



# Spices as Superfoods: Past, Present, & Future

**Len King**  
Sr. Research Chef  
McCormick & Company  
Hunt Valley, MD 21031

**Lara Wuensch**  
Mid West Regional Manager  
McCormick & Company

**Amy Hess**  
Food Marketing Services

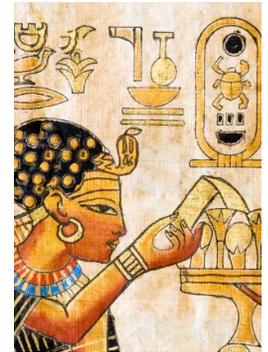


# What We Will Share With You Today



## ► Past

- Spices & herbs in ancient civilizations & biblical times were considered THE superfood with mythical medicinal power



## ► Present

- We are at the cusp of a major “Renaissance” with consumer interest in spices & herbs at a new high



# What We Will Share With You Today

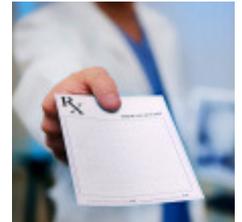


## ▶ Future (within ten years)

▶ “Multi-spices and herbs” could become the next “multi-vitamins”

▶ Spices and herbs could become a part of U.S. Dietary Guidelines and the Food Pyramid

▶ Spices and herbs could gain superfood status in consumer perception of healthy foods similar to fruits & vegetables today



# **Spices & Herbs as Superfoods: *A Look Back***

## Spices Have A Long History of Use



## Why were they so sought after?



## For Millennia, Spices Were Considered THE Superfood with Magical Medicinal Power

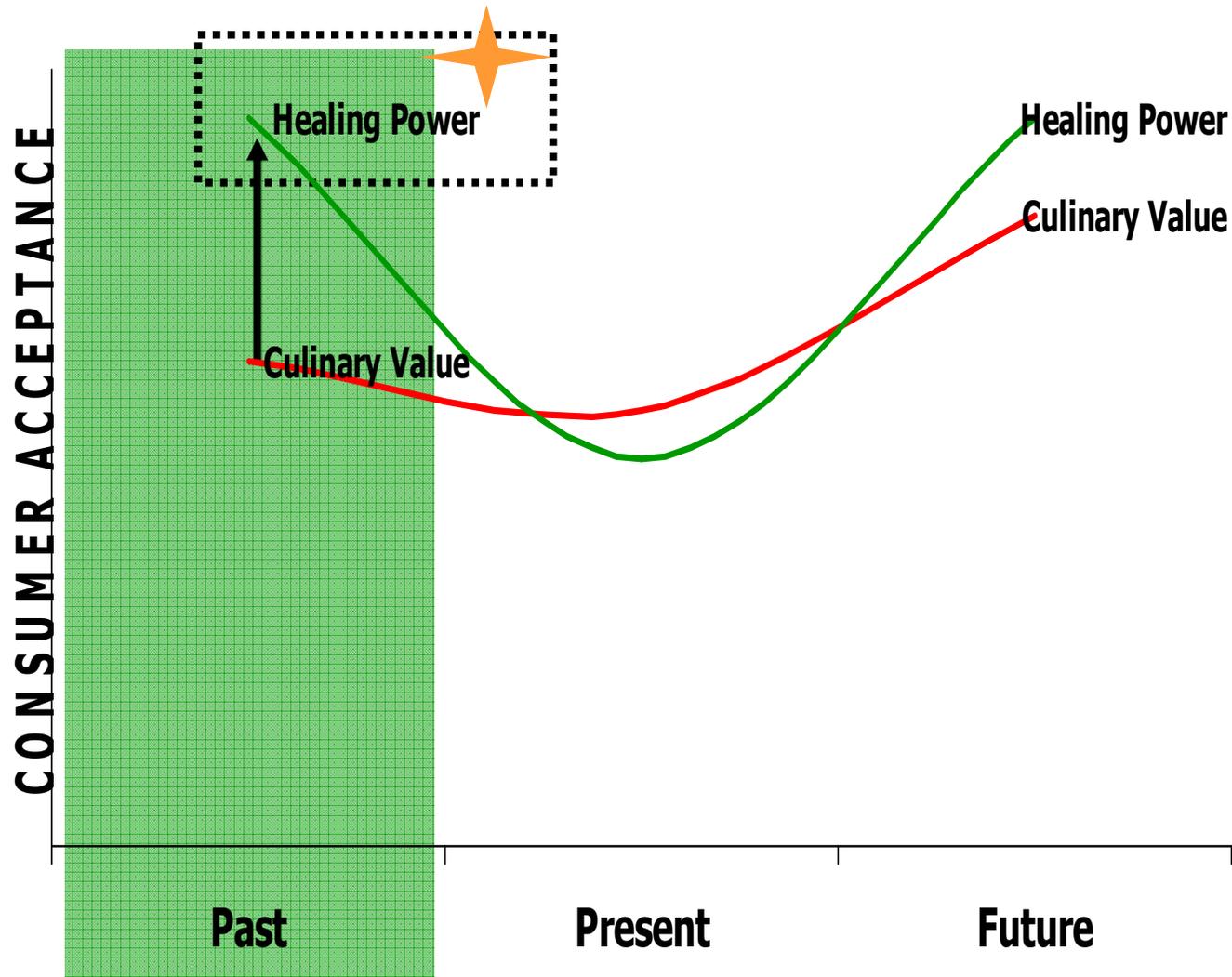


### Use of spice & herb extractives is the Father of the modern pharmacology

- ▶ From the 1st through 4th centuries, **Arabians** developed techniques to distill essential oils from aromatic plants.
- ▶ Around the 9th century, Arab physicians used spices & herbs to formulate syrups and flavoring extracts.



# While Spices Have Long Been Prized for Their Culinary Value, Their Healing Power Gave Them Rock Star Status in The Past



# One of History's Powerful Rulers Summed Up Historical Perceptions Best



*“An herb is the friend of physicians and the praise of cooks”*

Charlemagne - 9<sup>th</sup> Century



**Spices & Herbs as Superfoods: *Where Are We Today?***

# Spices and Herbs Are at The Convergence of 3 Trends Which Are Beginning to Spark Renewed Interest and Demand for The Superfoods of Yesterday



## Globalization



## Health & Wellness



## Science of Spice



# Increased Globalization Is Driving Rising Awareness and Demand for Authentic, Flavorful, Safe and Healthy Food



## Globalization



- ▶ U.S. flavor preferences are increasingly complex<sup>1</sup>
- ▶ Ethnic foods are highly seasoned, with spices and herbs key differentiators...and, rising in popularity
- ▶ The worldwide “natural” and “clean” movement is driving greater interest in spices and herbs on labels



**completefoodservices**  
302 nicholson st., fitzroy 3066  
ph: (03) 9417 6963

**FRESH BASIL PESTO**  
2 Litre Net Keep Refrigerated

<b>Ingredients</b> Basil (EPA), Vegetable oil/capers & olive, Crushed Garlic/garlic, water, salt, acidity regulator(E309), Parmesan cheese/parmesan, tapioca starch, culture, non-animal derived salt, Sodium/acetate & pine nuts. Buy within Salt Acidity regulators (260.120). Made from local & imported ingredients. Product contains nuts.	<b>Nutritional information</b> (Per 100g) Energy 2170kJ Protein 8.4g Fat - total 51.9g - saturated 6.2g Carbohydrate 7.0g - sugars 2.5g Sodium 760mg
---	--

