

Life Extension Magazine January 2013

REPORT

What Doctors Don't Know about Inflammation

By Logan Bronwell

Inflammation is an underlying culprit behind virtually all age-related diseases.^{1,2} That's why nutrients like **curcumin**, **fish oil**, and **vitamin D** have become so popular.

Less understood is that as maturing people suffer **chronic inflammatory** insults, they simultaneously encounter **impairment** of beneficial immune responses necessary to kill foreign invaders and malignant cells.

Aging destroys the **delicate balance** between *destructive* and *protective* inflammatory responses.¹⁻⁴ Fortunately, scientists have discovered a method to *turn back this lethal process!*⁵⁻⁹



In this article, you'll learn about a new discovery that can boost **immune function** while suppressing damaging **inflammatory reactions**.⁵⁻¹³

Chronic inflammation damages cells throughout our body, including the delicate linings of our **arteries** and our precious **brain cells**. About **25%** of all **cancers** are associated with **chronic inflammation** that causes mutations that lead to malignant changes.¹⁴

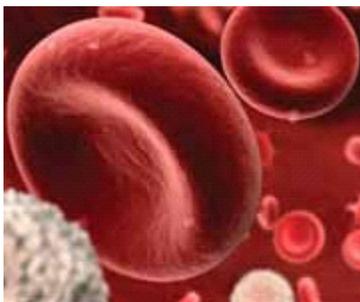
A certain degree of healthy inflammation is needed, however, to protect us when the body encounters infectious agents,³ trauma, and malignant cells.

With aging there is an **imbalance** that results in low-level *systemic* inflammation slowly destroying tissues, while our ability to mount a strong immune response to pathologic killers is diminished. This imbalance underlies virtually *all* diseases of aging and early death.^{1,2}

Scientists have found that oil from the seed of the **black cumin** plant (*Nigella sativa*) can *reverse this age-related process!*⁵⁻⁹

New discoveries reveal that **black cumin seed oil** contains *potent* but non-toxic compounds that suppress excessive inflammatory molecules⁵⁻⁷ while at the same time stimulating the normal, acute inflammation we need to fight infections and kill cancers.^{8,9,13}

BALANCED INFLAMMATION



So how do our bodies distinguish between "good" inflammation and "dangerous" inflammation?

When **optimally balanced**, our bodies' *chemical and cellular systems* fine-tune the inflammatory response, providing enough immediate action to stop an invader, and then, at the correct moment, shut it down when the threat is gone.

But when age unbalances this system, our bodies gradually shift into a chronically inflamed state called **inflammaging**.³ At the same time, we increasingly develop **immunosenescence**, a loss of immune function that leaves us vulnerable to dangerous

infections and cancers, both of which require a vigilant and potent immune system for their prevention.⁴

In recent years, hundreds of studies have emerged indicating that **black cumin seed oil** critically **rebalances** the body's inflammatory factors. Through this delicate balancing effect, this powerful seed oil battles a *broad range* of conditions, including allergies, asthma, cancer, cardiovascular disease, diabetes, rheumatoid arthritis, and colitis.

MANAGING ARTHRITIS

One of the earliest recorded uses of black cumin seed oil was for the prevention and treatment of arthritis.¹⁵ Nearly **52 million** modern Americans suffer from some form of the disease, almost **23%** of the adult population.¹⁶ Both major forms of arthritis, rheumatoid and osteoarthritis, involve **excessive inflammatory responses**.

BLACK CUMIN SEED OIL BOOSTS IMMUNOMODULATION

Black cumin seed oil joins a small handful of nutraceuticals now known to modulate the immune system in both directions. In addition to suppressing dangerous chronic inflammation, black cumin seed oil has been shown to boost appropriate immune function. The result is enhanced protection against both infections and cancer.¹⁰

In other words, black cumin seed oil offers true immune system balancing, promoting healthy immune function when it's needed, while suppressing excessive immune activity (inflammation), when it's deleterious.

Black cumin seed oil achieves this immunological balancing act by means of several distinct but interrelated mechanisms.

First, black cumin seed oil stimulates actions of patrolling immune system cells on the lookout for invading organisms or abnormal cancer cells. The oil triggers an increase in the activity of **macrophages** (cells that engulf and destroy abnormal cells) and **helper T-cells** (cells that marshal **natural killer cells** and direct them to their targets.)¹¹

Mice injected with the oil were dramatically protected against cytomegalovirus, a version of the herpes virus that can infect humans and cause birth defects and other consequences.¹¹ While control animals still had detectable virus in their systems at 10 days, treated mice were virus-free, the result of enhanced macrophage and T-helper-cell activity.

Thymoquinone, an active component of black cumin seed oil, specifically boosts survival and activity of other key cells in the immune response to infection or cancer, namely so-called CD-8 T-cells.¹² These cells are the field troops that actively hunt down and kill infected or cancerous cells, after activation by T-helper and macrophage cells. This activity, known as "conditioning," amplifies the effectiveness of these vital immune system cells against cancer and infectious diseases.¹²

These effects appear in humans treated with black cumin seed oil as well, according to a study presented at a recent international conference. That study reported a **55%** increase in the activity of T-helper cells, and a **30%** increase in natural killer cell function, following black cumin seed oil supplementation.¹³

Black cumin seed oil is a powerful anti-inflammatory agent, capable of suppressing the chronic inflammation that underlies aging and its many symptoms. Now it is showing tremendous promise at combating the gradual loss of immune function we suffer with advancing age. These twin properties give black cumin seed oil unprecedented dual coverage as an age-preventing, health-promoting supplement.

