



Spice Rack Medicine



- Ever add a pinch of cinnamon to your coffee or a spring of rosemary to your famous baked chicken?
- You may think you're merely making your favorite drinks and dishes more flavorful, but spicing up your meals doesn't just up the tastiness factor -- it can also be a **boon to your health and your beauty.**
- The benefits spices offer you in terms of your diet and health are endless
- They can help **control blood sugar, protect against inflammation that can contribute to chronic diseases such as heart disease and Type 2 diabetes and may play a role -- directly or indirectly -- in weight management.**
- Spices literally add spice to your life and diet but can also be a simple way to enhance meals and optimize your overall health, inside and out.

Passage to Flavor

- *Did You Know?* The reason for Columbus's voyage in 1492 was to seek a more direct passage to the **rich spices of the Orient?**



Spices

- Wars have been fought over them ...
- Kingdoms were lost because of them ...
- New lands were discovered in search of them ...
- In ancient times and for centuries to follow, spices were often **more precious than gold!**
- But before they were money, **spices were medicines**
- Turmeric, cloves, cinnamon, coriander, ginger are among the oldest spices with their use dating back to the world's first civilizations
- Writings from India of 3,000 years ago describe the therapeutic uses of spices for hundreds of ailments



Spice Rack Medicine

- Modern science is beginning to uncover the ultimate power of spices and herbs, as **weapons against illnesses from cancer to Alzheimer's disease.**
- "We're now starting to see a scientific basis for why **people have been using spices medicinally for thousands of years,**" says Bharat Aggarwal, Ph.D., professor at the University of Texas M.D. Anderson Cancer Center in Houston and author of the book *Healing Spices*
- In native India, where spices tend to be used by the handful, incidence of diet-related **diseases like heart disease and cancer have long been low.**
- But when Indians move away and adopt more Westernized eating patterns, their **rates of those diseases rise.**

Spice Rack Medicine



- While researchers usually blame the meatier, fattier nature of Western diets, Aggarwal and other experts believe that herbs and spices—or more precisely, the lack of them—are also an important piece of the dietary puzzle.
- "When Indians eat more Westernized foods, they're getting much **fewer spices than their traditional diet contains,**" he explains. "They lose the protection those spices are conveying."

Spice Rack Medicine



- Spices contain compounds that **fight oxidation and inflammation** – the two processes underlying most chronic diseases
- Studies that analyze dietary patterns and disease – population or epidemiological studies – have linked **high spice intake to low rates of chronic disease**
- Fruits and vegetables **may not be enough** – spices may be more important than the foods they flavor!

Spice Rack Medicine

- While science has yet to show that any spice cures disease, there's compelling evidence that several may **help manage some chronic conditions**
- And of course, seasoning your dishes with spices allows you to use less of other ingredients linked with health problems, such as **salt, added sugars and sources of saturated fat.**



Cardiac Health



- Using herbs and spices to add flavor to meals is a great way to decrease salt intake. **Decreasing salt intake** is important for many reasons:
 - ☐ Salt can **increase blood pressure**, especially in salt sensitive people
 - ☐ High blood pressure is the #1 risk factor for **stroke**
 - ☐ High blood pressure is a major risk factor for **heart disease**

Cardiac Health



- A low sodium diet may help **reduce your risk of heart disease**, as well as stroke.
- The American Heart Association recommends eating **less than 2300mg** a day.
- Using herbs and spices instead of salt is a **healthy and delicious** way to decrease sodium intake and decrease your risk of heart disease.
- According to the American Spice Trade Association (ASTA), spices such as **black pepper, garlic powder, curry powder, cumin, dill seeds, basil, ginger, coriander and onion** are the most effective dried herbs and spices in **replacing the taste of salt**.

