega 3 fatty imbalances will promote.... INFLAMMATION!

When NFkB is activated and turns on the inflammatory genes it increases production of more cytokines, activates inflammatory enzymes, adhesion molecules and many others. So, inflammation leads to further inflammation. This begins to turn into a vicious cycle.

In a prior newsletter we discussed imbalances of omega 6 and omega 3 fat derived hormones known as prostaglandins. Many of our foods especially trans or hydrogenated fats and those derived from dairy and meats increase a class of prostaglandins that promote inflammation. These fats are located in the cell membrane of most cells in the body. There is another class of fat membrane derived hormones called leukotienes that can cause inflammation and constriction of the respiratory tract leading to asthma.

Chronic inflammation does prevent proper healing and repair of tissue. This can explain the reason some musculoskeletal problems persist.



**An important molecule that effects many pro-inflammatory genes in the cell is called nuclear factor kappa B**





## **Arizona Family Health Centre**

Dedicated to Quality Natural Health Care

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Our mission is to help inform and educate the public about alternative treatments that are less invasive and employ more natural therapeutics. We in no way are suggesting that regular medical treatments should not be sought and with some conditions we will suggest a referral to the appropriate specialist.

We wish to provide hope to those people suffering and especially to those with chronic conditions. It is our purpose to provide you with knowledge that is helpful and can provide better health

## **Bringing you Natural Healthcare Information**

### **THE ANTI - INFLAMMATION DIET**

One of the important things to do is to have a diet that does not stimulate the body to produce inflammatory compounds. Merely taking supplements without removing or minimizing exposure to dietary factors that promote inflammation will never be an effective strategy. Furthermore, overeating also promotes inflammation. Therefore, limit your portions and going to the buffet may not be a good idea!

To decrease inflammation have a diet rich in healthy protein sources. This should consist of wild caught fish, avoid farmed fish, grass fed, organically raised animals such as bison, cow, elk, poultry and etc. These proteins generally have higher levels

of conjugated linolenic acids which are much healthier for you. Organically raised animals also have much less toxins in their tissues. Vegan sources of protein should include nuts ( almonds, pecans, walnuts) lentils, beans ( not pinto, adzuki, fava, black, etc.), sparingly use non-gmo soy like edamame, and tofu.

Secondly, use a lot of vegetables that are lightly steamed, stir-fried, (best to use coconut or sesame oil) baked and roasted. This should consist of the largest portion of your meal. Olive oil is best used in salad dressings. Use peas, carrots, corn and fruits sparingly due to high sugar content.

Thirdly, organic whole grains, such as long grain rice, quinoa, millet, amaranth, buckwheat and etc. Do not use grains that contain gluten or gluten-like proteins as this will cause increased NFkB and also encourages insulin resistance (pre-diabetes). Even if you do not appear to react to gluten it is best to avoid it.

Fourthly, avoid foods that promote inflammation such as, sugar, refined carbohydrates, alcohol, caffeine, processed foods, fried foods, dairy and any foods that cause delayed food sensitivities involving IgG or IgA reactions, which can be tested for in our office.

Lastly, adding some of these to your diet will decrease inflammation: Vitamin D,

vitamin B complex, turmeric, curcumin, alpha-lipoic acid, green tea extract, rosemary, propolis, resveratrol, milk thistle, N-acetyl cysteine, grape seed extract, olive leaf extract, quercetin, pycogenols and fish oils.



**INFLAMMATION  
EXTINGUISHER**