

Culinary Nutrition News:

Extinguishing Inflammation

Provided through a partnership between ACEF Chef & Child Foundation and Clemson University, and sponsored by French's Foodservice.

Inflammation is our body's first responder to protect itself from infection and foreign substances, such as bacteria and viruses. Specifically, it is the process by which our immune system signals the launch of white blood cells and proteins to combat and heal infection, sometimes causing heat, redness and swelling. But the new thinking is that serious health problems may occur when inflammation overstays its welcome or inappropriately triggers an inflammatory response, persisting in a chronic state. This activity can cause irritation in joints, tissue and blood vessels, and make a slow burning flame turn into a five-alarm fire.

It's more common than you think

For years, chronic inflammation has been linked to diseases such as rheumatoid arthritis, multiple sclerosis and asthma. Today, inflammation is understood to be a warning sign and a possible trigger for a number of medical conditions, including



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heart disease, cancer, diabetes and even Alzheimer's disease. Since inflammation is commonly linked to heart disease, and can go undetected for months or even years, many physicians routinely order tests for a key marker of inflammation, C-reactive protein (CRP), as readily as they do cholesterol tests. That's enough with the bad news. The good news is a key component to battling inflammation can be as simple as eating the right foods.

Fat attack

What ignites the flames of inflammation? Fat is one of the main triggers. Fat increases inflammation in the blood, so if you eat a meal high in fat, it could make you a likely candidate for inflammation. This is especially true for those who routinely eat high-fat meals. Inflammatory compounds are released to fight the excesses of saturated and trans fats—the main fat culprits.

Saturated fats and trans fats increase LDL, or "bad" cholesterol, in the blood. When it excessively accumulates on artery walls, LDL undergoes chemical changes that the body interprets as "danger," and responds by releasing inflammatory substances into arteries. The result is a fatty plaque that forms along artery walls and becomes a target for an inflammatory reaction. This process ultimately results in the buildup of plaque and chronic inflammation. In severe cases, the inflammatory substances weaken the arterial plaque, eventually

causing the deposits to rupture, which can lead to sudden coronary death, heart attack or stroke.

It was once believed that heart disease resulted strictly from the buildup of plaque in our arteries; however, we now know that heart attacks rarely happen simply due to this buildup. In fact, arteries are active contributors to the progression of heart disease by attracting and harboring cells that release inflammatory compounds. While lowering LDL cholesterol should always remain at the forefront of heart health, measures for inflammation prevention should also be actively practiced. Like cholesterol, inflammation can be managed with a healthy diet. Research is beginning to show more studies that support the idea that certain foods and nutrients can stimulate or suppress inflammation.

Pro-inflammatory

The foods that aggravate inflammation are not new obstacles for healthy eating or culinary nutrition. They are the same foods that have always been advised for limited consumption—saturated and trans fats, as well as refined carbohydrates. Junk foods, soft drinks, processed meats, sweets and fried foods can all exacerbate inflammation. This may be due in part to the saturated and trans fats used to prepare and process these foods, as well as chemicals used in processing. For instance, processed meats contain

chemicals such as nitrites that are associated with sparking inflammation. Since elevated blood sugar may fuel chemical changes that render LDL more dangerous, it makes sense to limit intakes of refined grains and sugars.


Saturated fats are also found in meats, dairy products and eggs. These foods provide important vitamins and minerals; however, they also contain high amounts of saturated fat and omega-6 fatty acids called arachidonic acid. While some arachidonic acid is essential for your health, too much may promote inflammation. Red meats tend to be a main trigger of inflammation in this respect, so when choosing red meats, opt for lean cuts of bison, venison and other game meats, or the low-fat cuts of beef. Also, choose low-fat milk and cheese, which will not intensify inflammation.

Anti-inflammatory

Avoiding foods that increase LDL cholesterol is a good place to start when battling inflammation. However, there are also foods that can help reduce


inflammatory activity. The list is extensive and includes most of the foods associated with healthy eating, such as foods high in healthy fats, like monounsaturated fats and omega-3 fatty acids, as well as antioxidant-rich fruits and vegetables. Whole grains and legumes also show some anti-inflammatory activity.

Some of the most potent natural antioxidants are the phytochemicals found in the pigments of brightly-colored fruits and vegetables. Antioxidants consumed from plant food and those produced in the body help lower inflammation by satisfying oxidation reactions, or by repairing its harmful effects. Berries, especially cherries, blueberries and strawberries, are packed with anti-inflammatory phytochemicals. Cruciferous vegetables, which include broccoli, cauliflower, and Brussels sprouts, are also loaded with antioxidants. They also provide sulfur that the body needs to make its own powerful antioxidants. Dark-green lettuces, spinach and other vegetables are also rich in vitamin C and other antioxidants that help reduce inflammation.

Pro-inflammatory foods

<p>Saturated fats</p> <ul style="list-style-type: none"> • Red meat • Full-fat dairy products <p>Trans fats</p> <ul style="list-style-type: none"> • Processed foods • Fried foods 	<p>Refined carbohydrates</p> <ul style="list-style-type: none"> • Sodas • Pastries • Candy • White bread and pasta • Sugary cereals
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Anti-inflammatory foods