Spices Help Reduce Calorie Intake

- University of Colorado researches – published in *Appetite* 2014 Journal – found that spices helped participants **reduce their calorie/fat intake WITHOUT affecting flavor**
- 150 participants: each participant tested one of 3 variations on a lunch meal consisting of meatloaf, mixed vegetables (broccoli and cauliflower with butter) and pasta with a cream sauce
- Variations: 1) full-fat version (the control), 2) a reduced-fat version of the same meal and 3) reduced-fat version of the same meal **with the addition of spices such as garlic, onion powder, oregano and chives**. Sodium stayed the same in all three meals

Spices Help Reduce Calorie Intake

- Participants rated the meals from “dislike extremely” to “like extremely”
- Unsurprisingly the participants liked the full-fat version of their control meal more than they liked the reduced-fat version
- However, the **addition of spices to the reduced-fat meal improved the score to near the full-fat levels**
- They liked the meal with added spices and less fat almost as much as they liked the full-fat meal – both the meatloaf and the vegetables separately
- The reduced-fat, spiced meals were ranked **within 1/3 point of the full-fat version**
- Participants like the full-fat version of the pasta with cream sauce more than the reduced-fat with spices and a LOT more than just the reduced fat version

Spices



- Epidemiological studies that explore the link between diet and health show that **populations eating a diet rich in spices have lower rates of certain diseases**
- The United States, for instance, has three times the rate of colon cancer as India, which is well known for its spicy cuisine
- India also has one of the **world's lowest rates of Alzheimer's disease**
- Greece, known for a healthy diet rich in garlic, onions, rosemary and marjoram, enjoys a **low rate of heart disease**
- Spain, the country that consumes the most saffron, has **low levels of the "bad" LDL cholesterol**

Spice Rack Medicine



- **Herbs**, including basil and parsley, are from plants and plant parts. They usually come from **leaves**
- **Spices** often come from the **seeds, berries, bud, bark, leaves, flower, or roots of plants.**
- For example cilantro (the herb) is the fresh leaves of a plant; coriander (the spice) is the dried seed of the same plant.

Allspice: “An All-Around Healer”



- Allspice has been mistaken for nutmeg, cinnamon, black pepper, and juniper berry; most often mistaken for clove
- Gets its rich and fragrant aroma from *eugenol*, same substance that has made clove oil “a well-known pain desensitizer”
- Allspice contains **more than 2 dozen compounds** with healing qualities
- Has antiviral, antibacterial, analgesic and anesthetic qualities
- Research has shown it to be **effective for fighting oxidative cell damage that leads to chronic health problems, lowering BP, relaxing the CNS, improving blood flow in the arteries, relieving menopause symptoms, and helping with the treatment of menopause and osteoporosis**
- Common flavoring agent in soft drinks, chewing gum, ketchup, BBQ sauce, pates, terrines, smoked fish and canned meats

Allspice



- Allspice is loaded with **antioxidants**
- Researchers in Japan found Allspice berries contain 25 active phenols, a category of antioxidants
- These antioxidants **fight the oxidative cell damage** that can lead to cancer, heart disease, Alzheimer's and other chronic health problems
- In three separate studies researchers found that allspice lowered high blood pressure in animals and they theorized that it works by **relaxing the central nervous system** and improving blood flow in the arteries

Basil: “The Garden of Youth”



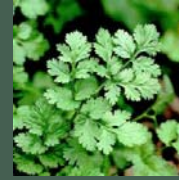
- Many think basil is native to Italy but it's actually **native to India, southeast Asia, and North Africa**
- Symbol of love to the Italians; a Romanian man who accepted a sprig of basil from a woman was considered an engaged couple; but ancient Greeks named it after the *basilisk*, a deadly mythological creature
- Revered plant in India; root is carved into prayer beads (Tulsi beads)
- Sweet basil most commonly used in American kitchens
- Shown to **attack free radicals, help with diabetes, digestive disorders, skin problems, infections, snake bites, stress (by lowering cortisol levels), blood sugar, heart protection, reducing "bad" fats, eye problems, pain relief, wound healing, gout, ulcers, malaria, and pink eye**

