



Anticancer
LIFESTYLE PROGRAM

THE POWER OF HERBS AND SPICES:

*Cooking Your Way
to Better Health*

By Crystal Pace, MS, RD

About *Crystal*

Crystal is a Registered Dietitian (RD), yoga teacher, Certified Intuitive Eating Counselor, and Board-Certified Health and Wellness Coach (NBC-HWC) who is passionate about Anticancer living. After graduating with her B.S. degree in nutrition from the University of New Hampshire, Crystal went on to pursue her M.S. degree in nutrition from New York University.

Crystal believes in the importance of looking at all aspects of lifestyle, and taking a personalized, holistic approach toward optimal health and well-being. She coaches in the ACLP module areas of Diet, Fitness, and Mindset. In her free time, Crystal enjoys trying new recipes, visiting farms, shopping at farmers markets, doing yoga, being outdoors, traveling, reading and most importantly: living an anticancer lifestyle!



In this eBook, we'll discuss the importance of incorporating herbs and spices into your diet. Herbs and spices can make your dishes beautiful and your taste buds sing! You might be unaware that they offer powerful health benefits as well.



Table of Contents

*(*Click on segment title to go directly to that segment.)*

6

The difference between herbs and spices

8

Fresh versus dried: which is better?

10

Three all-stars: turmeric, ginger, and garlic

22

**CHART: Common herbs and spices:
benefits and suggested uses**

26

**Cooking with herbs and spices:
the basics**

29

**Recipes: Making your own herb
and spice blends**

32

**How to store herbs and spices,
and “revive” old ones**

34

How to preserve fresh herbs

38

How to grow your own herbs

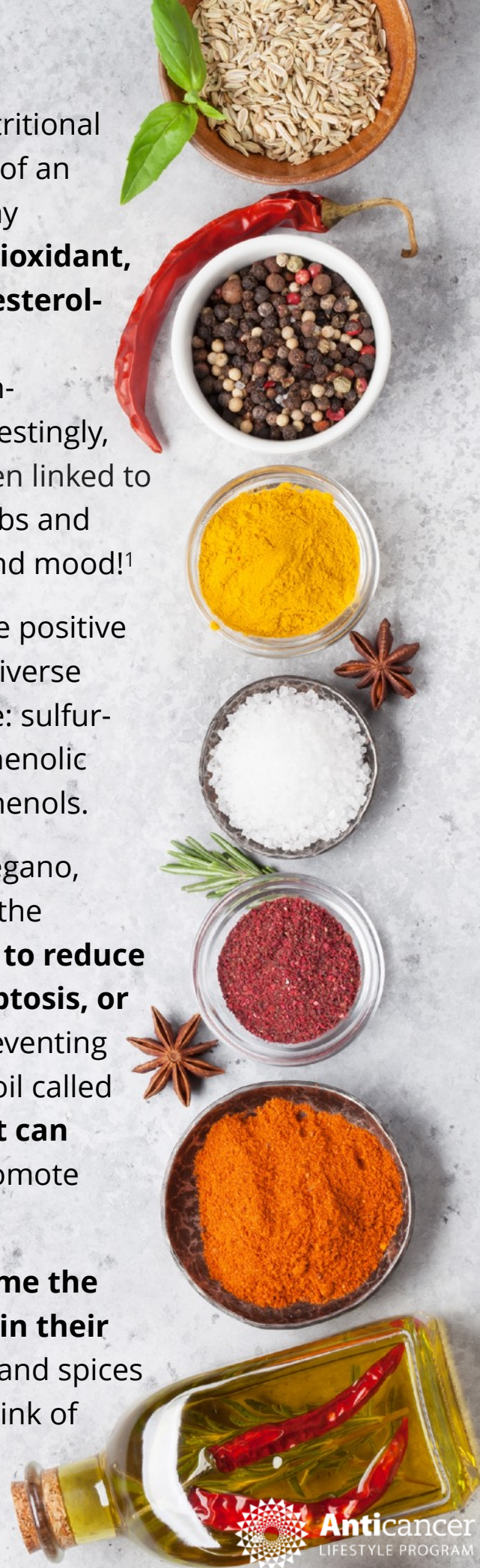


Offering powerful medicinal benefits and nutritional value, herbs and spices are an essential part of an Anticancer diet. Most herbs and spices display **antimicrobial, anticancer, anti-tumor, antioxidant, anti-inflammatory, and glucose- and cholesterol-lowering activity.**¹ Herbs and spices contain **phytonutrients**, which are protective, health-promoting compounds found in plants. Interestingly, frequent consumption of spicy foods has been linked to a lower risk of death from cancer.¹ Some herbs and spices may even positively affect cognition and mood!¹

Over the past decade, research has linked the positive health benefits of herbs and spices to their diverse bioactive constituents. Some of these include: sulfur-containing compounds, tannins, alkaloids, phenolic compounds, vitamins, flavonoids, and polyphenols.

For example, herbs like rosemary, thyme, oregano, basil, and mint are rich in essential oils from the terpene family. **Terpenes have been shown to reduce the spread of cancer cells and induce apoptosis, or natural cell death,** which is important in preventing the development of tumors.² Parsley has an oil called **myristicin with anti-tumor properties that can neutralize carcinogens** (substances that promote cancer) from smoke created by grilling.³

Research supports that it is best to consume the phytonutrients found in herbs and spices in their natural form, not as supplements.⁴ Herbs and spices may live in your spice cabinet, but you can think of them as part of your medicine cabinet, too!






Herbs and Spices: *what's the difference between them?*

Spices can come from any part of a plant, including the bark, roots, berries, seeds, leaves, or twigs. They are used to enhance the flavor, color, and aroma of your food, and can protect you from both acute and chronic diseases. While spices are usually dried, many of them—such as turmeric and ginger—can also be used in their fresh form. Spices with anticancer activity include—but are not limited to—turmeric, ginger, cinnamon, cayenne pepper, cloves, and allspice.

Herbs, unlike spices, are specifically derived from the green or leafy part of a plant, and can be used fresh or dried. They are commonly used in higher quantities when compared to spices. The reason for this is that spices are often more potent and stronger in flavor than herbs. Herbs are used for seasoning and flavoring and, like spices, many have medicinal uses.



Fun fact: Some plants produce both herbs and spices! For example, *Coriandrum sativum* yields both an herb — cilantro — from its leaves, and a spice — coriander — from its seeds. Dill is likewise both an herb (its leaves) and a spice (its seeds).





