

Utilizing Spices for Maximum Flavor and Health Benefit

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Today's Discussion

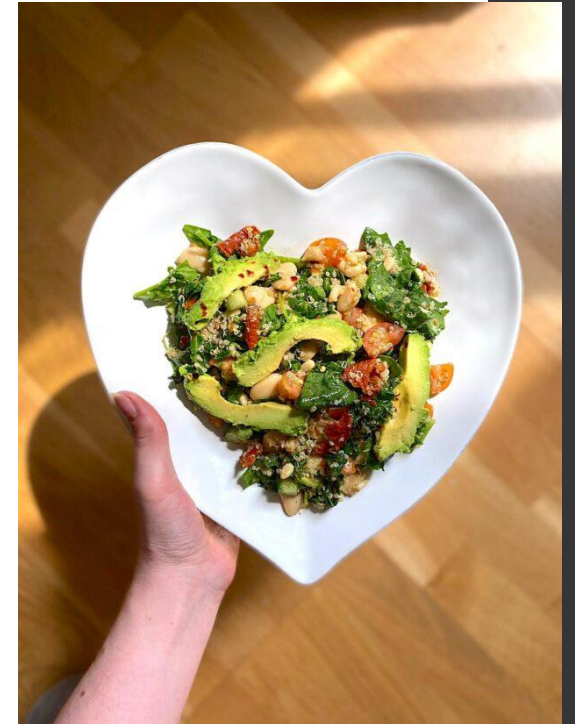
- What is the difference between a spice and an herb?
- Explore **research** backing the **health benefits** in herbs and spices
- What about **salt**? Is there a “healthy” salt?
- Review chef recommendations:
 - **how to purchase and store** spices/herbs



About Me

- Graduated from **Texas Christian University-Dietetics**
 - **Culinary Medicine** from Tulane University's Goldring Culinary Institute
- Lead Culinary Medicine program at **Moncrief Cancer Institute**
- Lead Culinary Medicine Instructor-**UT Southwestern Medical School**
- Unapologetic foodie!

***No potential conflicts of interest to disclose.**





A Few Definitions

- **Spices:** Pungent or aromatic seasonings obtained from the *bark, buds, fruit, roots, seeds, or stems* of various plants and trees.
 - **Examples:** Peppercorn, fennel seed, cinnamon stick, cumin seeds, nutmeg, red pepper flakes
- **Herbs:** The *fragrant leaves* of any annual or perennial plants that grow in temperate climates and do not have woody stems.
 - **Examples:** Basil, chives, cilantro, mint, oregano, bay leaves, parsley, sage
- **Aromatics:** Any of various plants, herbs, spices that impart *lively fragrance and flavor* to food or drink
 - **Examples:** Onions, garlic, shallots, fennel, chili pepper, lemongrass, citrus zest or peel



Why Spices?

Many **health benefits**

- Phytonutrients & **antioxidants**
- Impact on **salt intake**
- Satisfaction increases; **eat less**

Also...makes cooking **exciting & fun!**



Why Spices? More Flavor, More Satiety



- Several studies suggest that eating moderately to heavily spiced food **decreases overeating**
 - Chili peppers, horseradish, ginger, mustard, wasabi
- Impacts **trigeminal nerve**
 - Linked to satiety center in brain
- Bland food does not send same signals of fullness as more **flavorful food** does

Why Spices?-Reduce Salt Intake



Too much salt can lead to:

- High Blood Pressure
- Heart Disease
- Stroke
- Kidney Failure
- Aneurysm
- Edema

What is the Best Salt to Use?

Type of Salt	Weight of 1 tsp	Sodium in 1 tsp	Sodium content (as % of weight)
Fine grain Iodized Salt	6 g	2360 mg	40%
DIAMOND CRYSTAL Fine Sea Salt	5.6 g	2160 mg	39%
Fleur de Sel Pink Sea Salt	4.8 g	1840 mg	38%
MORTON Salt Balance (contains potassium chloride)	6 g	1760 mg	29%
DIAMOND CRYSTAL Kosher salt (soft, fluffy granules that dissolve quickly)	2.8 g	1120 mg	40%

Excess sodium intake can damage our taste buds and **impair our perception** of sweet, savory, and bitter notes in the food we eat. The good news? **This is typically reversible!** You can recover!



