





### Part I:

# Cherry category nutrition, nutrient highlights, nutrient content claims, and FDA-compliant messaging

Cherries are packed with polyphenols, vitamins, minerals and bioactive compounds that offer a variety of anti-inflammatory and antioxidant properties. Thanks to the unique nutrient composition of this fruit: Adding cherries to your eating pattern can be a health-promoting habit that helps to decrease oxidative stress by reducing chronic inflammation; improve sleep, and reduce risk of chronic disease (including heart disease, cancer, diabetes and cognitive decline) over time.

### **Nutritional profile of cherries**

Not only are cherries delicious, but they're also nutrient-packed. Per one cup serving, sweet cherries are a good source of vitamin C and fiber, and are packed with a variety of antioxidant-compounds- including polyphenols- that support overall health & wellbeing. One and a half cups of sweet, tart and Rainier cherries are also good sources of potassium.

### **Cherries Nutrition Facts**

Nutriton Facts: Sweet Cherries (per 1 cup)		
Nutrient	Amount	% Daily Value
Calories	97 kcal	
Total Fat	0.3 g	0%
Saturated	0.1 g	0%
Cholesterol	0 mg	0%
Sodium	0 mg	0%
Total Carbohydrate	25.0 g	9%
Dietary Fiber	3.2 g	11%
Sugars	20.0 g	
Protein	1.6 g	3%
Vitamin D	0.0 mg	0%
Calcium	18.0 mg	2%
Iron	0.5 mg	3%
Potassium	342 mg	7%
Vitamin C	10.5 mg	12%

Nutriton Facts: Rainier Cherries (per 1 cup)		
Nutrient	Amount	% Daily Value
Calories	100 kcal	
Total Fat	0.2 g	0%
Saturated	0.05 g	0%
Cholesterol	0 mg	0%
Sodium	0 mg	0%
Total Carbohydrate	26.0 g	9%
Dietary Fiber	2.4 g	9%
Sugars	22.0 g	
Protein	1.3 g	3%
Vitamin D	0.0 mg	0%
Calcium	20.0 mg	2%
Iron	0.3 mg	2%
Potassium	295 mg	6%
Vitamin C	12.0 mg	13%

Nutriton Facts: Tart Cherries (per 1 cup)		
Nutrient	Amount	% Daily Value
Calories	77 kcal	
Total Fat	0.5 g	1%
Saturated	0.1 g	0%
Cholesterol	0 mg	0%
Sodium	5 mg	0%
Total Carbohydrate	19.0 g	7%
Dietary Fiber	2.5 g	9%
Sugars	13.0 g	
Protein	1.6 g	3%
Vitamin D	0.0 mg	0%
Calcium	19.0 mg	2%
Iron	0.4 mg	2%
Potassium	268 mg	6%
Vitamin C	15.5 mg	17%

### FDA Compliant Nutrient Content Claims per 1-1.5 cup serving:

- Cherries are a good source of vitamin C
- Cherries are a good source of potassium (\*per 1.5 cups)
- Cherries are a good source of fiber (\*per 1.5 cup for Rainier cherries)
- Cherries are fat-free
   Cherries are cholesterol-free
- Cherries are sodium-free

Cherries are also **naturally low in calories**, making them a heart-smart fruit choice that fits into a wide variety of health-promoting eating patterns, including DASH, Mediterranean, and plant-forward diets.

### **Already-approved Northwest Chery claims:**

- Reduces inflammation
- Natural anti-inflammatory
- Low glycemic
- Fights cardiovascular disease
- Combats hypertension & stroke
- Helps with gout

- High in fiber
- Good source of natural melatonin
- Souce of potassium
- Source of vitamin C
- Fat Free
- Loaded with anthocyanins and flavonoids

### In addition, cherries may be used in FDA-compliant structure/function claims such as:

- Supports antioxidant defenses
- Helps maintain healthy blood pressure (thanks to their potassium content)
- Contributes to digestive health
- Supports joint and muscle recovery after exercise
- Supports cognitive function older adults
- Helps to promote a restful sleep (specific to tart cherry varieties)
- Helps support a healthy immune system

These claims are based on the nutritional profile of cherries and emerging evidence from human clinical trials. When used consistently as part of a balanced diet, cherries offer a nutrient-dense, research-supported option for supporting long-term health.



### Nutritional highlights of "good source" nutrients in cherries and their impact on human health:

### Good source of Vitamin C:

- Immune support: Dietary patterns that are high in vitamin C have been linked to reduced risk of cancer (breast, lung, colon); heart disease; age-related macular degeneration, and helps to protect against the common cold- especially during cold and flu season.
- Skin health: Vitamin C is a necessary cofactor in the <u>production of collagen</u>, the primary protein found in skin, cartilage and bones. Since collagen production declines as we age, consuming adequate vitamin C from whole food sources can help us to improve our body's natural collagen production and help to protect skin cells from damage over time. Plus, vitamin C is also a critical component fo wound healing and maintainign skin integrity by promoting cell turnover and protecting skin cells from damage.
- Vitamin C from cherries: A lesser known fact about vitamin C: while it's abundant in veggies and fruit, vitamin C is a heat & light sensitive nutrient. High temperatures can degrade the vitamin C content of cooked fruits and veg, therefore, eating it in raw food form (e.g. from cherries) is an excellent way to maximize the amount of vitamin C you'll actually get from food when you include more produce in your diet.

### Good source of fiber:

- **Promotes healthy digestion and regularity:** Fiber promotes the growth of healthy gut bacteria by acting as a prebiotic. These bacteria ferment fiber into short-chain fatty acids (SCFAs), which improve digestive health and support nutrient absorption. Plus, insoluble fiber adds bulk to the stool, aiding in its passage and preventing constipation.
- Supports heart health: Fiber can help to lower cholesterol levels by binding to bile acids in the intestine, which prompts the body to use cholesterol to produce more bile, thus lowering blood cholesterol levels and ultimately the risk of cardiovascular disease.
- Blood Pressure Control: Fiber helps in reducing blood pressure, likely due to its beneficial effects on cholesterol and weight management, as well as promoting better <u>arterial health</u>. Dietarypatterns high in fiber are linked to reductions in markers of chronic inflammation, which is a major risk factor for heart disease.
- Maintains healthy blood sugar levels: Soluble fiber forms a gel-like substance in the stomach, slowing
  the digestion and absorption of carbohydrates. This helps prevent blood sugar spikes and improves insulin
  sensitivity, which is particularly beneficial for managing diabetes. Diets high in fiber have been shown to
  reduce the risk of developing type 2 diabetes by improving insulin response.