Herbs and Spices: *Fresh or Dried?*

You may be wondering about the best way to consume herbs and spices: fresh or dried? **The answer is: it depends. It's safe to say that both fresh and dried herbs and spices contain a significant amount of antioxidants and other beneficial compounds.**^{5, 6} Some research has found higher concentration of useful compounds in the dried forms of coriander, rosemary, sage, and thyme.⁵ But sometimes, as with garlic and ginger, fresh is best! **The important thing to remember is that both forms are beneficial.**

From a culinary perspective, fresh herbs work well in raw dishes, such as salads, or as garnishes for cooked dishes. They don't typically hold up well in cooked dishes because 10 or 15 minutes of heat can cook away the volatile oils that give fresh herbs their flavor. That said, certain herbs, such as parsley, tarragon, and chives, add much more flavor to a cooked item when they are fresh.



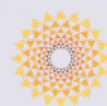
How to Substitute Dried Herbs for Fresh: Dried herbs are 3-4x more potent than fresh herbs. To substitute the dried form of an herb in a recipe that calls for fresh, use 1/4 -1/3 of the amount listed in the recipe. For example, if a recipe calls for 1 tablespoon of fresh basil and you only have dried basil, use 1 teaspoon of dried basil. (Helpful fact: 1 tablespoon = 3 teaspoons) Go easy – start small and increase as needed.





Three all-stars: *turmeric, ginger, and garlic*

Some herbs and spices have particularly powerful health benefits. Let's start with a deep dive into three of them: two spices – turmeric and ginger – and one vegetable – garlic – that is often grouped with herbs and spices.



Turmeric

Turmeric is an Indian spice commonly used to make curries and mustard. It has a deep yellow-orange color, attributed to the powerful **antioxidant curcumin**, and is considered **one of the most powerful natural anti-inflammatories**.¹ Studies suggest that the incidence of certain cancers is lower in individuals who consume curcumin regularly compared to those who do not.⁷ **Curcumin may inhibit tumor initiation, promotion, invasion and metastasis; induce apoptosis (natural cell death), and impair blood supply to the growing tumor.**⁷ Several studies reported curcumin's anti-tumor activity on breast cancer, lung cancer, head and neck squamous cell carcinoma, prostate cancer, and brain tumors.⁷ It also has **antimicrobial** activity.⁸



Studies suggest **turmeric may also benefit cardiovascular health** by helping to lower cholesterol levels and increase the “good” cholesterol.¹ Individuals who suffer from Irritable Bowel Syndrome (IBS) may benefit from incorporating turmeric into their diet due to **its potential to reduce pain and discomfort associated with IBS**.¹ Other potential benefits of consuming turmeric include¹ — but are not limited to — the following:

- Antibacterial activity
- Supporting brain health and cognitive function
- Antidepressant effects
- Joint and muscle health
- Blood sugar control
- Benefits to human metabolism



Turmeric and Cognitive Function: Consuming turmeric (in curries) may improve memory retention and preserve cognitive function.¹ Studies have found benefits related to cognitive function even with low to moderate curry consumption!



Tips for Cooking *With Turmeric*

In order to maximize the anti-inflammatory benefits of turmeric, try to ingest it with:

- **A pinch of black pepper.** Piperine, the active component of black pepper, helps enhance curcumin absorption.
- **A healthy fat** such as extra virgin olive oil, or fatty foods such as salmon, avocado, or nuts and seeds. Turmeric is fat-soluble (meaning it dissolves in fat) so consuming it with a fat can significantly increase absorption.

A small amount of turmeric adds a lot of flavor to a dish, but too much can make it bitter. If you don't care for the taste of turmeric or are simply looking for new ways to bring it into your diet, **try adding the fresh root or dried spice to your smoothies.** When cooking with turmeric, you can be confident the flavor will mellow as you continue to cook it. The taste can also be hidden or made more subtle by adding other, more powerful herbs and spices, such as ginger, mint, cilantro, or jalapeño. **Some other ideas for using turmeric include: mixing into an egg scramble, frittata, salad dressing, or dip; adding to sauteed and/or roasted vegetables, stews, rice, or other whole grains.**

Turmeric: *Fresh or Dried?*

Both fresh and dried turmeric have been found to offer health benefits, and both forms raise blood curcumin levels. Consensus on whether fresh or dried is better is difficult to find because, as with other spices, so much depends on various factors that are difficult to control, including where it was grown, the variety used, drying methods, and so forth. **But no matter which form you prefer or have access to, this is a highly beneficial spice that is worth incorporating into your diet in as many ways as possible!**



Ginger

Ginger contains beneficial bioactive compounds (including gingerols, paradols, zingerone, and shogaols) that have powerful **antioxidant** and **anti-inflammatory** effects.¹

Ginger has been found to help with nausea and vomiting. Less than half-teaspoon of ginger per day may be safe and effective for coping with digestive symptoms including nausea and vomiting during pregnancy or side effects of chemotherapy.¹

Ginger may also benefit **cardiovascular health**, as it has **antihypertensive** (reducing blood pressure), **hypolipidemic** (reducing blood cholesterol levels), and **antiplatelet** (reducing blood clotting) properties.¹

Due to its anti-inflammatory effects, ginger may even have benefits for **joint and muscle health**, along with **neuroprotective effects** (helping to protect the neurological system).¹ Research has also suggested ginger may help with **reducing the pain of menstrual cramps**¹⁴, and with **blood sugar regulation**.¹



Ginger: *Fresh or Dried?*

When it comes to flavor, fresh ginger is zestier than dried. Fresh ginger also has more **gingerol** (one of the many beneficial phenolic compounds found in ginger) compared to dried ginger, which amplifies fresh ginger's health-promoting potential.



1 tablespoon of fresh
ginger equals about
 $\frac{1}{2}$ tsp of ground ginger.