[www.completefoodservices.com.au](http://www.completefoodservices.com.au)

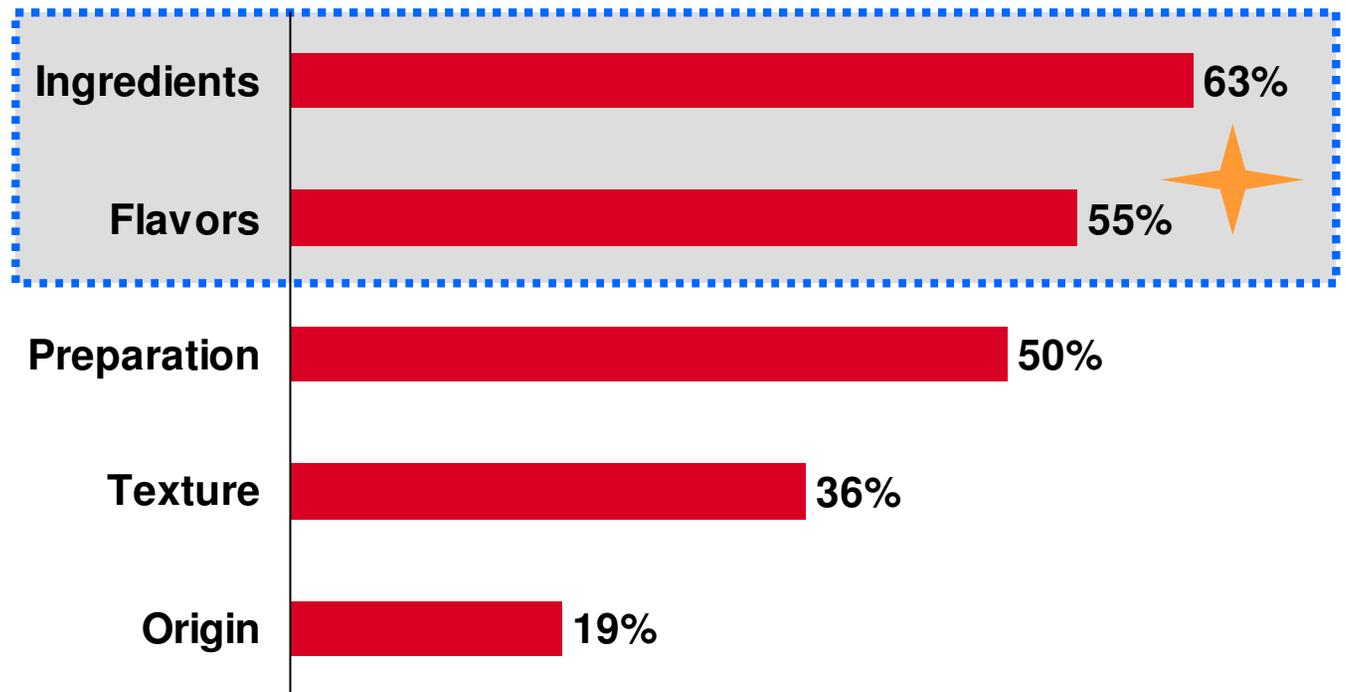
1) <http://www.marketresearch.com/map/prod/1165187.html>



# Today's Consumer Looks for Flavor ...



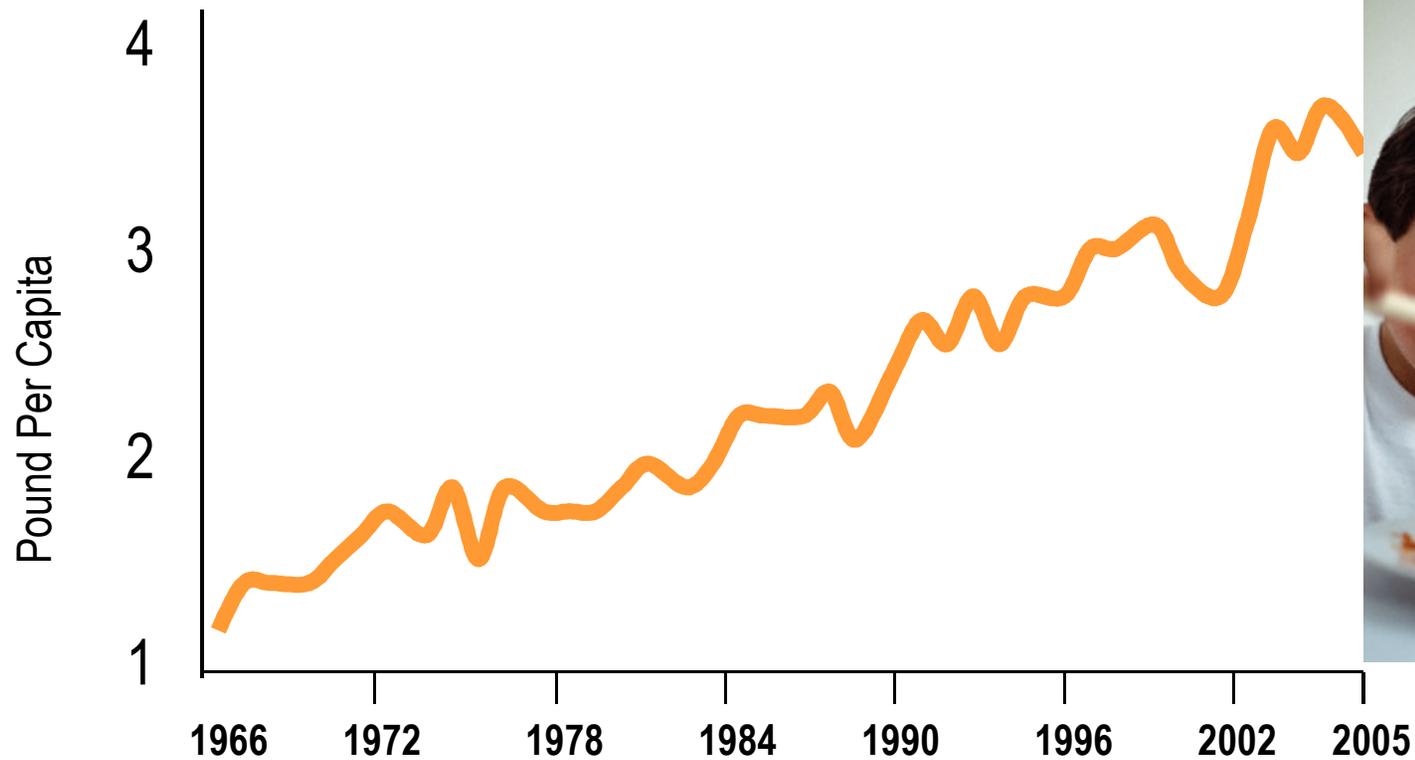
## Importance of Menu Item Descriptors



# Consumers' Demand for Flavor Has Driven Up Spice Use Per Capita About 300% Since 1966



## Spice Use Per Capita, 1966 - 2005



Source: USDA/Economic Research Service, 2007

# Forecasters Today Predict Spices and Herbs, Along with Fruits and Vegetables, Will be THE Flavor Growth Categories Over Next 2-3 Years



## Flavor Growth Forecasts

High



Spice



Spicy / Hot



Herbaceous



Fruit



Vegetable

Medium



Earthy



Fish & Seafood



Grainy - Cereals



Meaty (Pork/Chicken)



Nutty



Smoked / Roasted

Low/Negative



Dairy - Buttery



Cheesy



Alcohol



Meaty (Beefy/Gamey)



Salt

Source: Datamonitor Trends in Savory Food Flavors DMCM2119



# Growing Global Demand for “Natural, “Clean” and “Safe” Foods Is Also Beginning to Drive Greater Interest in Spices and Herbs



Consumers are demanding foods with natural sources of flavor and clean labels



**completefoodservices**  
302 nicholson st., fitzroy 3065  
ph: (03) 9417 6963

## FRESH BASIL PESTO 2 Litre Net Keep Refrigerated

Ingredients:  
Basil (48%), Vegetable oils (canola & olive),  
Crushed Garlic (garlic, water, salt, acidity  
regulator [270]), Parmesan cheese (milk,  
tapioca starch, cultures, non-animal  
rennet, salt), Nuts (cashew & pine nuts),  
Soy lecithin, Salt, Acidity regulators  
(260, 330).  
Made from local & imported  
ingredients  
Product contains nuts.

