

# Is Tart Cherry Worthy of the Hype?

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## STORY AT-A-GLANCE

- › While sweet and tart cherries share many of the same benefits, tart cherries have grown in popularity as a nutraceutical. They can be found in dried, frozen, juice, concentrated extracts and capsule form
- › Montmorency tart cherries have strong anti-inflammatory effects, making it helpful in the treatment of arthritis, cardiovascular disease and gout. It also reduces exercise-induced muscle damage and speeds recovery
- › Tart cherry helps normalize blood pressure, thanks to antioxidants and anti-inflammatory compounds that act like prescription angiotensin-converting enzyme (ACE) inhibitors. In two separate studies, a dose of 60 mL of tart cherry concentrate per day lowered blood pressure by as much as 7 points
- › According to research published in 2019, tart cherry juice helps improve biomarkers of inflammation and oxidative stress in older adults, which in turn can help reduce the risk of cardiovascular disease and atherosclerosis
- › Montmorency tart cherries can also help improve your sleep, as it's a natural source of melatonin

Conventional cherries can be divided into two primary categories: sweet and tart (sour). While sweet and tart cherries share many of the same benefits,<sup>1,2,3,4</sup> tart cherries have grown in popularity as a nutraceutical. **Sweet varieties such as Bing cherries** are usually eaten fresh, while Montmorency tart cherries are found in a variety of forms, including

dried, frozen, juice, concentrated extracts and capsules. As noted by the Cherry Marketing Institute:<sup>5</sup>

*"... research strongly supports the anti-inflammatory qualities of Montmorency tart cherries, as well as the benefits of muscle recovery and pain relief from conditions like arthritis. Studies have also found that Montmorency tart cherries contain melatonin, a naturally occurring substance that helps regulate sleep patterns."*

## **Mechanisms of Action**

Studies have teased out a long list of effects and underlying mechanisms of action that help account for these and other health benefits. For example, tart cherry has been shown to:<sup>6</sup>

Inhibit cyclooxygenase-1 and cyclooxygenase-2 (COX-1 and COX-2) enzymes that produce inflammatory prostaglandins

Suppress inflammatory factors such as nuclear factor-kappa B activation in monocytes

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Downregulate genes involved in cancer and inflammation

Upregulate apoptosis (programmed death of damaged cells)

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Prevent lipoprotein peroxidation that leads to endothelial damage and atherosclerotic plaque formation

Improve cholesterol and triglyceride levels

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Normalize blood pressure, thanks to antioxidants and anti-inflammatory compounds that act like prescription angiotensin-converting enzyme (ACE) inhibitors.

Normalize blood glucose levels

In two separate studies, a dose of 60 mL of tart cherry concentrate per day lowered blood pressure by as much as 7 points<sup>7,8,9</sup>

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Boost production of detoxifying enzymes and the endogenous antioxidants like glutathione and superoxide dismutase

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Lower uric acid levels

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Have analgesic activity (pain relief)

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Inhibit oxidative stress

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Inhibit neurodegeneration

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Inhibit tumorigenesis

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Modulate cell-signaling molecules like tumor necrosis factor (TNF)

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Boosts bone density by as much as 400% by reducing the bone resorption (the breakdown of bone)<sup>10,11,12</sup>

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## Tart Cherry Juice Lowers Inflammation

According to research published in 2019, tart cherry juice helps improve biomarkers of inflammation and oxidative stress in older adults, which in turn can help reduce the risk of cardiovascular disease and atherosclerosis:<sup>13</sup>

*"The findings of our previous study suggest that 12 weeks consumption of tart cherry juice lowers the levels of systolic blood pressure (BP) and low-density lipoprotein (LDL) cholesterol in older adults.*

*The present study investigated the effects of tart cherry juice on blood biomarkers of inflammation and oxidative stress. In this randomized-controlled clinical trial, a total of 37 men and women between the ages of 65–80 were randomly assigned to consume 480 mL of tart cherry juice or control drink daily for 12 weeks ...*

*[T]art cherry juice significantly increased the plasma levels of DNA repair activity of 8-oxoguanine glycosylase and lowered the mean c-reactive protein (CRP) level compared to the control group ...*

*Within group analysis showed that the plasma levels of CRP, MDA [malondialdehyde], and OxLDL [plasma oxidized low-density lipoprotein] decreased numerically by 25%, 3%, and 11%, respectively after 12 weeks of tart cherry juice consumption compared with corresponding baseline values.*

*The present study suggests that the ability of tart cherry juice to reduce systolic BP and LDL cholesterol, in part, may be due to its anti-oxidative and anti-inflammatory properties."*

## **Symptom Relief for Arthritis and Gout**

Painful conditions such as arthritis and gout may also be helped. In one randomized double-blind crossover study,<sup>14</sup> nondiabetic patients with knee osteoarthritis were randomized to begin treatment with either tart cherry juice or a placebo. The treatment group consumed two 8-ounce bottles of tart cherry juice per day for six weeks, followed by a one-week washout before switching treatments.

Western Ontario McMaster Osteoarthritis Index (WOMAC) scores, walking times, plasma urate, creatinine and high-sensitivity C-reactive protein (hsCRP) levels were recorded at baseline and after each treatment period. Compared to the placebo, the tart cherry juice treatment resulted in lower WOMAC scores and hsCRP, but had no effect on walking time, plasma urate and creatinine levels. According to the authors:

*"Tart cherry juice provided symptom relief for patients with mild to moderate knee OA, but this effect was not significantly greater than placebo. Tart cherry juice lowered hsCRP levels and this effect was associated with improved WOMAC scores."*

Another study<sup>15</sup> looking at gout, which is caused by a buildup of uric acid crystals in the joints, found that tart cherry extract consumption was inversely associated with attacks

of gout. Intake of tart cherry over a two-day period lowered the risk of a gout attack by 35%, regardless of body weight, purine intake or use of alcohol, diuretics or antigout medications.