Garlic

Garlic is technically a vegetable, though it is widely grouped in the herb and spice category, because it is commonly used in a similar way—to add flavor and piquancy to dishes in small amounts. **Garlic also has properties strongly supportive to human health.**

Garlic contains **allicin**, which is a powerful **anticancer compound**.^{9,10} Research has found that garlic consumption — along with consumption of other allium vegetables, including onions and leeks — **may protect against stomach and colorectal cancer**.⁸ The allyl sulfur compounds in garlic may block the formation and activation of carcinogens (potential cancer-causing compounds), help repair DNA, reduce cancer cell growth, and/or initiate cancer cell death.^{8,10} Compounds in garlic have been found to promote the expression of genes that regulate cancer progression, such as tumor suppressor genes.^{8,10}

Since allicin is produced when garlic is crushed, cut, or chopped, it is important to chop or cut your garlic at least 10 minutes prior to using to ensure you're getting the benefits of maximum allicin production.¹¹

Garlic supports digestive health. It is considered a **prebiotic**, which means it helps feed the beneficial microorganisms in your digestive tract or “gut”.

Garlic has **antimicrobial properties**, and *in vitro* (i.e., in a test tube or culture dish) and animal studies have shown garlic to have powerful **anti-inflammatory benefits**.¹

Garlic has also been found to have **benefits for cardiovascular health**. *In vitro*, animal, and human research has found that garlic may help slow the atherosclerotic process—the hardening of the arteries that can increase the risk of heart attacks and strokes.¹ Garlic has the potential to reduce plaque size and fat formation in blood vessel walls.



In addition to all of this, garlic has been shown to have numerous other important health benefits. To name a few, garlic may:¹

- **Suppress inflammatory cell adhesion** to blood vessel walls
- **Improve impaired endothelial** (lining of the blood vessels) function
- **Inhibit oxidation** of the “bad” or LDL cholesterol (increased levels of oxidized LDL cholesterol have been associated with increased risk for heart disease)⁷
- Act as an **anti-hypertensive** (lower blood pressure)
- Have **antithrombotic** properties (reduce the formation of blood clots)
- Have **anticoagulant** properties (inhibiting coagulation of blood)
- Stimulate the **dissolving of blood vessel clots**
- Have **hypoglycemic activity** (lower blood sugar levels)
- **Support brain health** (such as potentially improving learning and memory retention and protecting against brain injury from inadequate blood supply to the brain)
- Have **immune-enhancing effects** such as stimulating natural killer cell activity)





This extraordinary list of potential benefits is enough to make me routinely add garlic to my salad dressings, baked chicken, marinades, roasted vegetables, scrambled eggs, rice, pasta, sautéed greens – basically any chance I get!



Tip for Using Garlic: To promote maximum allicin production, chop or mince fresh garlic and let it sit for 10-15 prior to use.

Garlic: *Fresh or Dried?*

Generally speaking, both fresh and dried garlic contain antioxidants. However, dried garlic has less antioxidants than fresh, and the dried does not contain the highly beneficial compound allicin. **Therefore, it is best to consume garlic in its fresh form for maximum antioxidant and allicin intake.**



In addition to turmeric, ginger, and garlic, many herbs and spices have potent health benefits. The following chart provides a quick reference guide that lists health benefits, along with suggested culinary uses.

Herb or Spice	Benefits	Suggested Uses
Allspice	Antimicrobial; antioxidant; anti-inflammatory; antibacterial; anticancer; analgesic; digestive health; nerve pain reduction; blood pressure-lowering potential ¹	Sausages, braised meats, poached fish, cooked fruits, squashes, beans, puddings, pies, jerk sauce, stews, tea, marinades, relishes
Astragalus	Immune-enhancing; antioxidant; anti-inflammatory; anticancer ²	Teas, soups
Basil	Antioxidant; anticancer; antibacterial ³ ; prevention of age-related macular degeneration; liver health; cardiovascular health	Tomato dishes, pesto, egg dishes, herb drizzles, salads, marinades, fish and seafood, raspberries; garnish on whole grain pasta, cooked poultry, whole grains (i.e. wild rice or brown rice)
Bay Leaf	Anticancer; antimicrobial ^{3, 4} ; appetite-stimulating; heart, skin, and immune health; blood sugar regulation	Stocks, tomato-based dishes, poultry, sauces, soup, stews, braised meats, other savory dishes
Black Pepper	Antioxidant, anticancer; anti-inflammatory; immune health; gut health; nutrient absorption; mood and cognition ⁵ ; metabolism	Seasoning vegetables, meats, fish, whole grain dishes (i.e. pasta), salads, marinades, dressings, etc.
Cardamom	Blood pressure and blood sugar regulation; digestive and cardiovascular health; antimicrobial; anticancer; antioxidant; anti-inflammatory ⁶	Teas (such as chai tea), pickling, fish or meat marinades, chutneys, rice dishes, soups and broths, danish pastries, curries
Caraway	Antioxidant; antimicrobial; anticancer; digestive health (may aid constipation specifically) ^{7, 8}	Rye bread, cabbage, sauerkraut
Cayenne	Anti-inflammatory; anticancer ⁵ ; analgesic; heart health; digestive health	Soups, sauces, fish and other seafood, eggs, sprinkled on toast such as avocado toast
Chili Powder	Anti-inflammatory; anticancer; analgesic; digestive health ⁵	Chili, stews, sauces, ground meats
Chives	Digestive health; antibacterial; anticancer; antioxidant; cholesterol-lowering ⁹	Salads, egg and cheese dishes, fish soups, sauces
Cilantro	Antioxidant; anticancer; prevention of age-related macular degeneration; liver health ^{3, 6}	Salads, salsa, sauces, soup, eggs, dressings, bean dishes, stews