Nutritional information (Per 100g)	
Energy	2170kJ
Protein	6.4g
Fat - total	51.9g
- saturated	6.2g
Carbohydrate	7.0g
- sugars	2.6g
Sodium	760mg

[www.completefoodservices.com.au](http://www.completefoodservices.com.au)

## Mintel 2008 New Global Product Trend Predictions<sup>1</sup>:

- ▶ Products that complement a simpler, purer and more natural way of life are number 1 on the list
- ▶ Junk-free foods sporting clean and transparent labels free of additives, preservatives, colors, flavors or otherwise unknown ingredients

1) <http://www.utalkmarketing.com/pages/Article.aspx?ArticleID=3716&Title=Mintel%202008%20new%20global%20product%20trends>

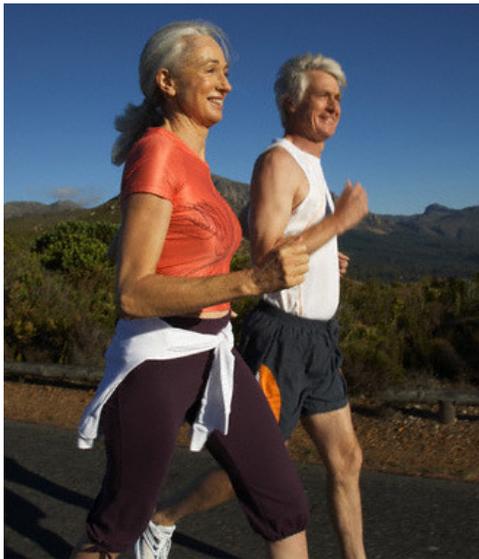
# Health and Wellness Is Beginning to Emerge As Another Key Driver that Could Greatly Expand The Growth of Spice and Herb Consumption



## Globalization



## Health & Wellness



## Science of Spice



# The Aging U.S. Population Is Increasingly Focused On Nutrition ... and Is Using Spices and Herbs as Natural Remedies and for Prevention

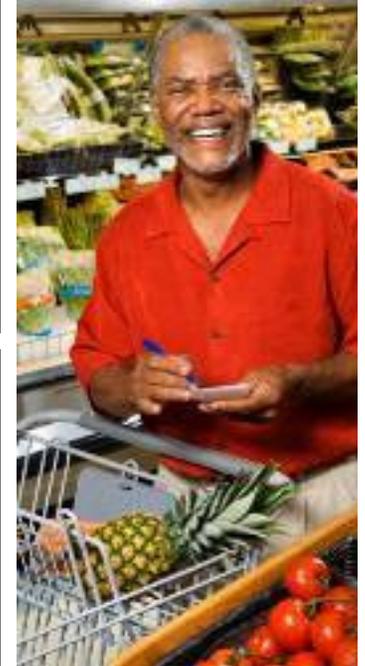


## Health & Wellness



▶ Today's aging baby boomers, fed by access to health info on the internet, are taking an increasingly proactive role in disease prevention and treatment through positive nutrition

▶ Seniors were twice as likely as any other age group to consume omega-3s, vitamin E, and calcium, and are regular users of vitamin C, B-12, B-complex, antioxidants, and herbal products

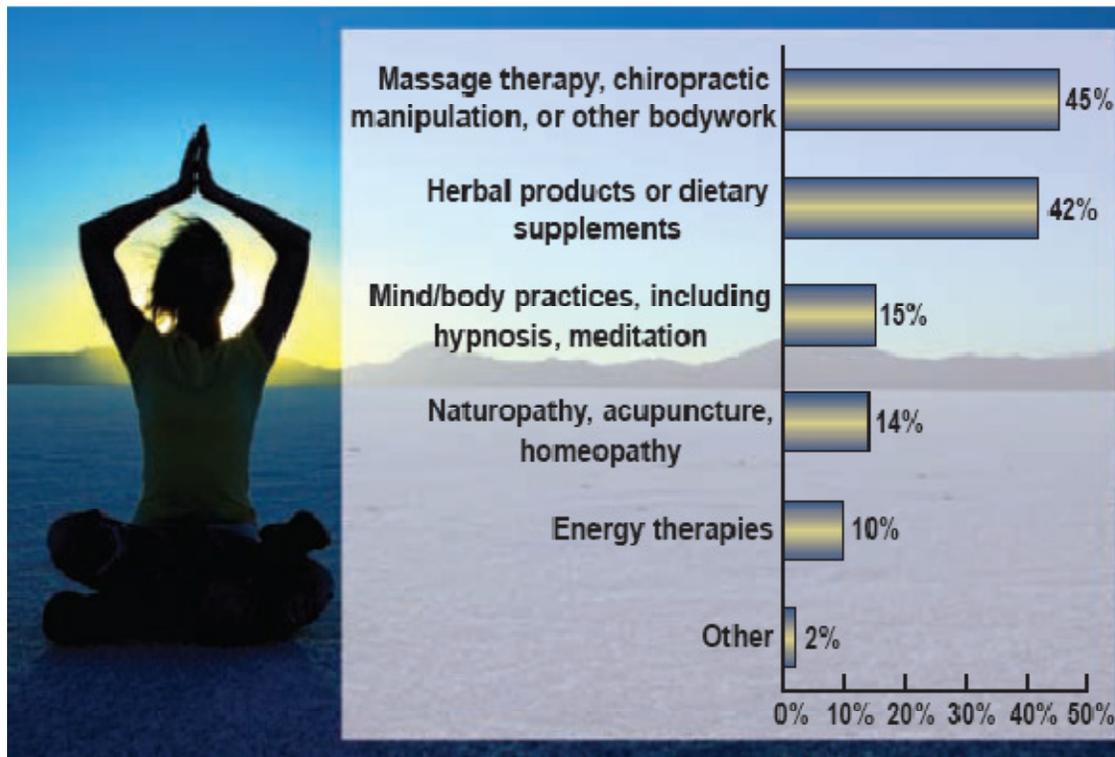


# In 2006, 42% of Adults 50 and Over Used Herbal Products or Supplements



## Types of CAM Therapies Respondents Have Ever Used\*

Base: All Respondents (n=1,559)<sup>†</sup>



\*Percent exceeds 100% due to multiple responses allowed.

<sup>†</sup>Unweighted Base: All respondents (n=1,559); Sampling error:  $\pm 2.5$  percentage points

Source: Survey of Consumer Use of CAM, AARP & NCCAM, 2006.