Black cumin seed oil has shown benefits in managing rheumatoid arthritis, a highly inflammatory condition. In addition to the joints, rheumatoid disease can afflict the heart, liver, nerves, and blood-forming cells.

A human study of black cumin seed oil has produced encouraging results. Forty women with rheumatoid arthritis had a one month washout period, during which they took a placebo capsule twice daily, followed by one month of taking **500 mg** of black cumin seed oil **twice daily**.¹⁷ Subjects experienced a significant improvement on a standard 28-point scale used to assess how rheumatoid arthritis is affecting the body as a whole. Additionally, there was a reduction in the number of swollen joints and in the duration of morning stiffness. Remarkably, there was an overall reduction of symptoms in **42.5%** of the patients.¹⁷

Black cumin seed oil has been shown to be effective in experimental models of osteoarthritis, the most common form of arthritis in humans.¹⁸ Treatment with thymoquinone, a component of black cumin seed oil, reduced levels of a protein-melting enzyme, known as **MMP** (matrix metalloproteinase), that destroys bone and joint tissue in osteoarthritis.¹⁵

ALLERGIES AND ASTHMA

Eight percent of Americans—**18 million** people—endure environmental allergies such as hay fever. *Another 8.2%* of Americans—**18.7 million**—suffer from asthma.^{19,20}

These conditions are related. Both are driven by an **overreaction** of the **immune system** and resulting **inflammation**.

Nasal congestion and weepy eyes are the recognized symptoms of hay fever, the most common environmental allergy. Underlying these symptoms are marked increases in a host of **pro-inflammatory** factors.

These inflammatory factors include *cytokines*, such as *interleukins*, antibodies called *IgE*, and immune cells called *eosinophils*.

Lab studies show that black cumin seed oil and its active constituents have beneficial effects on all of these inflammatory factors. Thymoquinone, a component found in black cumin seed oil, was found to alter production of interleukins—both suppressing *inflammatory* interleukins and boosting *anti-inflammatory* interleukins.²¹

Mice treated with black cumin seed oil were found to have reduced numbers of eosinophils, cytokines, and inflammatory cells in their lung tissue.²² These changes were equivalent to those induced by *dexamethasone*, a potent, immune-suppressing steroid used to treat arthritis.²²

WHAT YOU NEED TO KNOW

Target the Inflammatory Imbalance of Aging with Black Cumin Seed Oil

- Aging changes the way your immune system functions, increasing inappropriate inflammation while suppressing appropriate immune responses.
- The result of this inflammatory and immunological imbalance is a host of chronic, age-related diseases that contribute to early death.
- The components of black cumin seed oil have unique properties that restore a youthful and optimal inflammatory balance to the immune system's components.
- Through this mechanism, black cumin seed oil has the potential to mitigate—and even reverse—chronic diseases such as arthritis, allergies, asthma, colitis, and cardiovascular disease.
- Studies show that it is possible to achieve a better overall immunological balance, one that promotes health and defeats inflammation, by supplementing with black cumin seed oil.



A human study of 66 patients with allergic rhinitis produced compelling results. Treatment with black cumin seed oil resulted in a sharp decrease in IgE antibodies in nasal secretions, accompanied by significant reductions in nasal congestion and itching, runny nose, sneezing attacks.²³

Black cumin seed oil also shows great promise in managing asthma, with its many inflammatory and allergic components. Lab studies show that both the seed oil and its thymoquinone constituent trigger relaxation of the trachea and large airways (bronchi), both of which can go into spasm during an asthma attack.^{22,24} The thymoquinone found in black cumin seed oil produces a sharp **reduction in inflammatory mediators** known as interleukins and leukotrienes, both of which play a role in asthma and allergy-related conditions.^{25,26}

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WHAT YOU NEED TO KNOW



What Is Black Cumin Seed Oil?

Black cumin is one of the most ancient of herbal remedies. Though it has been used as a spice, black cumin should not be confused with common cumin (*Cuminum cyminum*).⁵ In many folk traditions, black cumin's antioxidant properties made it an attractive food preservative.⁵

Oil extracted from black cumin seeds contains a variety of components, all of which have potent free radical scavenging properties.^{5,7} Of these, thymoquinone is the best understood. In addition to its antioxidant powers, thymoquinone suppresses the activities of enzymes that produce inflammatory cytokines such as interleukins and leukotrienes.