Herb or Spice	Benefits	Suggested Uses
Cinnamon	Antioxidant; antifungal; antibacterial; anti-inflammatory; anticancer; cardiovascular benefits; blood sugar regulation; liver health; neurological health (neuroprotection) ⁵	Preserves, stewed fruits, applesauce, oatmeal, breads, pastries, desserts, ham, roasted vegetables (such as carrots and winter squash), stews, marinades, hot beverages
Cloves	Blood sugar regulation; antioxidant; anticancer; antimicrobial; anti-inflammatory ^{5, 10, 11} ; high in manganese (essential mineral)	Marinades, stocks, sauces, braised meats, hams, pickling, roasts, stews, stir-fries, dressings, dry rubs, hot cider, chai tea, vegetables (such as carrots and summer squash), fruits, desserts
Coriander	Antimicrobial; anti-inflammatory; antioxidant; digestive health; blood sugar regulation; heart health (by favorably impacting cholesterol metabolism); blood pressure reduction ^{3, 6}	Pickling, sausages, chili, beans, stocks, pork, curry, gingerbread, salsa, fruits, salad dressings
Cumin	Digestive health; anti-inflammatory; anticancer; antioxidant; blood sugar regulation; heart health; eye health; antimicrobial; detoxification ⁶	Sausages, salsa, egg dishes, hummus, curry dishes, vegetables (such as corn), soups, sauces, fish, meat, rice
Curry Powder	Anti-inflammatory; immune health; anticancer ⁵ *see turmeric, ginger, cumin, and black pepper benefits as curry powders usually contain these ingredients.	Curry dishes, vegetables (such as corn, green beans, & summer squash), potatoes or sweet potatoes, soups, sauces, fish, meat, rice
Dill (herb)	Detoxification; antioxidant; blood sugar regulation; heart health; anti-inflammatory; anticancer ^{6, 11}	Salads, soups, fish & shellfish, vegetables, sauces, potatoes
Dill (seed)	Detoxification; antioxidant; blood sugar regulation; heart health; anti-inflammatory; anticancer ^{6, 11}	Pickling, fish, vegetables (such as carrots, green beans, potatoes, tomatoes), soups, sauerkraut, marinade
Fennel (seed)	Antioxidant; digestive health; blood sugar regulation; anti-inflammatory; heart health ^{6, 11}	Tomato sauce, marinades, pickling, breads
Fenugreek	Cardiovascular health; blood sugar regulation; liver health; sexual health; metabolism; exercise and physical performance; antioxidant ⁵	Dahl, vegetable, rice, tea, sauces, Indian dishes

Herb or Spice	Benefits	Suggested Uses
Garlic	Antioxidant; anti-inflammatory; antimicrobial; anticancer; gut health; heart health; blood sugar regulation; anti-hypertensive; antithrombotic; brain health; immunomodulatory activity ⁵	Many uses: Salad dressings, sautéing or stir frying vegetables, cooking fish, roasting vegetables, potatoes, cooking meats, etc. *Be sure to chop or cut garlic and let sit for at least 10 minutes before using to maximize allicin production. Allicin is the main active beneficial compound in garlic.
Ginger	Beneficial for nausea, vomiting and digestive health; anti-inflammatory; anticancer; antimicrobial ⁵ ; anti-hypertensive; heart health; blood sugar regulation; neurological health; metabolism; joint and muscle health; menstrual cramps	Baked goods, stir-fries, teas, desserts, fruits, curry dishes, sweet potatoes, cooked carrots, winter squash, meats, pickling, on fruits, rice dishes, chicken, chutney
Marjoram	Anti-inflammatory; antimicrobial; anticancer ^{3,6} ; antioxidant; liver health; heart health; gastrointestinal health	Beef, veal, lamb, sausage, pates, poultry, stews, soups, vegetables (such as cooked carrots, green beans, summer squash, tomatoes), fish, salads, sauces
Mint	Antioxidant; anti-inflammatory; and anticancer properties; oral health; age-related macular degeneration; liver health; digestive health; immune health; appetite stimulant ^{3,11} ; regulation; heart health; eye health; antimicrobial; detoxification ⁶	Lamb, fruits, tea, beverages, peas, carrots, potatoes, jellies, cold soups, sauces, smoothies, garnish
Mustard Seed	Anticancer; antioxidant ¹²	Prepared mustard, pickling, sauces, salsa
Nutmeg	Anti-inflammatory; antioxidant; heart health; digestive health; detoxification; brain health; analgesic ^{11,13}	Baked goods, pies, quiche, sautéed spinach, cream sauces, soups, chicken, veal, vegetables (such as cooked carrots, summer squash, & winter squash), desserts, bread, teas, jams, roasted root vegetables, curries
Oregano	Anticancer; antimicrobial; anti-inflammatory; powerful antioxidant; analgesic; gut health ^{5,6,11,14,15}	Italian and Mexican dishes, tomato sauces, soups, chicken, sauces, stews, meats, salads, pasta dishes, vegetables (such as green beans and tomatoes), marinades
Paprika	Antioxidant; cardiovascular health; anticancer; eye health ^{1,16}	Fish, seafood, meats, chicken, salads, sauces, dressings, corn, potatoes, garnish
Parsley	Antioxidant; age-related macular degeneration; liver health; anticancer; antimicrobial ^{6,11}	Garnish, stuffing, omelets, stews, sauces, salads, pasta dishes, vegetables, and potatoes.

Herb or Spice	Benefits	Suggested Uses
Red Chili Pepper	Antioxidant; antimicrobial; anti-inflammatory; cardiovascular health; gut health; blood sugar control; metabolism ⁵	Use red pepper flakes at the beginning of cooking to infuse the flavor. Great for sautéing vegetables, egg dishes, pizza, broccoli rabe, cauliflower, salad dressings
Rosemary	Antioxidant; anticancer; anti-inflammatory; age-related macular degeneration; detoxification; mental health; cognition; neuroprotection; vascular health; blood glucose control; skin care; liver health; antimicrobial ⁵	Lamb, fish, beef, sauces, soups, stews, salads, vegetables (such as carrots, summer squash, and roasted root vegetables), poultry, marinades
Marjoram	Anti-inflammatory; antimicrobial; anticancer ^{3,6} ; antioxidant; liver health; heart health; gastrointestinal health	Beef, veal, lamb, sausage, pates, poultry, stews, soups, vegetables (such as cooked carrots, green beans, summer squash, tomatoes), fish, salads, sauces
Saffron	Anticancer; anti-inflammatory; mood (antidepressant effects); antioxidant; digestive health ^{17, 18}	Baked goods, rice, potatoes, soups, seafood, sauces, curry, meats
Sage	Antioxidant; anti-inflammatory; cognitive health; neurological function ^{5, 6, 11, 19}	Stuffing, meat, poultry, vegetables (such as roasted carrots, potatoes, & summer squash), soups, stews, salads, fish
Star Anise	Antioxidant; anti-inflammatory; antimicrobial; digestive health; blood sugar regulation ^{6, 20}	Fruit, soup broths, pho, braises, tomato sauces, teas, coffee, chicken, cookies, pastries, bread
Tarragon	Anti-inflammatory; anticancer; analgesic; antioxidant; immune health; blood sugar regulation; liver health ^{6, 21}	Béarnaise sauce, vinegar, chicken, fish, salads, poultry, dressings, soups, vegetables (including green beans), eggs
Thyme	Anticancer; antimicrobial; anti-inflammatory; antioxidant; anti-tumor; stress management; kidney health; digestive health ^{3, 6, 8, 11}	Soups, chowders, stocks, fish, sauces, green beans, meats, dill, poultry, salad dressing
Turmeric	Anti-inflammatory; anticancer; anticancer; cardiovascular health; brain health and cognition; metabolism; blood sugar regulation; joint and muscle health; pain reduction; gastrointestinal health ⁵	Curry powder, fish, pickles, relish, eggs, rice, roasted vegetables, stews, egg dishes, salad dressings, teas *Be sure to combine with a healthy fat and black pepper for optimal absorption!