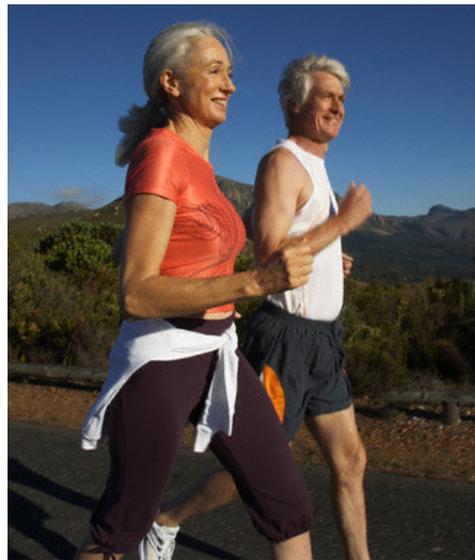
# New Scientific Research Into the Health Enhancing Properties of Spices and Herbs Is The Third Driver Likely to Boost Consumption



## Globalization



## Health & Wellness



## Science of Spice



# We Now Know That Spices and Herbs Rank at The Top of The List As Sources of Antioxidants in Food



## Science of Spice



## SPICES AND HERBS

### A SURPRISING SOURCE OF ANTIOXIDANTS

#### Antioxidant Comparisons of Spices and Other Foods

SOURCE: Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods - 2007. Nutrient Data Laboratory USDA, November 2007. [www.ars.usda.gov/nutrientdata/ORAC](http://www.ars.usda.gov/nutrientdata/ORAC).

\* Wu X, Beecher GR, Holden JM, Haytowitz DB, Gebhardt SE, Prior RL. Lipophilic and hydrophilic antioxidant capacities of common foods in the United States. *Journal of Agriculture and Food Chemistry*. 2004; 52:4028-4037.

\*\* Centre for Phytochemistry and Pharmacology, Southern Cross University, Australia.

	SERVING SIZE	ORAC (mmol TE/serving)
Cinnamon, ground	1 tsp	6956
Cloves, ground	1 tsp	6603
Pomegranate juice	8 oz	5853
Blueberries	½ cup	4848
Cranberries	½ cup	4792
Oregano, dried	1 tsp	3602
Milk chocolate*	1 bar	3595
Turmeric, ground	1 tsp	3504
Raspberries	½ cup	3002
Strawberries	½ cup chopped	2969
Sweet cherries	½ cup	2322
Cumin seed	1 tsp	1613
Asparagus	½ cup chopped	1441
Almonds	1 oz	1263
Red cabbage	½ cup chopped	1002
Curry powder	1 tsp	970
Red grapes	½ cup	951
Kiwifruit	1 medium	670
Green pepper	½ cup chopped	688
Broccoli	½ cup chopped	620
Chili powder	1 tsp	615
Sweet red pepper	½ cup chopped	589
Black pepper	1 tsp	580
Ginger, ground	1 tsp	519
Spinach	1 cup	455
Thyme**	1 tsp	407
Carrots	1 medium	406
Eggplant	½ cup chopped	383
Paprika	1 tsp	376
Rosemary**	1 tsp	364
Tomatoes	½ cup chopped	330
Cantaloupe*	½ cup chopped	250
Garlic powder	1 tsp	187
Watermelon	½ cup cubed	108



# ...Exceeding Other Superfoods that Have Recently Been Spotlighted for Their High Antioxidant Properties



## Antioxidant (ORAC) Value Comparisons

1 teaspoon cloves



1/2 cup of blueberries



1 teaspoon oregano



1 bar chocolate



1 teaspoon cinnamon



8 oz pomegranate juice

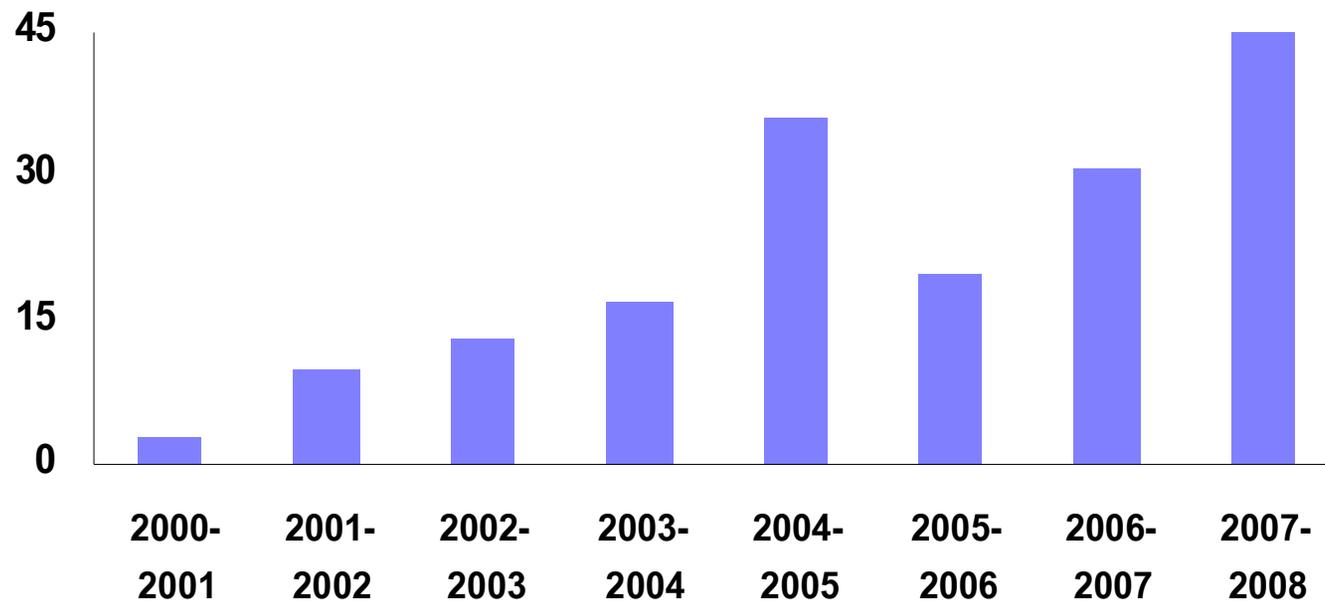


Source: Nutrient Data Laboratory USDA, November 2007

# The Push to Advance Our Knowledge of Spice and Herb Health Benefits Is Racing Forward With The Number of Human Studies Accelerating...