Why Spices-Antioxidant Benefit

Antioxidants-

- Found in **plant** foods
- Prevent **damage to cells** from free radicals
 - Anti-inflammatory
 - **Inhibit tumor** growth
 - **Immune** system boosters
 - Aids in production of **essential enzymes**
 - **Blood sugar** stabilizer



Spices, Herbs, and Antioxidants

Top 10 foods based on antioxidant content (per 100 grams of weight):

- Cloves (126 mmol)
- Oregano (40 mmol)
- Ginger, ground (22 mmol)
- Cinnamon (18 mmol)
- Turmeric (16 mmol)
- Walnuts (13 mmol)
- Basil, dried (12 mmol)
- Mustard seeds, ground (11 mmol)
- Curry powder (10 mmol)



Spices, Herbs, and Antioxidants

Top 10 foods based on antioxidant content (based on serving size):

- Blackberries
- Walnuts
- Strawberries
- Artichokes
- Cranberries
- Coffee
- Raspberries
- Pecans
- Blueberries
- cloves



Spice: Flavor Enhancer or Medical Miracle?



Flavor Enhancer or Medical Miracle?

Cinnamon



- *1 teaspoon of cinnamon = 2.3 grams*
- **Where did this start?** 2003 study (Pakistan) showing big improvement in blood sugar control with cinnamon supplementation (1-6 g/d) prompted interest in this area.
- **Lots of studies, but conflicting results:**
 - 2011 meta-analysis concluded “*Cinnamon extract and/or whole cinnamon improves FBG in people with T2DM or pre-diabetes*”, but this is based on a reduction of 9 mg/dl or 0.5 mmol/L. *Clinical significance?*
 - Some evidence for **improving TG and total cholesterol**
 - Some trials indicate **hepatitis** developed when taken (6 g/d) with **statin drugs**
- **BOTTOM LINE:** Enjoy cinnamon! If you have diabetes, continue to use diet, physical activity, medication, and stress reduction techniques-not **single foods or supplements**-to manage your condition.

(1) Khan A et al. Cinnamon improves glucose and lipids of people with Type 2 diabetes. *Diabetes Care*. 2003 Dec; 26 (12): 3215-8.

(2) Rafehi H, et al. Controversies surrounding the clinical potential of cinnamon for the management of diabetes. *Diabetes Obes Metab*. 2011 Nov 16

(3) Davis PA, Yokoyama W. Cinnamon intake lowers fasting blood glucose: meta-analysis. *J Med Food*. 2001 Sep;14(9):884-9

Flavor Enhancer or Medical Miracle?

Turmeric



- **Curcumin** (the active component of turmeric) has been widely used in **Indian** and **Chinese** cuisine and medicine for thousands of years to treat a variety of ailments.
- Laboratory studies show potent **anti-inflammatory**, **anti-oxidant**, and **antibiotic** effects
 - Inhibit tumor growth, associated with fewer adverse side effects of chemotherapy
- **How much?** Not enough evidence for clear dosage, but up to 12 gms/daily is regarded as safe
- **Poor bioavailability**
 - Eat with black pepper (piperine) and a small amount of fat to improve absorption

SOURCES: (1) Jagetia GC, Aggarwal BB. "Spicing up" of the immune system by curcumin. J Clin Immunol. 2007 Jan; 27(1):19-35. (2) Aggarwal BB et al. Curcumin: the India solid gold. Adv Exp Med Biol. 2007; 595:1-75. (3) Gautam, SC, Gao X, Dulchavsky S. Immunomodulation by curcumin. Ad Exp Med Bio. 2007;595:321-41. (4) Ferguson LR, Philpott M. Cancer prevention by dietary bioactive components that target the immune response. Curr Cancer Drug Targets. 2007 Aug; 7(5):459-64. (5) Patel BB, Majumdar AP. Synergistic role of curcumin with current therapeutics in colorectal cancer: a mini-review. Nutr Cancer. 2009 Nov;61(6):842-6

Flavor Enhancer or Medical Miracle?

Garlic



Cholesterol: Meta-analysis of 13 RCT studies published in 2009 concluded, “**available evidence does not demonstrate appreciable benefit of garlic on serum cholesterol levels**”.

Cancer: Garlic contains **allium compounds**, which have a probable association with **reduction in colorectal cancer risk**.