Cooking with Herbs and Spices:

The Basics

When cooking with herbs and spices, keep a few essentials in mind. Generally speaking, **it is best to use dried herbs and spices at the beginning of the cooking process and add the fresh herbs towards the end.** When exposed to heat, spices tend to release their flavor, while fresh herbs are more delicate and more adversely affected by high heat.

Some tips for using fresh herbs:

- **As a garnish on any dish** (such as adding some chopped parsley or cilantro to your salad).
- **Stir chopped fresh herbs into cooked whole grains** (for example, adding some fresh rosemary to cooked farro or rice, or adding chopped basil to whole grain pasta).
- **Add a pinch of fresh herbs, such as mint, to your smoothie.** (You can also try adding spices, such as ground ginger and turmeric, in small amounts).
- Blend fresh herbs with a bit of lemon, sea salt, and olive oil to **make an herby drizzle to dollop on any dish.**
- **Make a pesto with fresh herbs.** Basil is not the only herb you can use to make pesto! Consider using parsley or mint to create pestos too.
- **Mix fresh herbs into scrambled eggs or a frittata.**
- **Add fresh herbs (such as cilantro or parsley) to roasted veggies** after they've been cooked.



Research has found that some cooking methods – such as simmering, soup-making, microwaving, and stewing – can significantly increase the antioxidant capacity of culinary herbs.¹³ Cooking methods that significantly *decrease* the antioxidant capacity of culinary herbs include **frying and grilling**. In general, heat appears to increase the antioxidant capacity of culinary herbs, except for the more extreme heat utilized when grilling and/or frying.¹³

Always remember that it is better to use herbs than to not use them at all, even if you're using a cooking method, such as grilling, that may decrease the antioxidant content.¹³



Recipes:

Making Your Own Herb and Spice Blends

Making your own herb and spice blends is often more cost-effective, fresh, and flavorful. **You can avoid added fillers, flavor enhancers, and preservatives commonly found in pre-made herb and spice blends by making your own blends.**



Helpful hint when purchasing dried herbs and spices

If you are purchasing dried herbs and spices or pre-made blends at the grocery store, select those in glass containers (less exposure to chemicals in plastic). I prefer to buy herb and spice jars located behind the ones in the front row that are constantly exposed to light.

Health Benefits of Spice Mixtures When combined, herbs and spices can have even greater health benefits. One study found that adding a mixture of ground cloves, cinnamon, oregano, ginger, rosemary, black pepper, paprika, and garlic powder to burgers as a spice rub before grilling significantly reduced the formation of carcinogenic compounds created by the cooking process.¹²

Homemade Herb and Spice Blend

Recipes

These tasty mixtures are useful in daily cooking. Be sure to label your blend and store it in a tightly sealed glass container in a cool, dark place (such as your spice cabinet or pantry). Note that these recipes make an abundant quantity. If you anticipate that you may not use the entire mixture within six months, consider reducing the mixture by cutting each ingredient (by a proportionate amount) to reflect your culinary needs.

Italian Seasoning: 1/2 cup dried basil, 1/2 cup dried marjoram, 1/2 cup dried oregano, 1/4 cup dried rosemary, 1/4 cup dried thyme

Taco Seasoning: 1/4 cup chili powder, 1 tablespoon garlic powder, 1 tablespoon onion powder, 1 teaspoon crushed red pepper flakes, 1 teaspoon dried oregano, 2 teaspoons paprika, 1/4 cup ground cumin, 1 teaspoon ground black pepper

Chili Seasoning: 1/2 cup chili powder, 1/4 cup garlic powder, 3 tablespoons onion powder, 1/4 cup oregano, 2 teaspoons paprika, 1/4 cup cumin, 1 tablespoon thyme

Pumpkin Pie Spice: 1/4 cup ground cinnamon, 1 teaspoon ground ginger, 2 teaspoons ground nutmeg, 2 teaspoons ground allspice, 1/2 teaspoon ground cloves





Fish and Seafood Blend: ¼ cup black pepper, 2 tablespoons garlic powder, 1 tablespoon onion powder, 1 tablespoon paprika, 1 tablespoon ground sage

All-Purpose Seasoning: ¼ cup onion powder, ¼ cup garlic powder, ¼ cup ground black pepper, 2 tablespoons chili powder, 3 tablespoons paprika, 2 tablespoons dried parsley, 1 tablespoons ground red pepper flakes

Curry powder: 4 tablespoons coriander, 2 tablespoons cumin, 1 teaspoon ground cloves, 1 teaspoon cinnamon, 1 ½ teaspoon ground cardamom, ¼ teaspoon ground black pepper, 1 tablespoon chili powder, 1 teaspoon turmeric powder

Six Spice Blend: 1 tablespoon cinnamon; 2 teaspoons fennel; 1 tablespoon crushed black peppercorns; 1 teaspoon clove; 1/2 teaspoon star anise; 1 tablespoon ground ginger

If you're looking for more homemade herb and spice blends (including some global flavor prints such as Asian, Indian, Latin, Middle Eastern, Moroccan, and Mediterranean) check out these resources by [Rebecca Katz](#), professional chef, author of several cookbooks including [The Cancer Fighting Kitchen](#), and owner of [Healing Kitchens, LLC](#):

1. [Healing Kitchens Flavorprints](#)
2. [Global Flavorprints](#)

Storing Herbs and Spices

To store fresh herbs: Be sure to wash and spin (if you have a salad or greens spinner) or dry them in paper or cloth towels. Wrap them in a dry paper towel and place them in a reusable bag or container in the refrigerator for up to five days.

Another option for storing fresh herbs includes trimming the lower stems and placing them in a glass of cold water (a mason jar works great!) as you would a bouquet of flowers. Herbs that brown or wilt easily (such as basil and cilantro) are best stored in a glass of water in the refrigerator. Be sure to change the water daily.