### Good source of potassium:

- Aids in blood pressure regulation: Potassium helps maintain normal blood pressure by counteracting
  the effects of sodium. It helps relax blood vessel walls, which can reduce blood pressure and lower the risk
  of cardiovascular diseases, such as hypertension, heart disease, and stroke. Dietary Approaches to Stop
  Hypertension (<u>DASH</u>) Diet is a well-established intervention for the prevention and treatment of high blood
  pressure, and since cherries are a good source of potassium per one-cup serving, they're a delicious, seamlessly
  aligned snack to include when eating to lower or reduce risk of hypertension through diet and lifestyle.
- Plays a key role in maintaining fluid-electrolyte balance: Potassium is crucial for maintaining proper
  electrolyte balance in the body. It helps regulate fluid balance and supports normal muscle function,
  including the contraction of the heart and skeletal muscles.
- Supports nerve and muscle function: Potassium is essential for proper nerve function. It helps transmit
  nerve signals by maintaining the electrical charge across cell membranes. This is vital for various bodily
  functions, including muscle contractions, heart rhythms, and reflexes. Adequate potassium levels are
  necessary for preventing muscle cramps and maintaining overall muscle health.

### Part 2:

## Varietal differences of cherries and their nutritional attributes

### Nutritional Properties of Tart vs. Sweet vs. Rainier Cherries

Tart vs. Sweet vs. Rainier: Macronutrients

Macronutrient Comparison: Tart vs. Sweet vs. Rainier Cherries			
Nutrient	Tart Cherries (per 1 cup)	Sweet Cherries (per 1 cup)	Rainier Cherries (per 1 cup)
Calories	77 kcal	97 kcal	100 kcal
Total Fat	0.5 g	0.3 g	0.2 g
Saturated	0.1 g	0.1 g	0.05 g
Cholesterol	0 mg	0 mg	0 mg
Sodium	5 mg	0 mg	0 mg
Total Carbohydrate	19.0 g	25.0 g	26.0 g
Dietary Fiber	2.5 g	3.2 g	2.4 g
Sugars	13.0 g	20.0 g	22.0 g
Protein	1.6 g	1.6 g	1.3 g

Tart vs. Sweet vs. Rainier: Micronutrients

Micronutrient Comparison: Tart vs. Sweet vs. Rainier Cherries			
Nutrient	Tart Cherries (per 1 cup)	Sweet Cherries (per 1 cup)	Rainier Cherries (per 1 cup)
Vitamin A (IU)	40%	3%	2%
Vitamin C (IU)	17%	12%	13%
Potassium (mg)	6%	7%	6%
Calcium (mg)	1%	1%	2%
Iron (mg)	2%	3%	2%
Folate (mg)	2%	1%	1%

Tart vs. Sweet vs. Rainier: Bioactive Compounds & Antioxidants

Bioactive Compounds & Antioxidants: Tart vs. Sweet vs. Rainier Cherries			
Compound Type	Tart Cherries	Sweet Cherries	Rainier Cherries
Anthocyanins	Very High	High	Low
Quercitin	Moderate	Moderate	High
Vitamin C	High	Moderate	High
Melatonin	High	Moderate	Low
Hydroxycinnamic acids	Present	Present	Present
Flavonols	Present	Present	Present

### Benefits of bioactives found in cherries

Cherries contain a diverse range of antioxidant compounds that work through different—but complementary—mechanisms to support human health.

Anthocyanins: These are the natural pigments that give cherries their deep red and purple hues—and they do more than just add color. Anthocyanins act as powerful antioxidants, helping to neutralize free radicals (unstable molecules that can damage cells) and reduce inflammation in the body. They're known to influence key pathways involved in chronic disease, including one called NF-κB, which plays a role in the body's inflammatory response. By calming this pathway, anthocyanins may help protect against conditions like heart disease and support overall cellular health. (Mattioli, et al. 2020)

Quercetin: Quercetin is a type of flavonoid found in cherries that helps protect the body from inflammation and oxidative stress. It works in part by blocking enzymes like COX and LOX, which are involved in producing inflammatory compounds. Quercetin has also been studied for its role in supporting immune health, allergy relief, and blood vessel function, making it a multitasking antioxidant with benefits that go beyond general inflammation control. (Aghabebaei, et al. 2034)

Melatonin: Best known as the hormone that helps regulate sleep, melatonin is also a potent antioxidant found naturally in cherries. In addition to promoting better sleep quality, melatonin helps protect cells from damage by both directly scavenging free radicals and boosting the body's own antioxidant enzymes, like glutathione peroxidase. This dual action makes it especially beneficial for reducing oxidative stress, improving sleep, and supporting the body's natural repair processes. (Azzei, et al. 2024)

Hydroxycinnamic acids: These lesser-known antioxidants—like caffeic acid and ferulic acid—are part of a group of plant compounds that help protect fats, proteins, and DNA from oxidative damage. They may also support detoxification pathways in the liver and help regulate inflammatory signals in the body. Though not as widely discussed as anthocyanins or quercetin, these compounds still play an important background role in keeping cells healthy and resilient. (Coman, et al. 2019)

Flavonoids: Flavonoids are a large family of plant compounds that includes anthocyanins, quercetin, and other phenolics found in cherries. As a group, flavonoids help calm inflammation, relax blood vessels, and protect brain and heart cells from stress and damage. They work by influencing multiple systems in the body—reducing oxidative stress, supporting circulation, and even promoting healthy aging. Eating a variety of flavonoid-rich foods (like cherries) is one of the best ways to help your body stay balanced and protected over time. (Panche, et al. 2016)

## Contextualizing the Nutrition Facts & Evidence-Based Health Benefits of Sweet, Tart and Rainier Cherries

### Tart, Sweet, and Rainier Cherries: Contextualizing the Evidence

### Shared nutrient profile = shared functional benefits (to varying degrees):

Tart, sweet, and Rainier cherries are all rich in polyphenols, though the types and concentrations of these bioactive compounds vary by variety. Tart and sweet cherries contain significant amounts of anthocyanins, the powerful pigments responsible for their deep red color and many of their anti-inflammatory benefits. Rainier cherries, though lower in anthocyanins, are still rich in vitamin C, quercetin, and other non-pigmented flavonoids that contribute to antioxidant activity. All three varieties contain fiber, potassium, and plant-based compounds that help reduce oxidative stress and support long-term health.

### **Complementary nutrition = complementary health benefits:**

- Sweet cherries contain slightly more natural sugar and are higher in potassium and dietary fiber, supporting cardiovascular health, blood pressure regulation, and digestive health.
- Rainier cherries, while lower in anthocyanins, contain more vitamin C and quercetin than sweet or tart
  varieties, making them compositionally ideal for supporting immune health, oxidative balance, and
  broad-spectrum antioxidant protection.
- Tart cherries contain higher levels of anthocyanins, melatonin, vitamin A, and vitamin C, making them particularly well-suited for promoting sleep quality, exercise recovery, and reducing acute inflammation.