<p>Low-fat dairy</p> <ul style="list-style-type: none"> • Skim or reduced-fat meat • Low-fat yogurt • Low-fat cheeses <p>Omega-3's</p> <ul style="list-style-type: none"> • Extra-virgin olive oil • Fatty fish • Walnuts • Flaxseed <p>Soy protein</p> <ul style="list-style-type: none"> • Soybeans • Tofu • Soy milk <p>Berries</p> <ul style="list-style-type: none"> • Cherries • Strawberries • Blueberries <p>Vegetables*</p> <ul style="list-style-type: none"> • Green leafy vegetables 	<p>such as spinach and dark-green lettuces</p> <ul style="list-style-type: none"> • Cruciferous vegetables such as broccoli, cauliflower and Brussels sprouts <p>Whole grains</p> <ul style="list-style-type: none"> • Oatmeal • Whole wheat bread and pasta • Brown rice <p>Legumes</p> <ul style="list-style-type: none"> • Beans • Lentils • Peas <p>Water</p> <ul style="list-style-type: none"> • 100% fruit juices • Vegetable juices • Green tea
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**Some people believe that vegetables belonging to the nightshade family (i.e. potatoes, tomatoes and eggplant) irritate inflammation. These plants contain a chemical alkaloid called solanine, which may be the culprit behind inflammation pain in some people. However, there is no scientific evidence to back this claim.*

Broccoli, cauliflower and Brussels sprouts are loaded with antioxidants and provide the body with needed sulfur to make antioxidants.

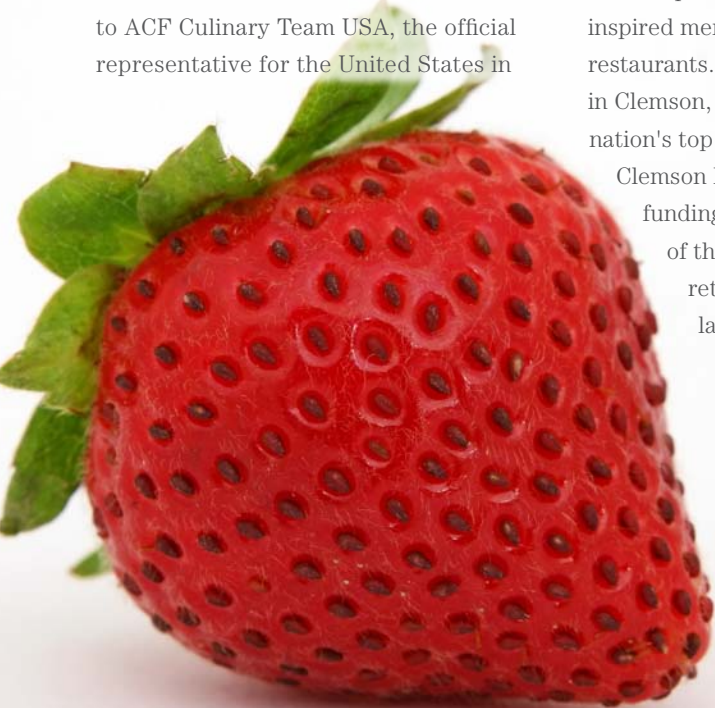
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About the American Culinary Federation and the Chef & Child Foundation



The American Culinary Federation, Inc., established in 1929, is the premier professional organization for culinarians in North America. With more than 20,000 members in 225 chapters nationwide, ACF is the culinary leader in offering educational resources, training, apprenticeship and accreditation. In addition, ACF operates the most comprehensive certification program for chefs in the United States. ACF is home to ACF Culinary Team USA, the official representative for the United States in



major international culinary competitions, and to the Chef & Child Foundation, founded in 1989 to promote proper nutrition in children and to combat childhood obesity. For more information, visit www.acfchefs.org.

About Clemson University



CU CHEFS® (Clemson University's Cooking and Healthy Eating Food Specialists) instructional program, led by Dr. Margaret Condrasky, associate professor in Food Science and Human Nutrition, is a registered trademark of Clemson University designed to promote changes in menu planning, food purchasing, food preparation and food consumption behaviors with a goal of fostering good health through healthy nutrition. 'Culinary nutrition' is the application of nutrition principles combined with food science knowledge displayed through a mastery of culinary skills. The results are healthy eating behaviors grounded in culinary confidence and nutrition alertness. CU CHEFS® promotes an awareness of the latest trends in foods and nutrition through the demonstration of proficient culinary skills to produce flavorful, health-inspired menus for schools, churches and restaurants. Clemson University, located in Clemson, S.C., is ranked 22 among the nation's top public institutions. Since 2001, Clemson has doubled external research funding, raised the academic profile of the student body, increased retention and graduation rates, launched high-profile economic development and earned national accolades, including being named *Time's* Public College of the Year.

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About French's Foodservice



French's Foodservice is proud to sponsor this series of nutritional articles authored by Clemson University for the American Culinary Federation's Chef & Child Foundation. At French's Foodservice, we believe that "you are what you serve," and have built our reputation by providing the highest quality ingredients to meet the ever-changing needs of the foodservice industry. As chefs, restaurateurs, educators and nutritionists, you positively impact the health of our nation by advocating the positive impact of healthy eating, especially among children. We are proud to support this worthy cause.

Over the last 100 years, French's has become one of the most recognized and respected brands in America. Today, the French's Foodservice family of brands delivers the highest quality, most flavorful products possible. For the brands your patrons know and love and the incredible flavors that enhance everything from soups and salads to sandwiches and entrées, entrust your patrons to the flavors of French's.

FOR MORE INFORMATION

For more information on saturated and trans fats, read the October 2009 Culinary Nutrition News article, "Demystifying Lipids." Visit: www.acfchefs.org/download/documents/ccf/nutrition/2009/200910.pdf

To learn more about omega-3's, read the May 2010 Culinary Nutrition News article, "Pass the Omega-3s, Please." Visit: www.acfchefs.org/download/documents/ccf/nutrition/2010/201005_omega-3s_please.pdf

For more information on phytochemicals, read the February 2011 Culinary Nutrition News article, "Fighting Phytochemicals." Visit: www.acfchefs.org/download/documents/ccf/nutrition/2011/201102_fighting_phytochemicals.pdf