To store dried herbs and spices: Store in a cool, dark place (such as your spice cabinet). **Try not to store spices above the stove** as the heat will degrade their freshness and quality. **Whole spices** (spices in their whole, intact form; not ground) **are ideally consumed within two years, while ground spices are best used within a year.**



Storing Dried Herbs and Spices: For greater retention of nutrients and longer shelf life, store herbs and spices in a tightly sealed container, in a cool and dark environment.

To test if the flavor has declined, open the bottle and take a whiff.

The aroma should be strong. To test whole spices, rub the spice between your fingers – it should release volatile oils that can be felt and smelled. If there is only a little aroma in your fresh or whole spices, it's likely time to purchase new ones, or consider toasting or blooming the older ones (see box).

Tips for “reviving” older dried herbs and spices

If the flavor of your dried herbs and spices (including herb and/or spice blends) has declined, you can revive them using two different methods, **toasting and blooming**. (Note that these methods will always bring out more flavor in dried herbs and spices, no matter how old they are!) **Toasting works better for whole spices**, such as cumin seeds, black mustard seeds, cardamom pods, mustard seeds, fennel seeds, nutmeg, coriander seeds, and star anise. Simply place the spice in a dry pan over medium heat and toast until fragrant. Shake the pan frequently and/or stir to prevent burning.

Blooming can be used for both whole and crushed herbs and spices. Warm a small amount of high quality oil in a pan over medium heat until it's hot but not smoking. Heat to medium temperature and stir in the spices until they sputter and smell—only a matter of minutes, so stay close. Don't let them brown. Pour over pasta dish, cooked veggies, beans, or use in a vinaigrette.



Preserving *Fresh Herbs*

Freezing

Freezing fresh herbs for later use is a wonderful way to reduce food waste! We've all been there: buying a bunch of herbs only to use a small amount and tossing the rest. Freezing works exceptionally well for many fresh herbs, including basil, chives, oregano, lemon balm, mint, parsley, rosemary, thyme, and tarragon.

Freeze your fresh herbs by following these simple guidelines:

Step 1: Wash and towel-dry the herbs.

Step 2: Chop them and remove any sticks or twigs. (If you have a significant amount of herbs to chop, you can pulse with a food processor. If you only have a small amount to chop, a knife works perfectly.)



Step 3: Place the chopped herbs in ice cube trays, filling them three-quarters full. (Stainless steel ice cube trays are ideal for reducing exposure to harmful chemicals in plastics. You can also use silicone ice cube trays—these make popping the frozen herbs out quick and easy.) Fill the trays with water to fully cover the herbs. Be sure to press the herbs into the water so they're fully submerged.

If desired, you can also freeze herbs in extra virgin olive oil instead of water. Freezing herbs in oil is best if, upon thawing, you plan to use the herbs in a soup or sauce. Add oil to the trays until the herbs are just barely covered. Oil-based cubes will melt quickly and provide more flavor to your dishes than freezing in water.

Step 4: Time to freeze! Freeze the ice cube trays with herbs for at least 3-4 hours. Once frozen, remove the cubes from the tray and place in a reusable bag labeled with the type of herb, or keep them frozen in the ice cube trays if preferred. **You can keep the frozen herbs for up to 12 months.**



Thawing your frozen herbs: Heat gently in a skillet over medium heat, and voilà! Add to soups, stews, salad dressings; stir into warm whole grains such as wild rice or quinoa; drizzle over popcorn (yum!). The possibilities are endless!

Drying

Another option for preserving fresh herbs is drying them. Drying fresh herbs is simple and allows you to preserve the flavor and exceptional nutritional value of your herbs.

For drying more sturdy herbs (such as rosemary, sage, thyme, parsley): Once the herbs are dry, tie them in small bundles (of 3-4 stems) with kitchen twine and hang them upside down to air dry. Any cool dark place will do—such as a pantry or garage. Avoid hanging the herbs in direct sunlight. If dust is a concern, you can cover the herbs with brown paper bags with holes punched in the sides.

The process is the same for herbs with more tender leaves and higher moisture herbs (such as basil, oregano, tarragon, lemon balm, mint). However, higher moisture herbs will mold if not dried quickly and correctly, so try to hang them in an area with good ventilation. If they're in a spot where they are likely to gather dust, you can gently wrap them in paper bags poked with several holes.





Hang the herbs for 2-4 weeks. The herbs are dry when they crumble, and the stems break when bent. **You may want to place a screen beneath them to catch dried leaves that fall during drying.**

When the herbs are dry, carefully take them down, lay them on parchment paper or a clean surface, and untie them. Gently pull the leaves off the stems, transfer the leaves (in their whole, intact form) to airtight containers, and seal them. Be sure to label and date your containers.

Store the dried herbs in a dark, cool, dry place.

When you're ready to use the herbs, crumble the leaves in your hand. Or, pulse them in a food processor. Storing them whole and then crumbling just before use can help the herbs preserve their freshest, fullest flavor.

[See this useful resource](#) for more information on the proper methods to preserve fresh herbs.



Grow Your Own!

Growing Windowsill Herbs

Even if you don't have access to land, you can easily grow fresh herbs. Starting a windowsill herb garden is easy! Yes, we're talking to you: you CAN do it! It is finally time to challenge that inaccurate belief that you can't grow plants because you lack a "green thumb." All that's required is a window with adequate sunlight exposure during the day – the more direct light, the better. Most herbs need partial to full sun – at least 4-8 hours per day. You can start herbs from seed or buy small plants.

Starting Windowsill Herbs Using Seeds

If you're using herb seeds, be sure to read the seed packets for detailed instructions. Generally speaking, you want to start the seeds indoors a couple of weeks before the last frost. Fill small seed-starting containers with organic potting soil up, to 1-inch from the top. Sprinkle seeds on top of the soil, and lightly cover with a little more soil. Pat them down gently. Water with a small spray bottle as frequently as needed to keep the seeds moist. When the seedlings are about ~2-4 inches tall, gently transplant them to a larger pot. Be sure to choose pots with drainage holes and a saucer to catch excess water.

Starting Windowsill Herbs With Starter Plants

Growing windowsill herbs using starter plants is a great way to expedite your herb garden. Once you've purchased your plant, gently transplant it into a slightly larger pot filled with organic potting soil. Use a container with drainage holes and a saucer to catch excess water. Pat the soil around the roots. Water the plants thoroughly right away. Watering needs will vary depending on the herb you're growing; check online for suggested frequency. Be careful not to overwater.