## Clinical Trials Involving Spices and Herbs Have Risen Significantly Over The Last 6 Years<sup>1</sup>



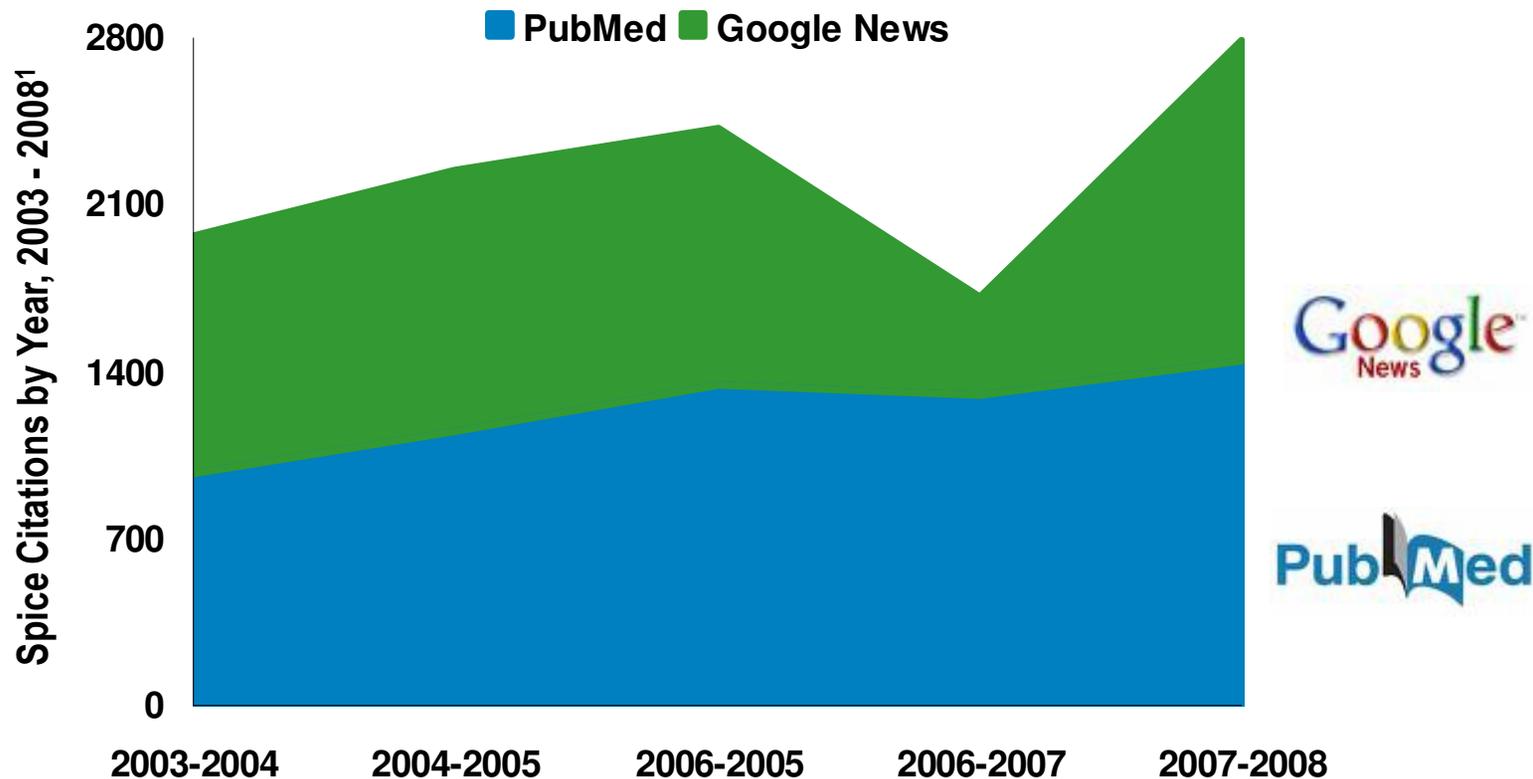
63 trials on spices, herbs, and selected active ingredients are currently recruiting for volunteers

Source: Clinicaltrials.gov

## ...And, The Number of Published Articles on Spices and Herbs in Both Scientific and Consumer Media Sources Is Up Sharply



There were approximately 2800 spice citations between Google News and PubMed in the past year alone!



1) Period 9/1 -8/31  
Source: Pubmed.com and Google News



# The Potential Health Enhancing Properties of Spices and Herbs Is Beginning to Make Headlines in Mainstream Media



Forbes.com, August 8, 2008:  
*“Surprising Superfoods, cinnamon #1 on the list”*

A close-up photograph of a white ceramic bowl. The bowl is filled with several cinnamon sticks of varying lengths and thicknesses, some whole and some broken. The sticks are a warm, reddish-brown color. In the foreground, there is a pile of finely ground cinnamon powder, which is a lighter, more uniform brown color. The background is dark and out of focus.

## The New York Times

New York Times, June 30, 2008:  
*“11 Best Foods You Aren’t Eating”*

1. Beets
2. Cabbage
3. Swiss Chard
4. **Cinnamon**
5. Pomegranate Juice
6. Dried Plums
7. Pumpkin Seeds
8. Sardines
9. **Turmeric**
10. Frozen Blueberries
11. Canned Pumpkin

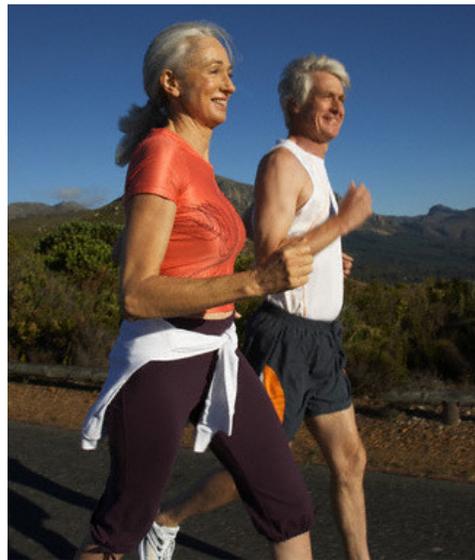
**Together The 3 Trends -- Globalization, Health & Wellness and “Science of Spice” Advances – Are Bringing About Renewed Interest in Spices Not Seen In Hundreds of Years, and...**