Moreover, when tart cherry juice was combined with allopurinol (an antigout medication), the risk of gout attacks dropped by 75%. The reason for this is because two natural flavonoids in tart cherries act just like uric acid-lowering drugs.<sup>16</sup> Hence the enhanced effect when combined.

## **How Tart Cherry Can Aid Athletes**

Its anti-inflammatory properties also make tart cherry a useful supplement for athletes. According to a 2015 scientific review,<sup>17</sup> studies done on cherry consumption and exercise-induced muscle damage (EIMD) "support the notion that tart cherry consumption attenuates EIMD symptoms after intense exercise bouts."

These benefits were primarily attributed to anthocyanins and other phenolic compounds that have antioxidant and anti-inflammatory properties. Another earlier study published in the *Medicine and Science in Sports and Exercise* journal came to a similar conclusion:<sup>18</sup>

*"Montmorency cherries contain high levels of polyphenolic compounds including flavonoids and anthocyanins possessing antioxidant and anti-inflammatory effects ...*

*Ten well-trained male overnight-fasted athletes completed two trials of 10 sets of 10 single-leg knee extensions at 80% one-repetition maximum. Trials were separated by 2 wk, and alternate legs were used in each trial. Participants consumed each supplement (CherryActive® (CA) or isoenergetic fruit concentrate (FC)) for 7 d before and 48 h after exercise ...*

*Montmorency cherry juice consumption improved the recovery of isometric muscle strength after intensive exercise perhaps owing to the attenuation of the oxidative damage induced by the damaging exercise."*

Tart cherry has also been shown to boost muscle strength and enhance performance. For example, male athletes who took 480 milligrams of powdered tart cherry extract per day for 10 days experienced less muscle soreness, less loss of strength during recovery, and lower muscle catabolism markers.<sup>19</sup>

In another study,<sup>20</sup> endurance runners who took a tart cherry supplement (480 mg capsules) for 10 days before running a half-marathon averaged 13% faster race finish times compared to placebo group.

## **Tart Cherry Can Help Improve Sleep**

Many studies also support claims that Montmorency tart cherries can help improve your sleep. One of the primary reasons for this is because it's a natural source of melatonin. As noted in a 2012 study titled "Effect of Tart Cherry Juice on Melatonin Levels and Enhanced Sleep Quality":<sup>21</sup>

*"Tart Montmorency cherries have been reported to contain high levels of phytochemicals including melatonin, a molecule critical in regulating the sleep-wake cycle in humans ...*

*In a randomized, double-blind, placebo-controlled, crossover design, 20 volunteers consumed either a placebo or tart cherry juice concentrate for 7 days ... Total melatonin content was significantly elevated in the cherry juice group, whilst no differences were shown between baseline and placebo trials.*

*There were significant increases in time in bed, total sleep time and sleep efficiency total with cherry juice supplementation. Although there was no difference in timing of the melatonin circadian rhythm, there was a trend to a higher mesor and amplitude.*

*These data suggest that consumption of a tart cherry juice concentrate provides an increase in exogenous melatonin that is beneficial in improving sleep duration and quality in healthy men and women and might be of benefit in managing disturbed sleep."*

The American Sleep Foundation<sup>22</sup> even recommends tart cherry supplementation based on the scientific evidence showing it can help induce higher quality and longer sleep. Considering this effect, it's best to take tart cherry in the evening, about an hour or so before bed.

If you want to give this a try, here's a simple recipe for a nonalcoholic evening beverage suggested by Cleveland Clinic:<sup>23</sup>

- Half cup of pure, unsweetened tart cherry juice
- 1 tablespoon unflavored magnesium powder
- A splash of mineral water

## **Tart Cherry – An All-Natural Nutritional Boost That Can Benefit Many**

Overall, the scientific evidence seems to make a strong case for tart cherry as a potent anti-inflammatory that can be useful for a wide range of conditions. In addition to antioxidants, tart cherry juice will also provide you with a significant percentage of the daily recommended intake of several vitamins and minerals. One 8-ounce glass will provide you with:<sup>24</sup>

- 62% of your recommended daily intake (RDI) of vitamin A (about 20 times more vitamin A than sweet cherries)
- 40% of your RDI of vitamin C
- 14% of your RDI of manganese
- 12% of your RDI of potassium and copper
- 7% of your RDI for vitamin K

### **Sources and References**

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- <sup>4</sup> [Food Chemistry July 15, 2023; 414: 135669](#)
- <sup>5</sup> [Choosecherries.com](#)
- <sup>6</sup> [Life Extension Magazine August 2023 Anti-Inflammatory Properties of Tart Cherry](#)
- <sup>7</sup> [People's Pharmacy June 30, 2020](#)
- <sup>8</sup> [American Journal of Clinical Nutrition June 2016; 103\(6\): 1531-1539](#)
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- <sup>10</sup> [Nutrients February 7, 2021; 13\(2\): 544](#)
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- <sup>22</sup> [Sleep Foundation November 8, 2023](#)
- <sup>23</sup> [Cleveland Clinic November 7, 2023](#)
- <sup>24</sup> [NF Sports, Benefits of Tart Cherry Extract](#)