



# Cherry-licious

## BENEFITS FOR BETTER HEALTH

### 1 KEEP PAIN AT BAY WITH ANTI-INFLAMMATORY PROPERTIES

Sweet cherries contain anthocyanins, which appear to shut down enzymes that cause tissue inflammation in a similar manner to ibuprofen and naproxen. Increased inflammation is the underlying cause for numerous chronic human diseases, such as:

- Arthritis • Diabetes • Cancer • Hypertension • Cardiovascular disease

Biomarkers of these diseases and C-reactive protein, a common marker of inflammation, have been reduced in human studies of cherry consumption.

### 2 A TASTIER WAY TO FIGHT CANCER

More research is suggesting that sweet cherries may possess cancer-fighting properties. Among other compounds, cherries contain ellagic acid and anthocyanins, which appear to be potent inhibitors to the growth of cancer cells. Along with other phytonutrients, their individual and synergistic benefits are the focus of several new studies.

### 3 TAKE THE BITE OUT OF GOUT ATTACKS

A painful form of arthritis caused by elevated levels of uric acid in the blood, gout affects more than 8.3 million Americans. Eating sweet cherries can lower the levels of uric acid in the blood, according to research conducted at the USDA Western Human Nutrition Research Center. A study done at the Boston University School of Medicine reports patients who eat cherries and take their medicine have a 35% to 75% lower chance of experiencing an attack.

### 4 SWEET CHERRIES, SWEETER DREAMS

One of the few plant sources of melatonin, sweet cherries are a natural and flavorful aid in improving the quality of sleep. Eating cherries about an hour before bedtime may help stabilize and regulate sleep patterns.

### 5 SNACK ON A SWEET SOURCE OF FIBER

A cup of sweet cherries delivers about three grams of fiber, or about 12% of the daily value from USDA Dietary Guidelines. Just two cups of fruit daily can contribute to healthy weight maintenance, diabetes prevention and improved cardiovascular health.

### 6 A SWEET FIX WITHOUT BUSTING GI LEVELS

Satisfy a sweet tooth without worry. Cherries boast a lower glycemic index than almost any other fruit. They release glucose slowly and evenly, so blood sugar levels stay steady longer.



## Studies Show...

Sweet cherries are a flavorful source of potassium<sup>1</sup> as well as important nutritional properties and bioactive compounds, including:

- Polyphenolics: anthocyanins, flavonoids, hydroxycinnamic acids
- Indolamines: tryptophan, melatonin, serotonin

These compounds, gained through consuming dark sweet cherries, contribute to a host of beneficial effects on certain diseases and conditions.

#### BLOOD PRESSURE

- Hypertension is a risk factor in cardiovascular disease, and studies suggest phenolic acids found in cherries and produced by anthocyanin metabolism exert vasorelaxing and antihypertensive effects.<sup>2</sup>

#### CANCER

- In lab studies, the phenolic compounds of sweet cherries appear to inhibit breast cancer cell growth without toxicity to normal cells.<sup>3</sup>
- Sweet cherry extracts have been shown to inhibit proliferation of colon and breast cancer cells in several published studies.<sup>4</sup>
- Sweet cherries contain perillyl alcohol – shown to be capable of inhibiting pancreatic, breast, liver, colon, skin and lung cancers – which raises the fruit's anti-carcinogenic activity.<sup>5</sup>

#### CARDIOVASCULAR DISEASE (CVD)

- Anthocyanins found in foods like sweet cherries inhibit lipid peroxidation, which has a hand in reducing CVD risk factors.<sup>6</sup>
- Anthocyanin interference with inflammation pathways can help in prevention of CVD.<sup>7</sup>

#### COGNITIVE FUNCTION

- Improved brain and visual function may result from anthocyanin's interference in inflammation pathways.<sup>8</sup>
- Anthocyanins appear to exert neuroprotection, resulting in a beneficial effect on cognitive decline and neurodegeneration associated with aging.<sup>9</sup>
- Consumption of anthocyanins from cherries appears to improve memory and cognition in older adults with mild-to-moderate dementia.<sup>10</sup>

#### DIABETES

- The polyphenols in cherries appear to help diminish hyperglycaemia, oxidative stress and inflammatory markers that are predictors of diabetes mellitus.<sup>11</sup>
- Cherry extracts reduce glucose blood levels and protect pancreatic beta-cells from oxidative damage, enabling them to continue balanced production of insulin.<sup>12</sup>