Once your herbs are planted, be sure that they have full sunlight exposure. Water the herbs when the soil looks and feels dry. Adding organic plant fertilizer or compost from time to time will help ensure your herbs receive the nutrients they need to thrive.

Harvesting Fresh Herbs

Harvest your homegrown herbs when they're at least six inches tall. Cut 2-3 inches off the tips when you harvest. Depending on the herb, you may be able to cut the entire stem (such as parsley or cilantro). Be careful not to remove too much of the plant at one time—this can stress and even kill the plant.

Some herbs are annual plants – meaning they grow for only one season – and some are perennial – which means they can live for years. Herbs are easy to grow, beautiful, aromatic, and guaranteed to bring delight and freshness to your meals.



In summary...

Herbs and spices have important nutrients and highly beneficial bioactive compounds that support human health and well-being. The addition of herbs and spices to your meals is an excellent way to enhance the flavor, aroma, and color of dishes, while helping to protect from acute illness and chronic disease. So be sure to add some spice to your life!

Heal yourself with mint, with neem and eucalyptus.

Sweeten yourself with lavender, rosemary, and chamomile.

Hug yourself with the cocoa bean and a touch of cinnamon.

Put love in tea instead of sugar, and take it looking at the stars.

– excerpted from a poem
by Maria Sabina



Anticancer
LIFESTYLE PROGRAM



Herbs and Spices *Chart Citations*

(PLEASE NOTE: If you'd like to make a copy of the Herb and Spice Chart, click [here](#) for a printable version.)

1. Charles DJ. In: Antioxidant Properties of Spices, Herbs and Other Sources. New York, NY: Springer New York; 2013:145-150. doi:<https://doi.org/10.1007/978-1-4614-4310-0>. Accessed December 16, 2021.
2. Ny V, Houška M, Pavela R, Tříška J. Potential benefits of incorporating astragalus membranaceus into the diet of people undergoing disease treatment: An overview. *Journal of Functional Foods*. 2021;77:104339. doi:10.1016/j.jff.2020.104339
3. Sharangi AB, Guha S. Wonders of leafy spices: Medicinal properties ensuring human health. *Science International*. 2013;1(9):312-317. doi:10.17311/sciintl.2013.312.317
4. Bennett L, Abeywardena M, Burnard S, et al. Molecular size fractions of bay leaf (laurus nobilis) exhibit differentiated regulation of colorectal cancer cell growth in vitro. *Nutrition and Cancer*. 2013;65(5):746-764. doi:10.1080/01635581.2013.796999
5. Jiang TA. Health benefits of culinary herbs and spices. *Journal of AOAC International*. 2019;102(2):395-411. doi:10.5740/jaoacint.18-0418
6. Bower A, Marquez S, de Mejia EG. The health benefits of selected culinary herbs and spices found in the traditional Mediterranean diet. *Critical Reviews in Food Science and Nutrition*. 2015;56(16):2728-2746. doi:10.1080/10408398.2013.805713
7. Mahboubi M. Caraway as important medicinal plants in management of diseases. *Natural Products and Bioprospecting*. 2018;9(1):1-11. doi:10.1007/s13659-018-0190-x
8. F. BIF, Wachtel-Galor S, Kaefer CM, Milner JA. Chapter 17 Herbs and Spices in Cancer Prevention and Treatment. In: *Herbal Medicine: Biomolecular and Clinical Aspects*. Boca Raton, FL: CRC Press; 2011:Chapter 17.
9. Charles DJ. In: Antioxidant Properties of Spices, Herbs and Other Sources. New York, NY: Springer New York; 2013:225-229. doi:<https://doi.org/10.1007/978-1-4614-4310-0>. Accessed December 16, 2021.
10. Liu H, Schmitz JC, Wei J, et al. Clove extract inhibits tumor growth and promotes cell cycle arrest and apoptosis. *Oncology Research Featuring Preclinical and Clinical Cancer Therapeutics*. 2014;21(5):247-259. doi:10.3727/096504014x13946388748910



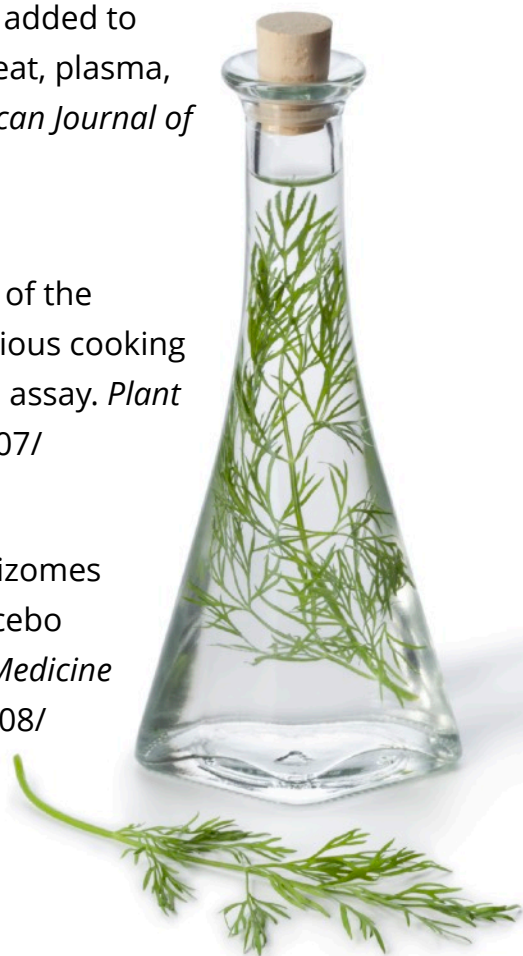
11. Opara E, Chohan M. Culinary herbs and spices: Their bioactive properties, the contribution of polyphenols and the challenges in deducing their true health benefits. *International Journal of Molecular Sciences*. 2014;15(10):19183-19202. doi:10.3390/ijms151019183
12. Ahmed AG, Hussein UK, Ahmed AE, et al. Mustard seed (*brassica nigra*) extract exhibits antiproliferative effect against human lung cancer cells through differential regulation of apoptosis, cell cycle, migration, and invasion. *Molecules*. 2020;25(9):2069. doi:10.3390/molecules25092069
13. Agbogidi, O.M., Azagbaekwe, O.P: health and nutritional benefits of nutmeg (*mystica fragrans* houtt.). *Scientia Agriculturae*. 2013;1(2):40-44. Accessed December 16, 2021.
14. Veenstra JP, Johnson JJ. Oregano (*origanum vulgare*) extract for food preservation and improving gastrointestinal health. *International Journal of Nutrition*. 2019;3(4):43-52. doi: 10.14302/issn.2379-7835.ijn-19-2703
15. Bauer BW, Radovanovic A, Willson N-L, et al. Oregano: A potential prophylactic treatment for the intestinal microbiota. *Heliyon*. 2019;5(10). doi: 10.1016/j.heliyon.2019.e02625
16. Ponder A, Kulik K, Hallmann E. Occurrence and determination of carotenoids and polyphenols in different paprika powders from organic and conventional production. *Molecules*. 2021;26(10):2980. doi:10.3390/molecules26102980
17. Shafiee M, Arekhi S, Omranzadeh A, Sahebkar A. Saffron in the treatment of depression, anxiety and other mental disorders: Current evidence and potential mechanisms of action. *Journal of Affective Disorders*. 2018;227:330-337. doi:10.1016/j.jad.2017.11.020
18. Ashktorab H, Soleimani A, Singh G, et al. Saffron: The golden spice with therapeutic properties on digestive diseases. *Nutrients*. 2019;11(5):943. doi:10.3390/nu11050943
19. Lopresti AL. Salvia (SAGE): A review of its potential cognitive-enhancing and protective effects. *Drugs in R&D*. 2016;17(1):53-64. doi:10.1007/s40268-016-0157-5
20. Patra JK, Das G, Bose S, et al. Star Anise (*illicium verum*): Chemical compounds, antiviral properties, and clinical relevance. *Phytotherapy Research*. 2020;34(6):1248-1267. doi:10.1002/ptr.6614
21. Ekiert H, Świątkowska J, Knut E, et al. *Artemisia dracunculus* (tarragon): A review of its traditional uses, phytochemistry and pharmacology. *Frontiers in Pharmacology*. 2021;12. doi:10.3389/fphar.2021.653993