- Clinical trial suggests as little as **1 ½ tsp** daily improves immune function, anti-inflammatory benefits
- More studies needed!

What about garlic pills?

- Allium compounds are released by mincing (or chewing) the plant.
 - Study looking at **quality of garlic pills**
 - 21 of 24 most popular brands had less than 20% absorption rate

BOTTOM LINE? Garlic is delicious and adds flavor. Best benefit comes from making fresh garlic a frequent part of your diet. Save your money and skip the pills.

(1) Hasani-Ranjbar S, et al. The efficacy and safety of herbal medicines used in the treatment of hyperlipidemia; a systematic review. *Curr Pharm Des*, 2010

(2) Koos YS, Aziz Z. Garlic supplementation and serum cholesterol: a meta-analysis. *J Clin Pharm Ther*, 2009 Apr;

Lawson LD, Hunsaker SM. Allicin Bioavailability and Bioequivalence from Garlic Supplements and Garlic Foods. *Nutrients*. 2018;10(7):812. Published 2018 Jun 24. doi:10.3390/nu10070812

Speaking of Supplements

Supplements-a \$41 billion industry

Poorly regulated

- FDA “naughty list”
 - <https://www.fda.gov/food/dietary-supplements>

Things to consider:

- Supplements can never duplicate mother nature-but may be appropriate in some situations.
- Many studies indicate benefit in food form that does not translate to supplement form. **Why?**
- **Always disclose supplement and vitamin usage with your medical practitioner.**
- **Toxicity**-too much of a good thing



Nutmeg

- Nutmeg has **antimicrobial** properties
 - Used to preserve meat for hundreds of years
- Nutmeg inhibits **inflammation**, acts as antioxidant
- **Can you overdose on nutmeg? YES**
- Central nervous system impact
 - Dizziness, confusion, headache, seizures
 - Rare cases-death



Cooking Method and Antioxidants

- Simmering and stewing **INCREASE** antioxidant activity of most spices
 - Grilling and frying **DECREASE**
- **Most impacted:** parsley, sage, thyme, rosemary
- **Least impacted:** cinnamon, nutmeg, cloves



Big Picture on Spices:

Multiple studies demonstrate that the best benefit demonstrated by consumption of spices is simply **consistent, varied consumption, especially in place of higher salt content.**

The **Women's Health Population Study** correlates consumption of 2 grams of culinary herbs and spices daily (as opposed to 1 gram or less) with reduced risk of chronic disease and early death:

- 18% cancer
- 32% heart disease

Purchasing Spices

- 1) Buy in **small quantities**
- 2) Purchasing in **whole seed form** and grinding yourself gives best flavor!
 - Mortar and pestle
 - Spice/coffee grinder
 - Microplaner
- 3) Avoid supermarkets if you can. Shop at:
 - ethnic markets
 - reputable online sources
 - grow your own!



Storing Spices



- **Dried herbs** last *1-3 years* (basil, oregano, thyme, etc...)
- **Ground spices** last *2-3 years* (garlic powder, cinnamon, paprika)
- **Whole spices** have longest shelf life (*4-5 years*)
- **Do spices “go bad”?** Don’t expire, but lose potency and flavor
 - Toast spices to give new life!
- **How to store for maximum shelf life:**
- Keep spices **airtight**
- Keep spices out of **sunlight**
- Keep spices **away from heat**
 - Don’t store above stove or next to dishwasher
- Keep spices **away from moisture**
 - Don’t sprinkle spices directly from jar into a steaming pot

In Summary

Spices make **cooking exciting** and can expand our perspectives

Spices have a **wonderful role in our health** as part of a balanced, varied, plant-based diet

Focus on a **wide variety** of spices and herbs as **flavor builders** and method to **reduce reliance on salt** and less on individual agents of **miracle cures**

Resources for You

- Milette's SPICE Toolkit
 - Recipes, salt-free spice blends, flavor building tips
- American Institute of Cancer Research (www.AICR.org)
 - **Current research and recommendations** from international panels
 - Expansive database of articles
 - **Great recipes!**
- **About Herbs** app for Iphone (free!)
 - Memorial Sloan Kettering Cancer Center Integrative Herbs and Botanicals Database
 - <https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-m>
- **Moncrief Cancer Institute** social media!
 - Follow us for healthy living **tips and recipes** @MoncriefCancer
 - Facebook, Instagram, Twitter



Questions?

