

## Combat Arthritis Pain With These Foods

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✓ Fact Checked

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### STORY AT-A-GLANCE

- Arthritis is a general term that refers to more than 100 different types of arthritis and related conditions; the four most common categories are osteoarthritis, autoimmune inflammatory arthritis, infectious arthritis and gout
- Small food choices can significantly impact pain from arthritis. For example, choosing cruciferous vegetables that are high in sulforaphane, an organic sulfur that supports cell function, helps block the enzymes linked to joint destruction and lowers inflammation that drives pain
- Anthocyanins found in purple and red-colored berries lower oxidative stress and inflammation and support gastrointestinal health, which is crucial to lowering inflammation and improving pain control
- Marine-based fatty fish are rich in long-chained omega-3 fats that are highly bioavailable and essential to lower the inflammatory response driven by an imbalance between omega-3 and omega-6 fats

When used correctly, food is medicine. Put another way, you are what you eat. You can't get away from the fact that your body requires nutrients to function optimally, and those nutrients come from the food you consume.

The small choices you make each day, such as a donut as a midday snack or a bowl of ice cream each night after dinner, have a way of catching up with you. One of the ways where food packs a powerful punch is in arthritis pain control.

Food impacts several pathways that make a difference in your pain level and even in the progression of the disease. Food manufacturers want you to believe that a calorie is a calorie — and that calories are all your body needs to survive. But if there is one thing the past years have taught us, it's that food makes a significant difference to your health.

Before discovering some of the foods that can lower pain, let's take a minute to explore the term "arthritis."

## Arthritis Is Not a Single Painful Disease

It is crucial to understand several facts about arthritis. For example, the word arthritis is a general term that refers to more than 100 different types of arthritis and related conditions. Arthritis can permanently damage your joints and the symptoms of common arthritis include pain, stiffness and swelling.

People may experience mild to severe forms of the disease and the symptoms can come and go. For some, the symptoms remain the same for years, but for others, the disease progresses and gets worse over time. There are four major categories of common types of arthritis.<sup>1</sup>

1. **Osteoarthritis** — This is the most common type and can be found in nearly any joint of the body. More frequently, it appears in the knees, hips, spine and hands. It used to be known as a wear-and-tear disease, but current evidence shows that it affects the whole joint and not just the cartilage, including making the bone weaker and deteriorating the connective tissue.
2. **Autoimmune inflammatory arthritis** — This is a global term that includes rheumatoid arthritis, psoriatic arthritis, juvenile arthritis and axial spondyloarthritis. Although an exact cause has not been identified, your gut microbiome plays a critical role.
3. **Infectious arthritis** — This painful condition is triggered by an infection that usually begins in another part of the body and travels to a joint. The symptoms can appear suddenly and cause intense swelling, pain and fever. Treatment usually resolves the condition.
4. **Gout (metabolic arthritis)** — This is the result of a buildup of uric acid crystals in the joints, more commonly the big toe. Uric acid crystals are a byproduct of the breakdown of purines, which are substances found in organ meat, red meat, some seafood and alcohol. There is some evidence to suggest that osteoarthritis or gut dysbiosis can also contribute to gout.

## Sulforaphane Has Healing Properties

Cruciferous vegetables like broccoli, Brussels sprouts, cauliflower and cabbage contain a compound called sulforaphane. This is an organic sulfur that has been shown to support cell

function and division while at the same time causing apoptosis programmed cell death in certain cancers.<sup>2,3,4</sup>

When sulforaphane was tested in mice and human cell cultures,<sup>5</sup> it was shown to target and kill breast cancer stem cells, which prevents the formation and spread of tumors. But the benefits of sulforaphane don't stop there. It has been shown to reduce inflammation by reducing reactive oxygen species by as much as 73%,<sup>6</sup> which in turn reduces cell damage.

Sulforaphane can also help reduce the risk of osteoarthritis,<sup>7</sup> in part by blocking enzymes that are linked to joint destruction.<sup>8</sup> A team of researchers from the University of East Anglia published a study<sup>9</sup> in the journal Arthritis and Rheumatism that showed substances in cruciferous vegetables could slow the progression of osteoarthritis, or possibly prevent it.

Sulforaphane did this by inhibiting metalloproteinases that have been implicated in the development and progression of osteoarthritis. The researchers found it also blocked inflammation to protect against cartilage destruction both in the lab and animal models.



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## **Anthocyanins Play an Anti-Inflammatory Role**

Research has demonstrated that there is power in the color purple.<sup>10</sup> Purple and red-colored berries are high in anthocyanins, which are secondary metabolites plants produce to defend against predators. Anthocyanins work through a variety of pathways to exert beneficial effects on human health.

They're primarily known to address oxidative stress and reduce inflammation, which in turn helps pain control in patients with an inflammatory-driven condition, such as arthritis. The science also demonstrates the power of anthocyanins in lowering the progression of cognitive decline and protecting the heart, kidneys, and gastrointestinal tract.

Researchers have demonstrated that anthocyanins, found in cherries and other berries, help regulate lipid and glucose metabolism. Elderberries are high in anthocyanin, vitamin C and zinc. These berries have anti-inflammatory modulating activity<sup>11</sup> that may support pain control in

patients with arthritis. They also became known for their ability to boost immune function and inhibit colds and flu long before the COVID-19 pandemic.