**Globalization**



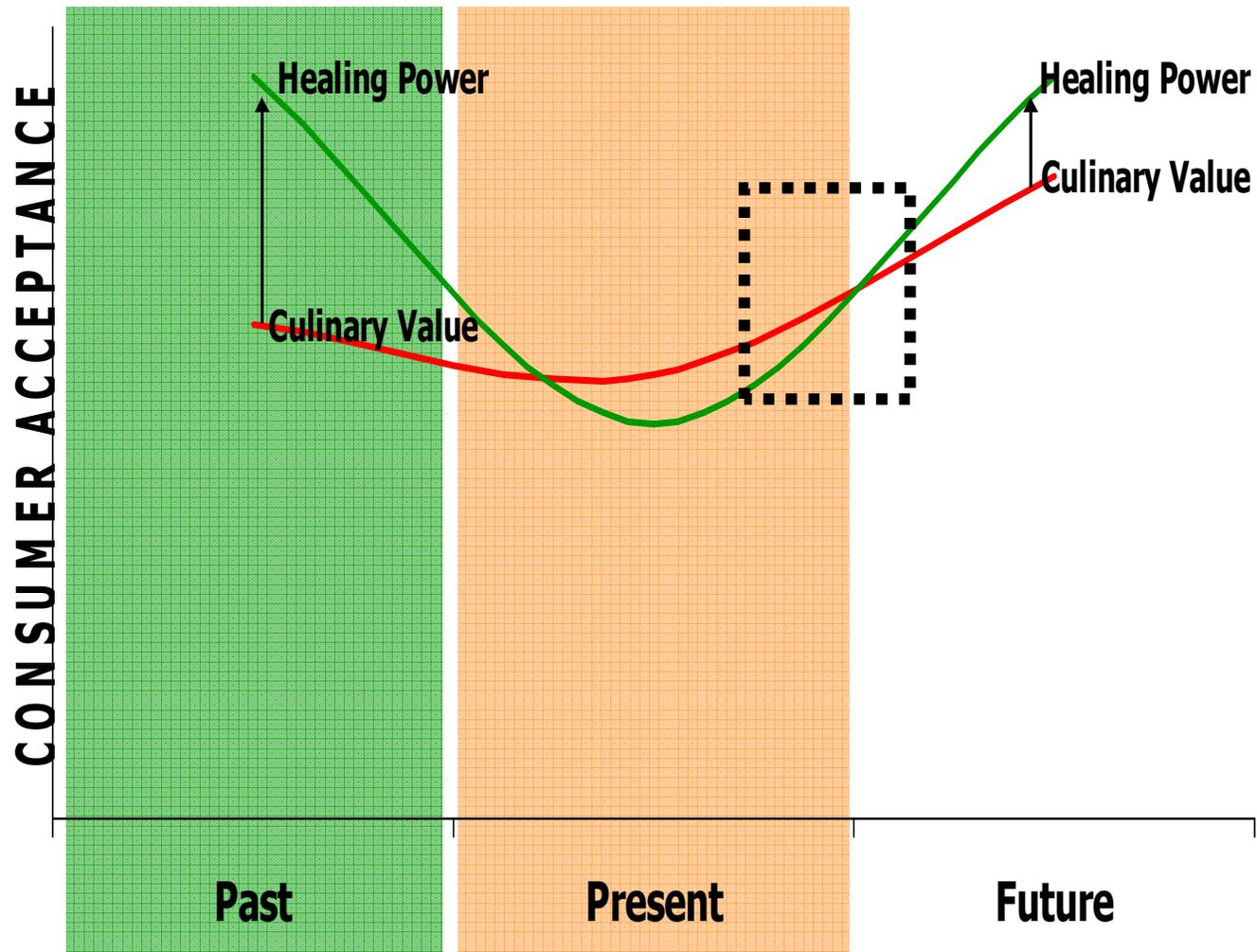
**Health & Wellness**



**Science of Spice**



# ...We Are at The Cusp of A Major “Renaissance” in Consumer Interest in Spices and Herbs Today



**Spices & Herbs as Superfoods: *What Will Tomorrow Look Like?***

# A View of The Future



- ▶ Ethnic foods especially spicy ones (i.e. Latino, Asian, Indian) will be more popular
- ▶ As the global “natural” and “clean” movement continues to gain steam, spices will be used increasingly in packaged foods and displayed on labels worldwide as a source of “good” ingredient
- ▶ The internet will bring Ayurvedic & Chinese medicine to American homes
- ▶ The “green and sustainable” mega trend will favor usage of natural spices and herbs

# A View of The Future



- ▶ **Media will pay greater attention to the wellness news of spices**
- ▶ **Spurred by news on the health benefits of spices and herbs, consumers young and old will use more spices and herbs as natural remedies and prevention**
- ▶ **Consumers will continue to want more antioxidants in their diet**
- ▶ **Polyphenols in “multi-spices and herbs” will be recognized as the new “multi-vitamins”**

# A View of The Future



- ▶ An increasing number of studies on culinary spices and herbs will advance the knowledge of their health & wellness benefits
- ▶ Chronic inflammation (and means to avoid it) will become the focus on wellness initiatives
- ▶ NIH & other government institutions will focus more attention on spices and herbs and provide incremental funding for clinical research
- ▶ Spices and herbs could become a part of U.S. Dietary Guidelines and the Food Pyramid

FEBRUARY 23, 2004

# TIME

BUSH'S  
MILITARY RECORDS  
IS DISNEY MOUSETRAPPED?

## THE SECRET KILLER

- The surprising link between **INFLAMMATION** and **HEART ATTACKS, CANCER, ALZHEIMER'S** and other diseases
- What you can do to fight it



TIME Feb. 23, 2004

[www.time.com](http://www.time.com) AOL Keyword: TIME



# Scientists Are Working to Understand The Major Role Inflammation Plays in Development of Most Diseases



- ▶ Neurological Diseases
- ▶ Pulmonary Diseases
- ▶ Cancer
- ▶ Cardiovascular Diseases
- ▶ Alzheimer's Disease
- ▶ Diabetes II
- ▶ Arthritis
- ▶ Autoimmune Diseases



Source: Aggarwal, Jul 11, 2007.

## ...And, Studies Are Underway To Determine The Role Spices and Herbs Could Have as Anti-inflammatories



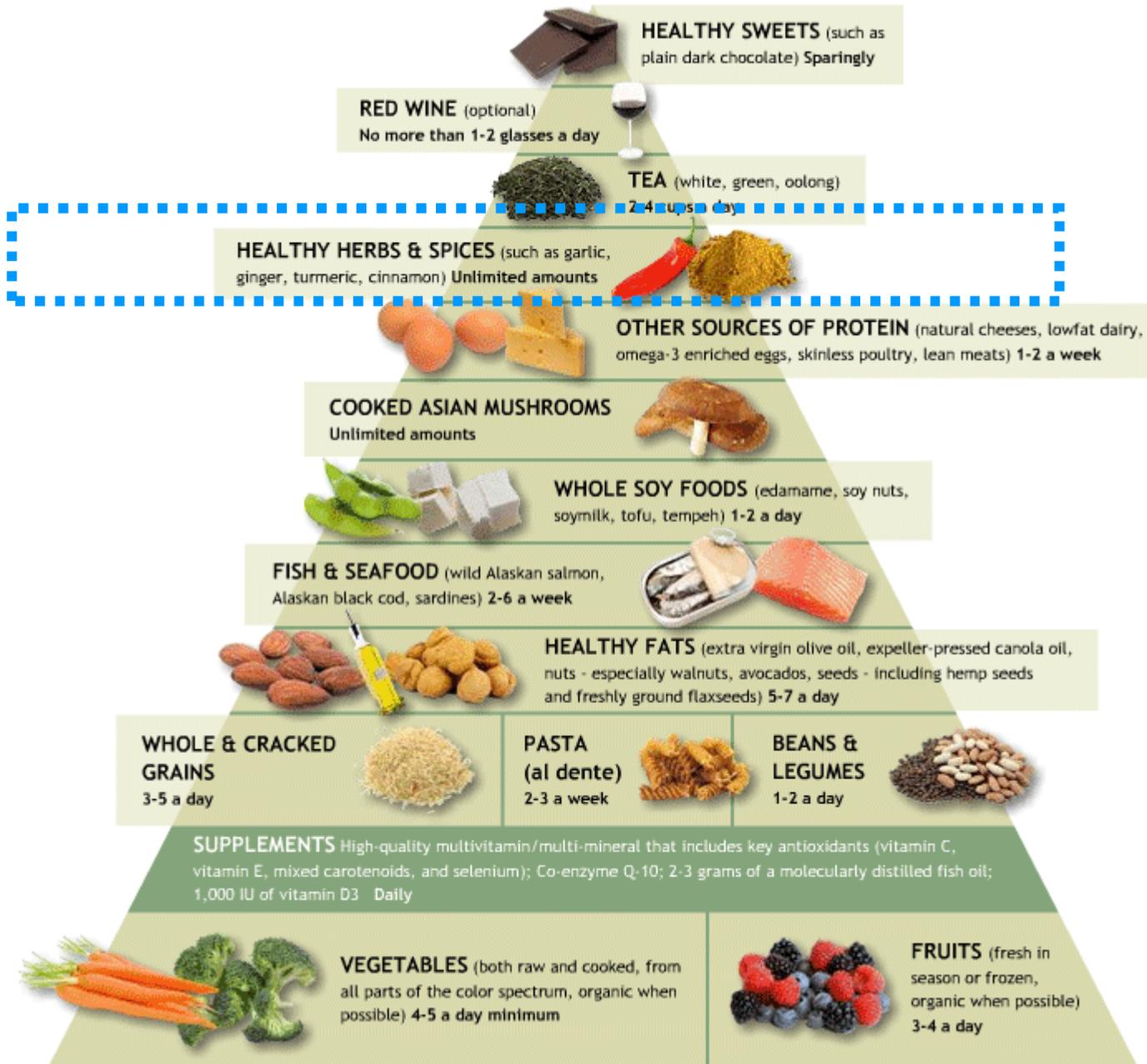
Herb and spice intake, especially in therapeutic dosages, may help decrease inflammation