#### Differences in research = differences in focus, not in value:

Tart cherries dominate the published literature due to their high anthocyanin and melatonin content, which has led to targeted studies on sleep, muscle recovery, and inflammation. Sweet cherries are less commonly studied in acute settings, but since their chemical composition and antioxidant properties are aligned with tart cherries, much can be inferred about sweet cherries based on what we know about food chemistry & antioxidant biochemistry. Additionally, there is high quality existing research on sweet cherries that shows benefits for metabolic markers, inflammation, and cardiovascular outcomes. Rainier cherries have been studied less by comparison, largely due to research funding for strategic areas of focus—not because of a lack of health-promoting potential. Their bioactive profile strongly suggests unique and complementary benefits that warrant further investigation.

### A simple way to think about health-specific distinctions based on cherry variety:

- Tart cherries may offer more short-term, targeted benefits (e.g., improved sleep, faster recovery).
- Sweet cherries are associated with long-term, foundational benefits (e.g., heart and gut health).
- Rainier cherries provide broad antioxidant support with a sweeter flavor and distinct phytochemical profile.

Bottom line: Each cherry variety delivers meaningful, evidence-based health benefits—just in different ways. Tart cherries stand out in clinical research for their anti-inflammatory and sleep-supportive effects. Sweet cherries are rich in fiber and potassium and have demonstrated cardiovascular and anti-inflammatory benefits. Rainier cherries, though under-studied, provide unique antioxidant compounds that support immune function and oxidative balance. Including all three types of cherries—fresh or frozen, sweet, Rainier or tart—can help diversify nutrient and phytochemical intake to support whole-body health across seasons and stages of life.

### Part 3:

### **Evidence-based health benefits of cherries**

### Health benefits of cherries

There are a multitude of specific health benefits of cherries that are supported by high quality, peer-reviewed evidence. These include: Cherry antioxidant and anti-inflammatory properties; cherries and improving heart health; cherries and diabetes management; cherries and exercise recovery; cherries and cognitive function; cherries and cancer prevention; cherries and sleep improvement, cherries and stress management; cherries and gut health, and cherries as part of an overall health-promoting eating pattern tailored to weight-loss/management. The information provided below is an overview of why/what/how cherries provide these benefits, referencing the existing research supporting these claims.

### The antioxidant and anti-inflammatory properties of cherries

High concentrations of bioactive compounds make cherries a fruit that's well known for its antioxidant and anti-inflammatory properties, and provides greater context for the wider scope of research on the potential health benefits of cherries in both the short and long-term. Specifically, cherries provide antioxidant and anti-inflammatory properties that...

- Inhibit proinflammatory enzymes: Cherries contain high levels of anthocyanins and other
  polyphenols that inhibit the activity of cyclooxygenase (COX) enzymes, which are responsible for
  producing inflammatory compounds in the body. This inhibition reduces inflammation and associated
  pain, similar to the mechanism of action of some non-steroidal anti-inflammatory drugs (NSAIDs).
- Reduce oxidative stress: The potent antioxidants in cherries, including vitamin C, carotenoids, and phenolic acids, neutralize free radicals—unstable molecules that cause oxidative damage to cells and tissues. By reducing oxidative stress, these antioxidants protect against chronic diseases such as cardiovascular disease, cancer, and neurodegenerative disorders.
- Lower inflammatory markers: Regular consumption of cherries has been shown to decrease levels
  of inflammatory biomarkers like C-reactive protein (CRP) and various pro-inflammatory cytokines
  in the blood. This reduction in inflammatory markers contributes to the overall anti-inflammatory
  effects of cherries and their role in supporting heart health, muscle recovery, and immunity.
- Support cellular health: Cherries enhance the body's natural antioxidant defenses by increasing
  the activity of enzymes like glutathione peroxidase and catalase. This further helps to reduce
  lipid peroxidation, which damages cell membranes and contributes to inflammation and disease
  progression (Kelley, et al. 2006)

**Bottom line:** Cherries exert their anti-inflammatory and antioxidant effects primarily through mechanisms of action of anthocyanins and other polyphenolic compounds. These critical compounds work to reduce oxidative stress, inhibit pro-inflammatory pathways, and modulate pro-inflammatory compounds in the blood, making cherries a potent food choice to include more of to reduce risk of chronic disease and improve wellbeing overall.



### Cherries and heart health

Cherries, particularly tart and sweet varieties, are known for their cardiovascular health benefits due to their rich content of antioxidants, polyphenols, and other bioactive compounds.

- Anti-inflammatory and antioxidant properties: Cherries are rich in polyphenols and vitamin
  C, which reduce oxidative stress and inflammation, both major contributors to cardiovascular
  diseases. Studies have demonstrated that cherry consumption can lower markers of
  inflammation, such as C-reactive protein (CRP) and nitric oxide (NO), which have been linked
  to heart disease. A study published in 2006 showed that eating Bing sweet cherries for 28 days
  reduced CRP levels by 25% in healthy individuals (Kelley, et al. 2006).
  - By this same mechanism: Cherry intake has been associated with a 35% reduction in risk of recurrent gout attacks in adults, likely due to their ability to lower serum uric acid and suppress inflammation (Zhang, et al. 2012).
- Blood pressure regulation: Tart cherry juice has been shown to reduce systolic blood pressure (SBP) by about 7 mmHg in men with early hypertension, largely attributed to the mechanism of action of phenolic compounds found in cherries, which improve blood flow and lower blood pressure (Keane, et al. 2016).
- Improved lipid profile: Consumption of tart cherry juice has been linked to reductions in oxidized low-density lipoprotein (LDL) and vascular cell adhesion molecules, both of which play key roles in the development of atherosclerosis. While overall lipid profiles such as cholesterol levels showed trends of improvement, the most significant effects were reductions in markers of chronic inflammation and damage to arteries- also critical risk factors for cardiovascular disease (Johnson, et al. 2020).
- Cardiovascular disease prevention: Cherries' high anthocyanin content may prevent or mitigate
  cardiovascular disease by reducing oxidative stress and inflammation. Long-term studies suggest
  that regular consumption of cherries can reduce the risk factors associated with CVD, particularly
  in individuals with metabolic syndrome (Faienza, et al. 2020). A 2021 systematic review also
  concluded that cherry intake can reduce cardiovascular disease risk by improving inflammatory
  markers, oxidative stress, and endothelial function. (Keenan, et al. 2021).

**Bottom line:** The existing body of evidence supports the idea that cherries, particularly cherry juice, can improve certain specific aspects of heart health, such as reducing blood pressure and improving lipid profiles in humans. On the whole, eating more cherries / incorporating cherries into your diet may provide heart health benefits and decreased risk of oxidative stress when consumed consistently.