But black cumin seed oil doesn't stop at suppressing inflammation. It contains other powerful ingredients that augment the immune system's patrolling surveillance and "killer" cells responsible for identifying threats such as infection and cancer cells.⁶

It's this ability to restore balance to the aging immune system that justifies black cumin seed's traditional names "seeds of blessing" and "panacea."^{5,7}

COLITIS AND GASTRO-PROTECTION

Colitis—meaning inflammation of the colon, or large intestine—is most commonly seen in inflammatory bowel disease, including Crohn's disease. The Centers for Disease Control estimates that up to **1.4 million** Americans suffer from this condition.²⁷

There is still no medical cure.

However, black cumin seed oil and its components exert powerful effects that can slow colonic inflammation.⁶ Lab studies reveal that pre-treating animals with thymoquinone as extracted from black cumin seed oil completely prevents experimentally-induced colitis.²⁸

Importantly, treatment with black cumin seed oil lowers levels of *pro-inflammatory cytokines*.²⁹

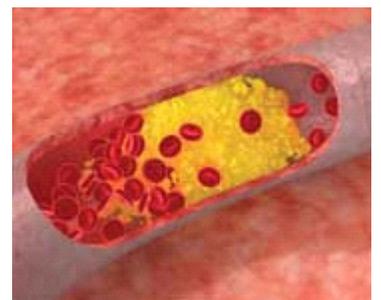
Studies have shown that both black cumin seed oil and thymoquinone strongly protect the delicate stomach lining against the injurious effects of alcohol and other toxins, and even against the effects of stress.^{30,31} Markers of tissue oxidation were sharply reduced.³⁰

CARDIOVASCULAR DISEASE

Atherosclerosis is a major consequence of **chronic inflammation**—making it an appropriate target for therapy with *anti-inflammatory* black cumin seed oil, with its powerful *antioxidant* effects. Working together, these two mechanisms lower the risk of atherosclerosis and consequently, heart attacks, strokes, and other artery diseases.

Animals supplemented with black cumin seed oil demonstrated lower levels of dangerous LDL-cholesterol, and higher levels of HDL cholesterol, which may be protective.^{32,33}

Black cumin seed oil neutralizes *lipid oxidation* and reduces the impact of oxidized LDL, a



Atherosclerosis

major trigger for the atherosclerotic plaques that block blood flow to cause heart attacks and strokes.³³

Black cumin seed oil has a major impact on a destructive process known as **ischemia-reperfusion injury**. This serious damage occurs to tissue and organs when, following blockage of an artery, the oxygen-rich blood flow is then restored. This complex phenomenon releases a massive outpouring of reactive oxygen species that can damage tissue as *severely* as the *original blockage!* **Ischemia-reperfusion injury** is responsible for many of the debilitating long-term effects seen in survivors of **strokes** and **heart attacks**.

For example, the **powerful protection** provided by black cumin seed oil against ischemia-reperfusion injury has now been convincingly demonstrated in the kidney—one of the main targets of the insidious effects of atherosclerosis.³⁴

HOW DOES BLACK CUMIN SEED OIL WORK?

Black cumin seed oil is a complex mixture of antioxidant, anti-inflammatory, and immunomodulatory components. These capabilities have made it useful in fighting diseases related both to excessive inflammation (virtually all age-related conditions) and to the impaired immune response of old age.⁶

Here are the major processes that have been identified as black cumin seed oil's mechanisms of action:

1. Antioxidant: Black cumin seed oil contains powerful antioxidants that reduce intracellular products of oxidation, boost natural cellular antioxidant systems, and scavenge free radicals before they can do harm.^{6,35}

2. Anti-Inflammatory: Black cumin seed oil's constituents that have multiple anti-inflammatory mechanisms:

- n Suppress activity of the "master inflammatory regulator" complex NF-kappaB.³⁶
- n Inhibit important enzyme systems such as 5-LOX and COX1 that produce inflammatory mediators called leukotrienes and prostaglandins.^{26,37,38}
- n Reduce production of a compound called 5-HETE, a precursor of inflammatory molecules.^{38,39}
- n Inhibit production and activity of interleukins, cytokines with complex immune modulating properties. **Black cumin seed oil** constituents reduce production of inflammatory interleukins, and may boost production of anti-inflammatory ones.⁴⁰⁻⁴²

3. Immune-Modulating Effects: In addition to suppressing chronic inflammation and free radicals, black cumin oil contributes to beneficial immune responses:

- n It boosts the infection- and cancer-fighting abilities of specific cells in the immune system.^{6,7}
- n Black cumin seed constituents trigger appropriate activation of pro-inflammatory cytokines in the face of stimulation by dangerous bacterial structural molecules, a function vital for developing acute inflammatory responses to infections.^{8,9}



SUMMARY

The twin problems of increased *harmful* chronic inflammation combined with decreased *beneficial* immune responses are major contributors to aging, chronic disease, and early death.

The oil of **black cumin seed** has historically been used to combat conditions we now understand to be related to these fundamental, age-related, inflammatory and immunological disturbances.

Modern scientific analysis shows that black cumin seed oil contains components that re-establish **optimal inflammatory balance**—powerfully suppressing chronic inflammation, while at the same time promoting healthy immune responses.

As a result of that delicate immunological balancing, supplementation with black cumin seed oil has the potential to slow—and *even reverse*—many of the most devastating aging-related conditions.

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