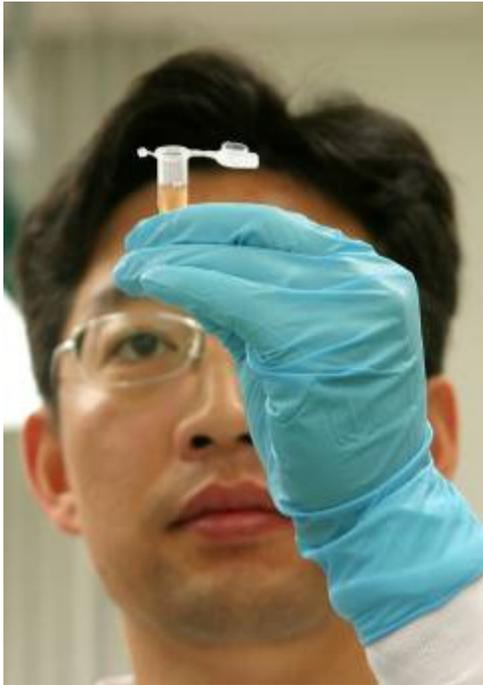
- ▶ Animal and test tube studies indicate sage, ginger, fenugreek, rosemary, turmeric, black cumin, cinnamon, red pepper, garlic and other spices have anti-inflammatory effects

Hypothesis: Incorporation of spices and herbs in daily diet has anti-inflammatory benefits in long term

# Dr. Weil's Anti-Inflammatory Food Pyramid



## Other Scientists Are Studying Whether Spices and Herbs Could Have A Role in Reducing Cancer



▶ Researchers have predicted that common spices such as garlic, curry, ginger, garlic, and chili play a role in reducing cancer incidence

▶ Studies in China, Europe, and the U.S. have consistently found lower cancer (especially colon/stomach) rates with garlic consumption



Source: (Challier, et al, 1998; Fleischauer, et al., 2001; Hsing, et al., 2002; Mei, et al., 1982)

## Sage and Turmeric May Be Taken to Improve Memory



- ▶ Studies in Britain concluded sage could potentially help those suffering from age- or disease-related declines in cognitive function (memory, attention & mood)



- ▶ Study of 1,000 elderly Asians showed those who ate curry (which contained turmeric) had better cognitive performance ... *and it improved as curry consumption increased!*



Source: Cao, et al., 1998

# Cinnamon and Other Spices May Be Used to Help Regulate Blood Glucose



▶ Blood glucose regulation can be tied to weight management

▶ Several human studies seem to indicate cinnamon can help regulate blood glucose (though results aren't consistent)

▶ Other spices (such as turmeric, sage, cinnamon, rosemary, marjoram, and tarragon) have also regulated blood glucose in test tube and animal studies



Source: Hlebowicz, et al., 2007

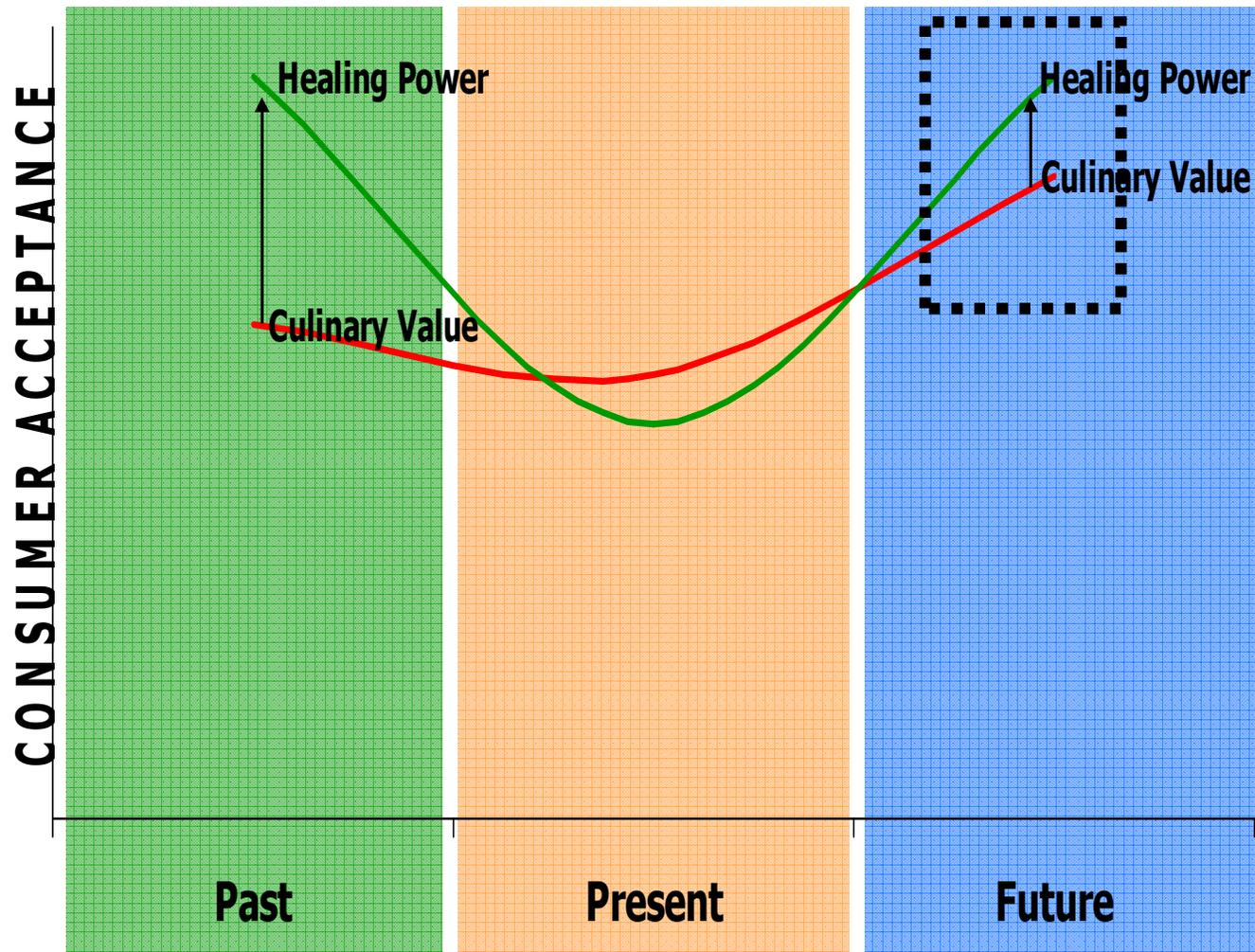
**If The New Scientific Research Proves Daily Intake of Spices and Herbs Has The Ability to Inhibit or Prevent Many of These Chronic Diseases...**