One 2004 study<sup>12</sup> found 15 milliliters (just under 1 tablespoon) of Elderberry syrup, four times a day for five days, eased the symptoms of influenza four days faster than a placebo. In 2019, research<sup>13</sup> detailed the mechanism through which Elderberry protects against viral attacks. As reported by Science Daily:<sup>14</sup>

*"... the study showed that compounds from elderberries can directly inhibit the virus's entry and replication in human cells and can help strengthen a person's immune response to the virus."*

## Let's Spice Up Your Food

Bland food is never fun to eat. But did you know that by adding a few spices you may reduce your pain level? Researchers have discovered that garlic, ginger, cinnamon and turmeric are compounds that may improve pain control in people with arthritis.

One 2018 study<sup>15</sup> found that cinnamon supplementation was a safe adjunctive treatment in women who had rheumatoid arthritis. The randomized double-blind clinical trial included a small group of 36 women who were divided into two groups: those receiving cinnamon and those receiving a placebo for eight weeks.

While the study was small and only included women, the results showed that it had a significant impact on tender and swollen joints with no changes in liver enzymes, lipid profile, fasting blood sugar or erythrocyte sedimentation rate (ESR).

Ginger is another spice that has been under investigation for the effect it has on reducing the symptoms of osteoarthritis. A 2001 study<sup>16</sup> found using a highly purified and standardized extract could significantly reduce those symptoms and had a good safety profile.

More recently, a 2020 paper<sup>17</sup> confirmed the use of ginger as a safe and promising strategy to lower pain. The researchers reviewed eligible random control trials where ginger was used to relieve pain, including from osteoarthritis. They concluded that ginger was safe and promising, but more studies were needed to analyze the amount required for useful long-term therapy.

Garlic is a staple ingredient in cuisines found in many countries, including Italy, China and Mexico. But it's much more than a common spice. Data from a 2020 study<sup>18</sup> of 62 women with rheumatoid

arthritis suggested that garlic supplementation over eight weeks improved oxidative stress and health assessment questionnaires.

Turmeric is well known for its anti-inflammatory properties. A 2016 analysis of randomized clinical trials<sup>19</sup> evaluated the use of turmeric extract and curcumin in the treatment of arthritis symptoms. While the results were positive, the researchers found the total number of trials and the total sample size were not sufficient to draw a definitive conclusion.

Another review of the literature published in 2021<sup>20</sup> compared turmeric against placebos and found a benefit on osteoarthritis pain and function in the knee. Based on the small number of studies, they believed the effects were similar to those that analyzed nonsteroidal anti-inflammatory drugs (NSAIDs).

A 2021 randomized trial<sup>21</sup> compared turmeric against paracetamol, a painkiller also known as acetaminophen. The results from this study demonstrated that bioavailable turmeric extract was as effective as paracetamol against osteoarthritis pain and symptoms in the knee and was safe and more effective in reducing tumor necrosis factor alpha (TNF alpha) and C-reactive protein (CRP).

## **Balance Your Omega-3 and Omega-6 Fat**

Historically, the human diet had an omega-6 to omega-3 ratio of close to 1-to-1. Yet, the current Western diet is closer to a ratio of 20-to-1,<sup>22</sup> which increases the inflammatory response and therefore has an impact on pain.

Most processed foods and seed oils are high in omega-6 fatty acid. While there are omega-3 fats found in some plants, only marine-based fatty fish have long-chained omega-3 fats eicosatetraenoic acid (EPA) and docosahexaenoic acid (DHA) that are highly bioavailable and essential to good health.

When your omega-6 to omega-3 ratio is out of balance, it increases your risk of obesity<sup>23</sup> and the inflammatory response, both of which affect pain control in arthritis. The only way to know if you have enough omega-3 is to take a simple blood test — an omega-3 index.<sup>24</sup> This measures EPA and DHA on red blood cell membranes and provides feedback about your dietary choices.

## **Food Addresses Gut Health and Lowers Arthritis Pain**

Finally, while no single food completely addresses gut health, most of your food choices will either support good gut health or harm it. For example, a diet high in ultraprocessed foods is known to change your gut microbiome, which promotes the development of inflammatory diseases.<sup>25</sup>

The Arthritis Foundation recognizes that your gastrointestinal tract plays a crucial role in some of the most common types of inflammatory arthritis.<sup>26</sup> Researchers have discovered that people with rheumatoid arthritis have different levels of bacteria in their gut and babies who are breastfed have a lower likelihood of developing ankylosing spondylitis as breastfeeding is known to positively affect the gut microbiome.<sup>27</sup>

A 2021 paper<sup>28</sup> analyzed the association between the gut microbiome and symptoms of osteoarthritis. They summarized the evidence that supports a gut-joint axis and the interactions between the gut microbiome and factors that affect osteoarthritis, including gender, age, metabolism and joint injury.

Interestingly, data showed that an individual's gut microbiota can potentially predict the progression of osteoarthritis, indicating that monitoring the gut microbiome may also help monitor the efficiency of therapeutic intervention. Broccoli is one food that helps support good gut health and may impact the pain of arthritis as it is also a source of glucosinolate, a precursor to indole-3 carbinol (I3C).<sup>29</sup>

In the stomach, I3C generates 3,3'-diindolylmethane (DIM). I3C is a powerful antioxidant and in an animal model, those fed cruciferous vegetables with I3C had healthier guts and were less likely to have inflammation.<sup>30</sup> I3C also works by activating a protein called aryl hydrocarbon receptor (AhR), which communicates with immune and epithelial cells in your gut lining, thereby helping to reduce inflammation caused by pathogenic bacteria.

AhR also helps stem cells convert into mucus-producing cells in your gut lining. These cells also help extract nutrients from the foods you eat, all of which translate into improved gut function and health.

As you'll note, there are several groups of foods that support pain control by lowering the inflammatory response and improving your gut health. Arthritis can be a difficult and life-changing condition that affects your daily activities. Consider taking these small steps to help improve your pain control without medication and take greater control of your life.

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