### Cherries and diabetes management

Cherries, particularly their extracts and juices, have been studied for their potential benefits in managing blood sugar levels and improving glucose tolerance in mechanistic and animal models, with some existing human data to support these glycemic benefits. Eating cherries regularly and incorporating them into an overall health promoting dietary pattern can help to support healthy blood sugar regulation.

- Antioxidant properties: Cherries are high in anthocyanins, which have been shown to lower blood sugar levels in rats by protecting cells from oxidative stress that can lead to insulin resistance over time (Lachin, et al. 2014).
- Metabolic benefits: Animal studies show that cherries help reduce fasting blood glucose,
  hyperlipidemia, and obesity-related issues, which are risk factors for type 2 diabetes. This
  demonstrates potential to prevent metabolic disorders associated with diabetes by consuming
  cherries, but due to the amount and frequency of consumption, it's difficult to ascertain the
  appropriate amount, form, and frequency of intake that might be appropriate for human
  consumption in the absence of this specific data set.
- Low glycemic-index: Cherries provide dietary fiber, which is known to slow down digestion and
  the absorption of sugar into the bloodstream, leading to more stable blood glucose levels. This
  mechanism is broadly recognized in nutritional research, as fiber has a well-established role in
  helping manage glycemic response.
- Anti-inflammatory Effects: Cherries have been shown to significantly reduce key inflammatory markers such as C-reactive protein (CRP) and tumor necrosis factor-alpha (TNF-α) in adults with metabolic syndrome, a condition closely linked to insulin resistance and type 2 diabetes—suggesting that regular cherry consumption may help support glycemic control through this mechanism of action (Kelley, et al. 2018).

Bottom line: Cherry intake appears to have promising benefits on glycemic control & healthy metabolic function in humans, though more research is needed to understand the true impact of this effect in humans with/at risk for developing diabetes. Though key insights are mixed across the research landscape, it's clear that despite the naturally-occurring sugar content of cherries, cherry consumption does not induce glucose spikes and can be consumed regularly as part of an overall health-promoting dietary pattern in individuals with prediabetes and diabetes.



### Cherries and exercise recovery

Cherries have been shown to aid in exercise recovery due to their rich antioxidant and anti-inflammatory properties.

- Reducing inflammation: Tart cherries reduce markers of inflammation like C-reactive protein (CRP) and interleukin-6 (IL-6), which helps in quicker recovery post-intense strength training (Bowtell, et al. 2011). Additionally, the high polyphenol and anthocyanin content of cherries can help to neutralize oxidative stress, reducing muscle damage caused by free radicals during exercise- particularly when consumed regularly prior to and post- periods of intense physical exertion. (McHugh, et al. 2022)
- Faster muscle recovery: Consuming tart cherry juice before and after exercise can accelerate muscle recovery by reducing strength loss and muscle soreness. Athletes reported improved perceptual recovery, including reduced delayed onset muscle soreness (DOMS) and better overall recovery experiences with tart cherry supplementation (Connolly, et al. 2006). Plus, research shows that the effectiveness of cherries may be enhanced when started a few days before exercise and continued for several days post-exercise, with a recommended phenolic content of at least 1000 mg/day. A recent meta-analysis also demonstrates that tart cherry supplementation may improve recovery time post-strenuous exercise. (Hill, et al. 2021)
- Recommendations for intake: Research suggests doses ranging from 8oz-16oz (240mL-480mL) of tart cherry juice or extract consumed twice per day. (<u>Levers, et al. 2015</u>). The concept of precovery is also discussed in this literature, showing a benefit of starting one's intake 2-7 days prior to intense exercise, and continuing 2-3 days post-exercise to optimize recovery. (<u>Rojano</u> Ortego, et al. 2020)

**Bottom line:** Research shows that tart cherries are effective for reducing inflammation, muscle soreness, and accelerating recovery post-strenuous exercise. For best results, consume 240-480 mL of tart cherry juice twice a day, starting a few days before exercise and continuing for a few days after intense training or athletic event.



### Cherries and cognitive function

Cherries have been studied for their potential to improve brain health and reduce risk of cognitive decline thanks to their antioxidant and anti-inflammatory properties.

- Anti-inflammatory and antioxidant effects: Cherries contain polyphenols that reduce
  inflammation and oxidative stress, both contributors to cognitive decline. Studies in microglial
  cells have shown that cherry extracts may reduce biomarkers such as nitric oxide and TNF-α,
  which are linked to inflammation and neurodegeneration (Shukitt-Hale, et al. 2016).
- Cognitive improvement in dementia: In a 12-week study, older adults with mild-to-moderate
  dementia who consumed 200 mL of anthocyanin-rich cherry juice daily showed improvements in
  verbal fluency, short-term, and long-term memory. Blood pressure was also reduced, which may
  benefit brain health (Kent, et al. 2017).
- Modulation of vascular function: Cherry concentrate acutely improved vascular function, which can support brain health by improving blood flow, although no direct cognitive improvements to mood or cognitive function were directly observed in this study (Keane, et al. 2016). Because vascular dysfunction is a key contributor to cognitive decline, these improvements in blood flow may indirectly support long-term brain health, even if short-term cognition changes are not always observed.

Bottom line: Cherries may reduce the risk of cognitive decline by decreasing inflammation and improving vascular health, though more research is needed to determine a specific cause and effect relationship between these variables and to understand the optimal timing of intake for humans at risk of developing cognitive decline. Based on existing data, recommended intake is around 200 mL of cherry juice per day or 60mL of tart cherry concentrate for general heart health and potentially neuroprotective benefits.



### Cherries and cancer prevention

Bioactives found in both sweet and tart cherries may inhibit tumor growth and proliferation in human cancer cells by neutralizing free radicals that promote oxidative stress; inhibiting enzymes COX1 and 2, which are involved in pro-inflammatory processes; inhibiting cancer cell proliferation, specifically in breast and colon tissue; triggering apoptosis (spontaneous death) of harmful cells, and inhibiting enzymes that promote tumor growth.

- Anti-cancer properties of anthocyanins and phenolic compounds: These bioactives, abundant in cherries, exhibit strong antioxidant and anti-cancer effects by modulating cell processes like apoptosis (programmed cell death), reducing oxidative stress, and inhibiting tumor growth. Sweet cherry bioactives-including phenolic compounds, carotenoids, and vitamins- have been shown to mitigate oxidative stress and reduce the risk of chronic diseases, including cancer (Fonseca, et al. 2021), and anthocyanins found in tart cherries have been shown to inhibit tumor growth in mice. (Kang, et al. 2003)
- Breast, prostate and colorectal cancer risk reduction: Cherries, particularly dark sweet cherries (Prunus avium), contain phenolic compounds that may reduce the risk of breast cancer by inhibiting cancer cell growth and inducing apoptosis without harming normal cells (Rabelo, et al. 2022). Mechanistic studies have shown that cherries may be beneficial for inhibiting cell growth and inducing apoptosis through various molecular pathways in breast cancer, and suggest the potential to inhibit cancer spread (Lage, et al. 2020). Tart cherry juice has been found to induce apoptosis and cytotoxicity in breast cancer cells, which suggests a protective role against certain cancers (Martin, et al. 2012). Dietary supplementation with tart cherries in animal models has been shown to reduce the development of inflammation-associated colorectal cancer, highlighting the potential for cherries to reduce cancer risk in humans (Hunter, et al. 2015).
- Anti-inflammatory Effects: The anti-inflammatory properties of cherries may further
  contribute to cancer prevention by reducing chronic inflammation, a key driver in cancer
  development (Ferretti, et al. 2010).