## A Sample of The Reviews on The Health Benefits of Spices

Health Topic	Spice	Articles Reviewed
Antioxidants/ Alzheimer's	Garlic / Curcumin	300
Anti-Cancer/ Anti-inflammatory	Curcumin	126
Obesity	Capsaicin/Black Pepper/ Ginger	76
Prevent/ Heal Ulcers	Chili	447
Anti-diabetic/ Hypoglycaemic	Fenugreek Seeds/ Garlic/ Onion/ Turmeric	89
Anti-microbial/ Anti-viral	Ginger	40
Immune Disorders	Curcumin	170

# ...We Will See A Renaissance in Demand for Spices and Herbs That Harks Back to Ancient Times





***And spices will  
once again, be  
viewed as true  
superfoods!***





# 7 Super Spices



Cinnamon  
Ginger  
Oregano  
Red Pepper  
Rosemary  
Thyme  
Yellow Curry Powder



- ▶ **McCormick has identified seven “super spices” – cinnamon, ginger, oregano, red pepper, rosemary, thyme, and yellow curry powder – each contributing a concentrated source of antioxidants.**
- ▶ **Spices and herbs make food taste great. You already know that. And you're probably aware of how they can help you eat healthier by cutting down on salt, fat and sugar when cooking. Now there's emerging evidence that these kitchen essentials may help protect your health. With each pinch, dash and spoonful, spices and herbs can help boost the antioxidant power of practically everything on your plate.**
- ▶ **So what exactly are these things called antioxidants and why should you care? Antioxidants are extraordinary workhorses in our bodies. Studies suggest they provide a range of benefits, including giving our immune system a boost. They also appear to reduce inflammation, which is increasingly recognized as a first step in heart disease, cancer, diabetes and other chronic disease.**
- ▶ **Preliminary studies indicate that spices and herbs have anti-inflammatory properties that may hold tremendous potential in promoting good health. Other studies suggest spices and herbs may help curb your hunger and boost your metabolism – which might make it easier for you to manage your weight.**

**Now more than ever, there are new reasons to season.**





# Ginger

- ▶ **Ginger is a tropical spice that has a wonderful pungent, citrus flavor that many of us associate with holiday baking. Derived from the gingerroot, this holiday favorite is special for other reasons too. Did you know it has as many antioxidants as a cup of spinach?**
- ▶ **You may be comforted by the soothing smells of ginger-spiked baked goods, yet you may not know that ginger has a long history of other comforting properties. For centuries, ginger was used as a natural remedy for a variety of conditions, especially soothing distressed stomachs. Now modern medicine is attempting to validate the use of ginger to ease indigestion and reduce pain.**
- ▶ **The potential benefits appear to be due to the anti-inflammatory properties of gingerol – one of the active ingredients in ginger. Some studies suggest gingerol may work like certain anti-inflammatory drugs (such as aspirin and ibuprofen) by inhibiting an enzyme that causes inflammation. Research indicates that ginger may offer pain relief for everything from arthritis to nausea and migraines.**

\* TIP - Add a hint of ginger to hot or iced tea. Sweeten 1 cup of tea with  $\frac{3}{4}$  teaspoon ground ginger.





# Oregano

- ▶ **Of all the dried herbs, oregano has one of the highest antioxidant levels. Just one teaspoon of dried oregano leaves has as many antioxidants as three ounces of almonds and ½ cup of chopped asparagus.**
- ▶ **Rosmarinic acid is the active compound in oregano that appears to have the strong antioxidant activity. Many of the studies on oregano (literally translated, "joy of the mountain") have focused on the antimicrobial properties that help fight the growth of bacteria and parasites. Because of the high antioxidant level of oregano, researchers are continuing to explore the use of oregano in various food applications to inhibit bacterial growth. One lab study examined the antimicrobial effects of oregano on the bacteria associated with ulcers.**

\* TIP - For a twist on grilled cheese, prepare sandwich with sliced mozzarella cheese, tomato and ¼ teaspoon of oregano leaves.





# Red Pepper

- ▶ **Turning up the heat with chile peppers can help you crank up the antioxidants. Capsaicin is the powerful compound in peppers that gives chiles their heat. The hotter the pepper, the more capsaicin (and antioxidants!) you'll find. Cayenne or ground red pepper contains the most. Yet all red peppers – including chili powder and the milder paprika – are surprisingly good sources of antioxidants.**
- ▶ **If you're trying to eat less, red pepper might help. Some studies have shown that when people added red pepper to their food they ate fewer calories during that meal – and even during the next meal. It seems that capsaicin helps increase satiety, or a feeling of fullness.**
- ▶ **Beyond helping you control your appetite, initial findings of some studies indicate that spicing up your meal with cayenne, chili powder and paprika can help boost your metabolism. Even milder, sweet red peppers have been found to increase calorie burning.**

\* TIP - Add a kick to hummus or guacamole by stirring in ¼ teaspoon ground red pepper.





# Rosemary

- ▶ **A cornerstone of Mediterranean cooking, this distinctive, aromatic herb is packed with flavor and antioxidants. Rosemary not only tastes good -- in everything from marinades to mashed potatoes -- it is now being linked to good health.**

\* TIP - Dress up baked rolls by brushing the top with olive oil then sprinkle with crushed rosemary leaves before baking.



# Thyme

- ▶ **A teaspoon of this versatile herb contains about the same amount of antioxidants as a carrot or a 1/2 cup chopped tomatoes. Thyme also contains a variety of beneficial compounds called flavonoids that increase the herb's antioxidant capacity and may offer anti-inflammatory benefits.**
- ▶ **Throughout history, thyme was believed to have certain medicinal properties and was used to help treat chest and respiratory problems. Now researchers believe thymol and other volatile oils in thyme may be responsible for a range of benefits. Some studies suggest the antioxidants in thyme could offer age-related benefits, such as helping to maintain cognitive function and promote heart health.**



\* TIP - Wake up the taste buds with herbed scrambled eggs. Beat 1/8 teaspoon thyme leaves into 2 eggs before scrambling.



# Yellow Curry Powder

- ▶ **Turmeric is a deeply-hued spice found in yellow curry powder that provides much more than color and flavor. It is a concentrated source of antioxidants – on par with strawberries, raspberries and cherries. Even a teaspoon of curry powder, which is a blend of turmeric and other spices, has as many antioxidants as ½ cup of red grapes.**
- ▶ **Curcumin, the bright yellow compound in turmeric, has been the focus of several studies. Emerging evidence suggests curcumin may help inhibit the growth of cancer cells, reduce inflammation and safeguard our brain. In preliminary studies, curcumin helped thwart the development of destructive brain plaques. As a result, researchers believe yellow curry may offer the potential to protect against Alzheimer's disease.**

\* TIP - Create a spiced curried pilaf by adding ½ teaspoon yellow curry to 2 cups hot cooked rice.



# Cinnamon

- ▶ **You may adore the warm, distinctive flavor that cinnamon adds to sweet and savory dishes. But there's much more to this fragrant spice than you ever imagined. Did you know that this ancient spice taken from the inner bark of tropical trees is an antioxidant powerhouse?**
- ▶ **Cinnamon has one of the highest antioxidant levels of any spice – and even more than many foods. You'll find as many antioxidants in 1 teaspoon of cinnamon as a full cup of pomegranate juice or ½ cup of blueberries.**
- ▶ **Beyond antioxidants, cinnamon is also rich in natural compounds called polyphenols. These compounds appear to act like insulin in our body and may help regulate blood sugar levels. That's especially good news for people with diabetes.**

\* TIP - Keep a shaker of ground cinnamon handy to sprinkle over everything from hot cocoa to oatmeal and fruit salad.





**Thank You!**