#### GOUT

- Consumption of cherries can significantly decrease plasma urate, which provides anti-gout efficacy.<sup>13</sup>
- Phenolics appear to interfere with the oxidative process as free radical terminators, ultimately decreasing formation of volatile decomposition products that contribute to gout.<sup>14</sup>
- Sweet cherries compared favorably to NSAID controls using ibuprofen and naproxen to alleviate gout symptoms.<sup>15</sup>

#### INFLAMMATION

- Eating cherries significantly decreased C-reactive protein and nitrous oxide concentrations, both known pro-inflammatory factors.<sup>16</sup>
- Consuming cherries was found to decrease plasma concentrations of eight biomarkers associated with inflammatory diseases (CRP, ferritin, IL-18, TNF, IL-1Ra, ET-1, EN-RAGE and PAI-1).<sup>17</sup>
- Polyphenols in cherries may minimize or prevent inflammation and oxidative stress, which may be risk factors for diseases like arthritis, diabetes, cancer and hypertension.<sup>18</sup>

#### SLEEP

- The presence of tryptophan, serotonin and melatonin in sweet cherries interact with cherry phenolics to help regulate sleep cycles.<sup>19</sup>

#### STRESS

- Cherry phenolics appear to protect neuronal cells from cell-damaging oxidative stress.<sup>20</sup>
- Various studies have shown serotonin is an important neurotransmitter that reduces stress and improves mood.<sup>21</sup>

<sup>1</sup> "Sweet and sour cherries: Origin, distribution, nutritional composition and health benefits." Federica Blando and B. Dave Oomah. *Trends in Food Science & Technology* 86 (2019): 577-529.  
<sup>2</sup> Blando, et al.  
<sup>3</sup> "Dark sweet cherry (*Prunus avium* L.) phenolics as dietary chemopreventive/therapeutic compounds for aggressive breast cancer cell growth with no toxicity to normal breast cells." Layana MA Lage JN, Martini-Silva SJ, Talcott ST, Pedrosa ML, Chew BP and Horstato GD.  
<sup>4</sup> "Nutrients, Bioactive Compounds and Bioactivity: The Health Benefits of Sweet Cherries." Ana C. Gonçalves, Catarina Bento, Branca Silva, Manuel Simões, Luís R. Silva. *Current Nutrition & Food Science*, 2019; 15: 208-227.  
<sup>5</sup> Gonçalves, et al.  
<sup>6</sup> Blando, et al.  
<sup>7</sup> Blando, et al.  
<sup>8</sup> Blando, et al.  
<sup>9</sup> Blando, et al.  
<sup>10</sup> "Acute reduction in blood pressure following consumption of anthocyanin-rich cherry juice may be dose-interval dependant: a pilot cross-over study." Katherine Kent, Karen E. Charlton, Andrew Jenner and Steven Roodenrys. *International Journal of Food Sciences and Nutrition*, 2016; 67(1): 47-52.  
<sup>11</sup> Gonçalves, et al.  
<sup>12</sup> Gonçalves, et al.  
<sup>13</sup> Blando, et al.  
<sup>14</sup> "Is there a role for cherries in the management of gout?" Marcum W. Collins Kenneth G. Saag, Javinder A. Singh. *Therapeutic Advances in Musculoskeletal Disease*, 2019; Vol. 11: 1-16.  
<sup>15</sup> Collins, et al.  
<sup>16</sup> "Consumption of 'Bing' sweet cherries lowers circulating concentrations of inflammation markers in healthy men and women." Kelley, D. S., Rastody, R., Jacobs, R. A., Jades, A. A. & Mackey, B. M. *Journal of Nutrition*, 2006; 136: 981-986.  
<sup>17</sup> "Sweet Bing Cherries Lower Circulating Concentrations of Markers for Chronic Inflammatory Diseases in Healthy Humans." Darshan S. Kelley, Yunko Adkins, Aurois Reddy, Leslie R. Woodhouse, Bruce E. Mackey and Kent L. Erickson. *The Journal of Nutrition*, American Society of Nutrition, 2013; doi: 10.3945/jn.112.17371.  
<sup>18</sup> Kelley, et al., 2019.  
<sup>19</sup> Gonçalves, et al., 2020 Blando, et al.  
<sup>20</sup> "The consumption of a Jerte Valley cherry product in humans enhances mood, and increases 5-hydroxyindoleacetic acid but reduces cortisol levels in urine." María Garrido, Javier Espino, David González-Gómez, Mercedes Lozano, Carmen Barriga, Sergio D. Paredes, Ana B. Rodríguez. *Experimental Gerontology*, 2012; 47: 573-580.

“RESULTS AFTER CONSUMPTION OF BING CHERRIES ARE CONSISTENT WITH THOSE REPORTED WITH TART CHERRY JUICE IN MARATHON RUNNERS.”