**Bottom line:** The bioactive compounds in cherries, particularly anthocyanins, phenolic compounds, and antioxidants, may help reduce the risk of cancer by modulating key cellular processes and reducing inflammation. There is early promise for the anti-cancer effects of tart cherries on breast and colorectal cancer risk, but the dose, amount and frequency of intake in humans is yet to be established.



### Cherries and sleep improvement

The sleep-enhancing effects of cherries are partly attributed to their (1) melatonin content and (2) the inhibition of the enzyme, indoleamine 2,3-dioxygenase (IDO), which increases tryptophan availability and reduces inflammation. As a dietary source of fiber, vitamin C, potassium, and antioxidants, including anthocyanins, quercetin, chlorogenic acid, cyanidin, cherries can play a critical role in immune support and decreasing risk of chronic disease. Therefore, improving sleep through increased cherry consumption may play a pivotal role in supporting holistic health through a non-medical intervention and without the potential risks associated with taking a dietary supplement.

- Melatonin content: Cherries are rich in melatonin, a hormone that regulates the sleep-wake cycle. Studies have shown that consuming tart cherry juice can increase melatonin levels and improve sleep quality and duration. (Howatson, et al. 2012, Kelley, et al. 2018)
- Inhibition of Tryptophan-Degrading Enzymes: Cherries contains procyanidin B-2, a polyphenol that inhibits indoleamine 2,3-dioxygenase (IDO)-- an enzyme that degrades tryptophan—a precursor to serotonin and melatonin. By inhibiting this enzyme, cherries may increase tryptophan availability, supporting serotonin and melatonin synthesis, which are crucial for regulating sleep (Losso, et al. 2018). Cherries also provide some tryptophan naturally (Kelley, et al. 2018).
- Sleep efficiency and duration: In elderly participants with insomnia, drinking 8oz of tart cherry juice twice per day significantly increased sleep time by 85 minutes compared to placebo, suggesting its efficacy in improving sleep duration (<u>Liu, et al. 2014</u>). In a randomized, double-blind, placebo-controlled pilot study, older adults with insomnia who consumed tart cherry juice twice daily for two weeks experienced significant improvements in sleep efficiency and total sleep time, supporting the role of cherries as a natural dietary intervention for better sleep quality. (Pigeon, et al. 2010)
- Improved sleep parameters: A study on middle-aged and elderly humans consuming cherry-enriched diets showed improvements in sleep parameters, including actual sleep time, total nocturnal activity, and immobility, along with increased melatonin levels (Garrido, et al. 2010).

**Bottom line**: Research shows that cherries,, can improve sleep quality by increasing melatonin and reducing symptoms of insomnia across age groups, largely due to their antioxidant properties and role in tryptophan metabolism. Drinking 8oz of tart cherry juice twice per day may be beneficial in reducing insomnia symptoms and improving sleep quality/duration in adults, and provides a safer and more antioxidant-rich alternative to dietary supplements such as melatonin.

### Cherries and gut health

Cherries have been studied for their potential benefits on gut health due to their rich content of fiber and polyphenols. These compounds can influence gut microbiota composition and the production of short-chain fatty acids (SCFAs), which are important for gut health.

- Increased beneficial bacteria: Consumption of cherry-derived polyphenols has been shown to shift gut microbial composition in favor of beneficial bacteria, such as *Bifidobacterium* and *Lactobacillus* species. In a human pilot study, intake of cherry-based products increased the abundance of microbes linked to anti-inflammatory and metabolic benefits, suggesting that cherries may serve as a prebiotic food that supports a healthy gut environment. (Peer, et al. 2018)
- Production of short-chain fatty acids: Cherry polyphenols and fiber serve as fermentable substrates for gut microbes, which metabolize these compounds into SCFAs like butyrate and propionate. These SCFAs are crucial for maintaining colon health, reducing inflammation, and supporting immune function. A recent study found that cherry consumption significantly increased SCFA production, further strengthening their role in supporting gut and metabolic health. (Arbizu, et al. 2024)
- Potential to improve intestinal barrier function: Polyphenols in cherries may enhance gut barrier integrity by reducing gut permeability (also known as "leaky gut"). In a 2024 randomized crossover trial, cherry supplementation showed potential to improve markers of intestinal barrier function, though results were not consistent across all participants. An earlier study found no significant changes, suggesting that individual response or baseline gut health may influence outcomes. Ultimately, the research and mechanism of action in this area of study is promising, so much research is needed to determine amount, frequency and type of cherry intake in which individuals is most beneficial for improving gastrointestinal health. (Arbizu, et al. 2024; Hillman, et al, 2021)
- Anti-inflammatory properties benefit GI health: Chronic inflammation in the gut is linked to a
  range of digestive disorders, including IBD and IBS. Cherry anthocyanins have been shown to
  reduce inflammatory markers in the gastrointestinal tract by modulating pathways such as
  NF-κB. Animal studies suggest that cherry extracts may decrease colon inflammation and reduce
  expression of pro-inflammatory cytokines, supporting their role in maintaining a balanced and
  healthy gut. (Alba, et al. 2017)
- Fiber and sorbitol may benefit gut health in the long term—but cause discomfort short term: Cherries contain both fiber and sorbitol, a naturally occurring sugar alcohol that can ferment in the gut and draw water into the intestines. This can lead to gas, bloating, or loose stools—particularly in individuals with sensitive digestion or irritable bowel syndrome (IBS). These effects are typically mild and temporary, and may be mitigated by starting with smaller portions (e.g., ½ cup at a time); eating cherries with a meal that contains protein or fat (to slow digestion); avoiding other high-sorbitol foods (like apples or pears) during the same eating occasion; and choosing fresh or frozen cherries over dried, which are more concentrated in sorbitol. (Yao, et al. 2014)

**Bottom line:** Thanks to their rich content of polyphenols and fiber, cherries can support a healthier gut microbiome, increase production of short-chain fatty acids, and potentially improve intestinal barrier integrity. While more human research is needed to confirm long-term effects, current findings suggest that including sweet or tart cherries as part of a fiber- and antioxidant-rich eating pattern may support digestive health, reduce gut inflammation, and enhance microbial diversity—without the need for supplements



### Cherries and skin health

Cherries contain a unique combination of nutrients and antioxidants that may help support skin health by protecting against oxidative stress, promoting collagen synthesis, and reducing inflammation.