EBOOK Citations

1. Jiang TA. Health benefits of culinary herbs and spices. *Journal of AOAC International*. 2019;102(2):395-411. doi:10.5740/jaoacint.18-0418
2. Yang H, Ping Dou Q. Targeting apoptosis pathway with natural terpenoids: Implications for treatment of breast and prostate cancer. *Current Drug Targets*. 2010;11(6):733-744. doi:10.2174/138945010791170842
3. Seneme EF, dos Santos DC, Silva EM, Franco YE, Longato GB. Pharmacological and therapeutic potential of myristicin: A literature review. *Molecules*. 2021;26(19):5914. doi:10.3390/molecules26195914
4. Kaefer CM, Milner JA. The role of herbs and spices in cancer prevention. *The Journal of Nutritional Biochemistry*. 2008;19(6):347-361. doi:10.1016/j.jnutbio.2007.11.003
5. Opara E, Chohan M. Culinary herbs and spices: Their bioactive properties, the contribution of polyphenols and the challenges in deducing their true health benefits. *International Journal of Molecular Sciences*. 2014;15(10):19183-19202. doi:10.3390/ijms151019183
6. Henning SM, Zhang Y, Seeram NP, et al. Antioxidant capacity and phytochemical content of herbs and spices in dry, fresh and blended herb paste form. *International Journal of Food Sciences and Nutrition*. 2010;62(3):219-225. doi:10.3109/09637486.2010.530595
7. Tomeh M, Hadianamrei R, Zhao X. A review of curcumin and its derivatives as anticancer agents. *International Journal of Molecular Sciences*. 2019;20(5):1033. doi:10.3390/ijms20051033
8. Jessica Elizabeth DL, Gassara F, Kouassi AP, Brar SK, Belkacemi K. Spice use in food: Properties and benefits. *Critical Reviews in Food Science and Nutrition*. 2015;57(6):1078-1088. doi:10.1080/10408398.2013.858235



9. Leser M, Ledesma N, Bergerson S, Trujillo EB. *Oncology Nutrition for Clinical Practice*. Chicago, IL: Academy of Nutrition and Dietetics; 2018.
10. Almatroodi SA, Alsahli MA, Almatroudi A, Rahmani AH. Garlic and its active compounds: A potential candidate in the prevention of cancer by modulating various cell signaling pathways. *Anti-Cancer Agents in Medicinal Chemistry*. 2019;19(11):1314-1324. doi:10.2174/1871520619666190409100955
11. Ansary J, Forbes-Hernández TY, Gil E, et al. Potential health benefit of garlic based on Human Intervention Studies: A brief overview. *Antioxidants*. 2020;9(7):619. doi:10.3390/antiox9070619
12. Li Z, Henning SM, Zhang Y, et al. Antioxidant-rich spice added to hamburger meat during cooking results in reduced meat, plasma, and urine malondialdehyde concentrations. *The American Journal of Clinical Nutrition*. 2010;91(5):1180-1184. doi:10.3945/ajcn.2009.28526
13. Chohan M, Forster-Wilkins G, Opara EI. Determination of the antioxidant capacity of culinary herbs subjected to various cooking and storage processes using the ABTS*+ radical cation assay. *Plant Foods for Human Nutrition*. 2008;63(2):47-52. doi:10.1007/s11130-007-0068-2
14. Rhanama, Parvin et al, Effect of *Zingiber officinale* R. rhizomes (ginger) on pain relief in primary dysmenorrhea: a placebo randomized trial. *BMC Complementary and Alternative Medicine* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3518208/>



We hope you enjoyed this eBook. Please consider making a **tax-deductible** donation to our nonprofit. Your support, in any amount, will help us continue offering free resources to all.

Thank you!

Make a Donation

We value your feedback! Please fill out our one-minute survey about this eBook.

Take our Survey

To sign up for our free course, please visit the Anticancer Lifestyle Program website.

www.anticancerlifestyle.org

The Anticancer Lifestyle Online Course is a free, expert-led program that helps you make healthy and informed lifestyle choices to reduce your risk of cancer, cancer recurrence, and chronic illness. Our self-paced course is filled with evidence-based tools, tips, and information to promote well-being in the areas of Diet, Fitness, Mindset, and Environment.