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

Sharon Tyler Herbst, *The New Food Lover’s Companion*, 2013
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?

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

Halvorsen BL et al. Content of redox-active compounds (i.e., antioxidants) in foods consumed in the United States.
AJCN. Vol. 84, No. 1, 95-135, July 2006
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

Halvorsen BL et al. *Content of redox-active compounds (i.e., antioxidants) in foods consumed in the United States.* AJCN. Vol. 84, No. 1, 95-135, July 2006
Spice: 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.

(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

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.

Speaking of Supplements

Supplements—a $41 billion industry

Poorly regulated
  • FDA “naughty list”
    • [https://www.fda.gov/food/dietary-supplements](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-medicine

• Moncrief Cancer Institute social media!
  • Follow us for healthy living tips and recipes @MoncriefCancer
  • Facebook, Instagram, Twitter
Questions?