- Vitamin C supports collagen production and skin elasticity. Cherries—especially Rainier and tart varieties—are a natural source of vitamin C, which plays a vital role in collagen synthesis, skin repair, and protection from UV-induced oxidative stress. One cup of cherries can contribute ~10-15% of the Daily Value for vitamin C, helping maintain skin firmness and resilience over time.
- Polyphenols protect against oxidative damage. Cherries are rich in anthocyanins, quercetin, and
  other polyphenols that act as antioxidants, helping to neutralize free radicals and protect skin cells
  from oxidative stress, which contributes to visible signs of aging such as wrinkles and fine lines.
- Anti-inflammatory effects may reduce redness and irritation. Inflammation contributes to a
  number of skin conditions, including acne, rosacea, and accelerated skin aging. The
  anti-inflammatory properties of cherries, driven by their polyphenol and vitamin C content, may
  help reduce redness and irritation by dampening inflammatory pathways and promoting skin
  barrier integrity.
- Improved antioxidant status may translate to improved skin biomarkers. In a recent study, 8 weeks of sweet cherry consumption improved antioxidant capacity (increased GSH:GSSG ratio) and reduced markers of systemic inflammation in adults with overweight and obesity. While this study didn't measure skin-specific outcomes, improvements in oxidative balance and inflammation are well-known contributors to healthier skin tone, texture, and resilience (Goncalves, et al. 2024)

**Bottom line:** Cherries offer skin-supportive nutrients like **vitamin C**, **anthocyanins**, **and quercetin**, along with antioxidant and anti-inflammatory properties that may help promote smoother, more resilient skin. While more research is needed to directly link cherry intake to visible improvements in skin health, current evidence suggests that adding cherries to the diet can help protect skin from the inside out.



### Cherries and weight management

Cherries offer several properties that may make them a helpful addition to dietary patterns aimed at maintaining a healthy weight.

- Nutrient dense, energy poor. One cup of sweet cherries contains about 90–100 calories, but
  provides fiber, vitamin C, potassium, and antioxidants. Plus, since they deliver volume and
  satisfaction without excess energy, they're a smart snack swap compared to ultra-processed,
  high-calorie foods.
- Fiber content helps to boost satiety. Cherries contain ~2.5–3.2g of dietary fiber per cup, which slows digestion and helps you feel fuller for longer. Fiber also supports stable blood sugar levels, reducing the likelihood of cravings or overeating later in the day.
- Nutrient profile supports a healthy metabolism. A recent study showed that 8 weeks of sweet cherry consumption improved markers of metabolic health, including reduced insulin levels, decreased inflammatory markers (like IL-6), and modest reductions in BMI compared to placebo While total weight loss was not significant, these findings suggest that cherries may help support metabolic balance and reduce risk factors associated with weight gain. (Goncalves, et al. 2024)
- Anti-Inflammatory Effects May Support Hormonal Balance Chronic, low-grade inflammation
  is associated with increased fat storage and difficulty losing weight. Cherries are rich in
  anthocyanins, vitamin C, and quercetin, which help reduce inflammation, potentially supporting a
  more favorable metabolic profile.
- Improved sleep & stress = indirect weight loss support. Cherries contain natural melatonin and
  have been shown to improve sleep quality. Better sleep is associated with improved appetite
  regulation and reduced risk of weight gain over time.

**Bottom line:** Cherries are not a "fat-burning" food, but they offer a combination of fiber, antioxidants, anti-inflammatory compounds, and low energy density—all of which can support healthy weight maintenance. Including them as part of a balanced, plant-forward diet may help reduce metabolic risk factors and promote long-term weight management.

### Part 4:

### **Cherry Myth-Busting**

### Cherry myths, debunked

Despite decades of research supporting the health benefits of cherries, there's still a surprising amount of confusion—and misinformation—about what this nutrient-dense fruit can (and can't) do. From blood sugar fears to supplement comparisons and seasonal myths, cherries are often misunderstood in both wellness circles and everyday conversations. The truth? Whether sweet, Rainier or tart, fresh, frozen, or dried, cherries offer a powerful mix of antioxidants, fiber, and polyphenols that support everything from heart and brain health to sleep and digestion.

\*\*Note that the myths addressed in this section are aligned to top keyword search terms on cherries:

- "Are cherries good for weight loss?"
- "Are cherries high in sugar?"
- "Do cherries help with memory?"
- "Are frozen cherries less nutritious than fresh?"
- "What are the health benefits of cherries?"
- "Can I eat cherries year round?"

### Myth 1: Cherries are high in sugar and should be avoided if you have diabetes.

While cherries do contain natural sugars, they have a low to moderate glycemic index (GI of ~20–25), meaning they don't spike blood sugar quickly. Their fiber and polyphenol content can help improve insulin sensitivity.

In fact, research suggests cherries may actually help lower the risk of type 2 diabetes and metabolic syndrome. (Kelley, et al. 2018)

### Myth 2: You need to eat a whole bowl of cherries to get any sleep benefits.

You don't need to overdo it to see results—even small amounts of cherry juice (around 8 oz per day) have been shown in clinical studies to increase melatonin levels, improve sleep quality, and reduce symptoms of insomnia. While tart cherries have been studied more than sweet varieties in the context of sleep, the key takeaway is that a modest daily serving can be enough to support better rest. (Pigeon, et al. 2010)

### Myth 3: Cherry supplements are more effective than juice or whole cherries.

Many supplements contain isolated cherry compounds, but most studies showing health benefits—such as improved sleep, reduced inflammation, and muscle recovery—used whole cherry juice or concentrate, not extracts or powders. Whole cherries deliver a complex mix of antioxidants and phytochemicals, which may work together to produce greater effects than single compounds alone.

### Myth 4: The health benefits of cherries only apply to athletes, not moderately active adults.

Cherries are rich in anthocyanins, which modulate inflammatory pathways and oxidative stress. Studies have shown benefits for: Arthritis/gout (lowering uric acid); exercise recovery (reducing DOMS and muscle loss), and cardiovascular markers (improving LDL, BP, CRP) (McHugh, 2022)

### Myth 5: The cognitive benefits associated with eating cherries are overstated.

Anthocyanins in cherries may help protect brain cells from oxidative damage and improve cognitive performance in older adults. Several small human studies have shown improved working memory, verbal fluency, and reaction time after cherry juice consumption. (Kimble, et al. 2018)

### Myth 6: Cherries cause digestive issues and should be avoided for gut health.

While cherries can cause gas or bloating in some individuals—due to their natural fiber and sorbitol content—this doesn't mean they're bad for gut health. In fact, both fiber and polyphenols in cherries support the growth of beneficial gut bacteria and the production of short-chain fatty acids, which are essential for digestive and immune health. For those with sensitive digestion or irritable bowel syndrome (IBS), these effects can often be minimized by eating smaller portions (e.g., ½ cup at a time), pairing cherries with a meal that includes protein or fat, and choosing fresh or frozen cherries over dried. When included regularly as part of an overall health-promoting eating pattern, cherries can support a healthier GI tract and overall digestive function.

### Myth 7: Dried cherries are basically candy and should be avoided.

It's true that while dried cherries still contain antioxidants and fiber, they *are* a more concentrated source of natural sugars, calories, and sorbitol compared to their fresh or frozen counterparts. This concentration can increase the likelihood of digestive symptoms—particularly in people with sensitive guts—and makes it easier to overeat, which can further exacerbate GI side effects. For blood sugar management, hydration, and gut comfort, fresh or frozen cherries are typically a better option. That said, dried cherries can still be enjoyed in moderation—look for unsweetened varieties and stick to standard portion sizes (½ cup = 1 serving).

### Myth 8: Frozen cherries are less nutritious than fresh.

Frozen cherries are picked at peak ripeness and flash-frozen within hours of harvest, which helps preserve their nutrient content—especially heat- and light-sensitive compounds like vitamin C and anthocyanins. In many cases, frozen cherries retain just as many (if not more) antioxidants and vitamins as fresh cherries that have been stored or transported over time. Whether fresh or frozen, cherries are a convenient, nutrient-rich choice for adding flavor, fiber, and powerful plant compounds to meals and snacks year-round.

### Myth 9: Sweet cherries aren't as healthy as tart cherries.

Tart cherries are more frequently studied in specific clinical settings, especially for their effects on sleep, inflammation, and exercise recovery—but that doesn't mean sweet cherries aren't beneficial. Sweet cherries are a rich source of vitamin C, potassium, anthocyanins, and fiber, and have been shown to support heart health, reduce markers of inflammation, and provide antioxidant protection. Tart, sweet and Rainier cherries offer unique nutritional advantages, and incorporating them into a balanced eating pattern can support long-term health and chronic disease prevention.

### Myth 10: Cherries are only healthy when they're in season.

While peak cherry season typically spans from late spring through early summer, cherries remain a healthy choice year-round—thanks to freezing and other preservation methods that lock in nutrients at the peak of ripeness. Frozen cherries are flash-frozen within hours of harvest, which helps retain key nutrients like vitamin C, potassium, and polyphenols. Research shows that frozen cherries retain comparable antioxidant content to fresh, making them a convenient and nutritious option no matter the season. Whether fresh or frozen, cherries provide consistent health benefits all year long.

### Myth 11: Dark cherries are higher in antioxidants vs. Rainier cherries.

Rainier cherries have a lighter color and lower anthocyanin content compared to Bing and other dark sweet varieties, but this simply indicates *different* composition of bioactives- not necessarily a "better" one. Pigment indicates anthocyanin content in the skin, showing concentration of one class of antioxidants in one part of the fruit. By contrast: Rainiers contain more vitamin C and quercetin, two potent antioxidants that support immune health, skin health, and oxidative balance. Including a mix of cherry types—dark sweet and Rainier—can offer a broader spectrum of health-promoting bioactives.

#### Myth 12: Cherries are too sugary to help with weight loss.

Despite their natural sweetness, cherries are low in calories, high in water, and contain fiber—making them a satisfying, nutrient-dense snack that can help support weight management. One cup of sweet cherries contains ~90–100 calories and 3g of fiber. Their antioxidant and anti-inflammatory properties may also support better blood sugar regulation and metabolic health. (Goncalves, et al. 2024)



### Part 5:

## Telling the story of the health benefits of Northwest Cherries

### Leveraging Research for Real Life Application Through Content & Marketing

Based on the findings of this research review, there's an opportunity to reimagine and elevate the role of Northwest cherries in everyday wellness—using science-based messaging paired with inspirational and culturally relevant content.

### Meet consumers where they are by knowing what they're looking for

To bring the research to life for consumers, the table below maps specific health goals to the science-backed benefits of cherry consumption. These insights can help guide content creation, shopper marketing, and retail storytelling by aligning cherries with real-world wellness priorities.

Cherry Health Benefits by Goal		
Health Goal	How Cherries Can Help	
Better Sleep	Melatonin + tryptophan pathway support	
Gut Health	Fiber + polyphenols support good bacteria	
Glowing Skin	Vitamin C + quercetin + anti-inflammatory action	
Weight Management	Low-calorie, high-satiety, nutrient dense	
Hearth Health	Potassium + anti-inflammatory polyphenols	
Recovery from Workouts	Reduces DOMS and inflammation (especially tart)	

### Content Marketing Strategy Consideration: Deep-Dive Into Hyper-Specific, Health-Related SEO Keywords

Currently, the Northwest Cherries presence on social platforms is focused on broad statements about macro health benefits e.g. "heart health," "skin health," "gut health," etc. But today's consumer (especially Gen Z) look to social media to answer search questions, e.g. "best foods for gut health." Instead of Instagram carousels that list high-level macro benefits, dive into the top search terms in each category to use as content inspiration, and consider incorporating some of these questions as subheadings in blog posts, FAQs on your website, or even "Ask an RD" Instagram Reels, which are naturally search- and algorithm-friendly. Some examples:

### Sleep

- "Do cherries really help you sleep better?"
- "How much cherry juice should I drink for sleep?"
- "Best natural sources of melatonin for sleep"
- "Best late night snacks for sleep"

### Skin Health & Beauty

- "What to eat for better skin"
- "Fruits that support collagen production"
- "Is vitamin C in fruit good for skin?"
- "Can eating cherries help with acne or redness?"

### Specific storytelling concepts

Below are storytelling strategies to connect health benefits to real-life eating moments, lifestyle habits, and consumer aspirations. These can be activated through:

- Shopper marketing (in-store)
- Blog/website content
- PR/Communications strategy
- Retail media & email marketing
- Influencer activation
- Paid social
- B2B pitches to buyers and trade partners

### **Cherry Coded Everything**

Inspired by Pinterest Predicts 2025, "**Cherry Coded**" is a cultural aesthetic—rich cherry hues in fashion, nails, makeup, and design.

- Pop culture meets produce: Partner with influencers outside of the food & nutrition verticals to launch a cherry coded campaign in collaboration with beauty and fashion influencers to pair cherry-red nail art, makeup & accessories with fresh cherries
- Consider leaning into the color's cultural moment through point of sale displays & end caps
- Housewares collection collaboration with a retail partner for a line of cherry-themed storage containers designed to keep cherries at optimal freshness; cherry pitters; cherry bowls, and tools for making cocktails & mocktails using fresh cherries.

### Cherries as a preventative health "must-have"

- Rich in antioxidants, bioactive compounds, vitamin C, and fiber, cherries have powerful health benefits for reducing risk of heart disease, diabetes and cancer; supporting overall immunity, and contributing to feelings of relaxation that also improve sleep.
- February Heart Month aligns with Cherry Month, so creating campaigns at point of sale that builds on this messaging builds on existing relevance for consumers.
- Retail dietitian activation geared to highlight cherries as a *functional fruit* for heart health.
- Tap into research on blood pressure lowering compounds found in cherries and develop a content strategy around blood pressure keyword search terms, e.g. "foods to lower blood pressure."
- Cherries as your skincare-enhancing sidekick
- The combo of vitamin C, anthocyanins, and quercetin found naturally in cherries support collagen production and reduce oxidative stress all of which help to support healthy skin texture and appearance.
- Influencer marketing campaign / activation that capitalizes on the GRWM/morning skincare routine and encourages influencers to include cherries as a part of breakfast to pair with their existing skincare regimen.
- Activate dermatologists and skincare experts for content partnerships on TikTok, Instagram and YouTube

### Cherries as a go-to snack for pro and everyday athletes

- Co-branded sampling or digital partnerships with local gyms, boutique fitness studios, and endurance training programs.
- Explore opportunities to become "the official recovery sponsor of the NFL" (and/or other leagues/organizations)
- Bundle promotions for "recovery" at point of sale; in-app activations (Instacart, DoorDash), and as part of email marketing outreach.
- Consider a social series tapping food & wellness creators that use cherries as an ingredient in recovery focused snacks & drinks, e.g. "recovery smoothie."

### Cherries as a staple of a Mediterranean or DASH diet

- Produce aisle recipe cards or shelf talkers: "Mediterranean Approved: Cherries in grain bowls, salads, and snack plates."
- Leverage paid media around organic keywords, e.g. "Mediterranean Diet recipes," "Mediterranean diet breakfasts," "Mediterranean diet health benefits."
- Crossover shopper marketing activations with aligned CPG brands in the space, e,g. Garza extra virgin olive oil; Fage plain Greek yogurt; The Only Bean, etc.

### Cherries as a no added sugar candy alternative/sweet treat

- Position dried sweet cherries as a better for you alternative to candy thanks to sweet taste, fiber and sorbitol → sweetness with more blood sugar stability vs. ultra-processed sweets.
- Taps into consumer conversation around eating foods without additives/dyes/sweeteners
- Engage creators for UGC, e.g.: Ryan Fisch & Bethenny Frankel.

### Cherry-centered "stress free" recipes

- Capitalizing on the sleepy girl mocktail trend that was popularized in the first half of the decade, it's time to leverage this momentum and show their cherries' culinary range.
- Chef or food creator partnerships: savory, spicy, tangy, and global dishes featuring cherries.
- Media events focused on the concept of eating to de-stress, with menus featuring cherries and leverage other ingredients with calming antioxidant properties
- Create / repurpose existenting content on the Northwest Cherries <u>Pinterest</u> platform around health-specific keywords, e.g. "best foods to eat for stress" to tap into new audiences using nutrition, health and weight-loss keywords to enhance discoverability through Google search
- Build off of the sleepy girl mocktail to create the next generation of recipes for a) less stress and b) a better night's sleep: cherry salsa, cherry glazed salmon, cherry tahini dressing, etc.
- "Less stress" can also have a dual meaning of the stress-reduction benefits *and* helping to enhance flavor through easy, low-lift recipes using cherries.

### Cherries as a picnic/summer entertaining staple

- Seasonal packaging and marketing: "The Star of Summer Snacking."
- Co-branded events with sparkling water, alcohol, cheese, or canned mocktail brands, plus storage and transport brands (e.g. Aldi fruit storage containers)
- Consider paid UGC around picnics, beach snacks, and outdoor eating occasions "Pack a Better Picnic with Cherries."

### Cherries as an on-the-go snacking staple

- "Throw in your bag, fuel your day" messaging.
- Partner with influencers in travel, busy moms, & commuters.
- POS materials: "Snacking just got a little sweeter (and smarter)."

### Cherries as a weight-loss and GLP-1 friendly snack

- With more consumers using GLP-1 medications, cherries are an ideal snack that can be easily pre-portioned, paired with high-protein foods, and deliver a "sour candy" like flavor. They're also hydrating and a good source of fiber—whether fresh, frozen, or dried (unsweetened).
- Consider In-app or digital promotions with weight-management platforms or coaching programs
- Consider co-branding or aligning snacking guides that focus on specific needs of GLP-1 users, e.g. "cherries as a good source of fiber."

### Cherries as a lunchbox friendly snack

- Cherries are naturally sweet, colorful, and fun to eat—making them perfect for kids' lunchboxes or after-school snacks.
- Consider enhancing & broadening kid-friendly recipe content, e.g. yogurt pops, smoothie bowls, muffins & baked goods; etc.
- Align with strategic influencers in the healthy eating for kids space, e.g. <u>Malina Malkani</u> & Dani Lebovitz
- Consider activating around the phrase, "cherry picking" with content around introducing new foods with familiar ones; how cherries are a beloved food by picky eaters, and how to get kids to try new things with cherries as part of the meal.

### Cherries as a Brain-Boosting Snack for Focus and Cognitive Health

- Cherries contain anthocyanins and polyphenols that help protect brain cells from oxidative stress and inflammation—both of which can affect memory, focus, and long-term cognitive function. Research suggests that cherry consumption may support working memory, verbal fluency, and mental clarity in older adults, but have a captive audience among the Gen Z consumer who's in search of natural nootropic compounds to help improve focus and mental clarity.
- Position cherries as a "snack for focus" for students, remote workers, and busy professionals
- Create social content around "cherry brain breaks" or "snack smarter during study hour"
- Collaborate with productivity influencers or wellness creators on Snapchat/YouTube/ TikTok showcasing cherry-forward snacks for long workdays
- In-store or online bundles: cherries + dark chocolate + green tea = brain-boosting snack pack

### **Bundle concepts**

These concepts could be used with fresh, frozen or unsweetened dried cherries and in collaboration with a retailer such as Whole Foods, Aldi or Costco

- Athletic recovery bundle: Northwest Cherries + Nuun Hydration Tabs + Topical Magnesium Spray
- Sleep-support set: Northwest Cherries + SleepyTime Tea + Lavender Essential Oil Spray
- Skincare brunch kit: Northwest Cherries + Vital Protein Collagen Stick Packs + Ceramide Serum