Basil



- Researchers in India studied animals with induced heart attacks and found that basil extract **protected their hearts** by improving the body's antioxidant defense mechanism and by diminishing free radicals
- Studies in India found that the antioxidant activity in basil has the potential to **block or suppress liver, stomach and lung cancer**
- *Journal of Ethnopharmacology* reported on a study that showed the extract from basil leaves **significantly lowered the blood glucose** in lab animals with and without diabetes
- Holy Basil (one type of basil) is part of the Zyflamend product that helps **alleviate inflammation associated with arthritis**

Cilantro



- Cilantro essential oil used in ancient Greece as component of perfume
- Used by the Romans in medieval times to “mask the smell of rotten meat”
- Most often cited as being **effective for toxic metal cleansing**
- May be able to help **prevent cardiovascular damage**
- Has been shown to have **anti-anxiety effects, blood sugar lowering effect, improve sleep quality, antioxidant properties, demonstrated activity against several types of harmful organisms, and promote the digestive system**

Cilantro and Coriander



- The **leaves** of the coriander plant are **cilantro**
- They're not a spice, they are an herb
- The sweet, nutty **seeds** of the coriander plant are the spice **coriander**
- One of the world's oldest spices – seeds were found in an archeological dig dated around 7000 BC
- Gastroenterologists studied 32 people with **irritable bowel syndrome** – they divided them into 2 groups: one received Carmint, a preparation that contains coriander, the other received a placebo
- After 8 weeks those taking Carmint had 3 times more improvement in abdominal pain and discomfort than the placebo
- Also been shown to help with constipation

Cinnamon



- Fragrant cinnamon spice is **one of the highly prized spices** that has been in use since biblical times for its medicinal and culinary properties.
- This delightfully exotic, sweet-flavored spice stick is traditionally obtained from the outer brown bark of *Cinnamomum* trees, which when dried, rolls into a tubular form known commercially as "quill."
- Varieties of the cinnamon-tree exist; however, Sri Lankan variety is regarded as "true cinnamon" and scientifically named as ***Cinnamomum verum***.
- **Cassia**, also known as *chinese cinnamon*, is a different member of *Lauraceae* family and named as ***Cinnamomum cassia***.
- Cassia is coarser, more spicy, and pungent but less fragrant than cinnamon. It is usually substituted for the cinnamon in savory dishes.

Cinnamon



- Ceylon Cinnamon is considered by many to be "true" cinnamon and originates specifically from the tree known as *cinnamomum zeylanicum*.
- Ceylon cinnamon has a flavor that is **sweeter and more refined** than that of the cassia variety.
- It is typically more expensive and difficult to find than the cassia cinnamon varieties. For this reason **cassia is used more often in American kitchens than Ceylon cinnamon**.
- In the United States, the spice known as cassia is often used interchangeably with true cinnamon.

Cinnamon



- The active principles in the cinnamon spice are known to have anti-oxidant, anti-diabetic, anti-septic, local anesthetic, anti-inflammatory, rubefacient (warming and soothing), carminative and anti-flatulent properties.
- Cloves and cinnamon have the highest anti-oxidant strength of all the food sources in nature.
- *Cinnamaldehyde* in cinnamon-sticks has been found to have anti-clotting action, prevents platelet clogging inside the blood vessels, and thereby helps prevent stroke, peripheral arterial and coronary artery diseases.
- The active principles in this spice may increase the motility of the intestinal tract as well as help aid in the digestion power by increasing gastro-intestinal enzyme secretions.

Cinnamon

- This spicy bark is an excellent source of minerals like potassium, calcium, manganese, iron, zinc, and magnesium. Iron is required for cellular metabolism as a co-factor and in RBC's production.
- Potassium is an important component of cell and body fluids that helps control heart rate and blood pressure. Manganese and copper are chiefly used by the body as co-factors for the antioxidant enzyme, *superoxide dismutase*.
- It also contains very good amounts of vitamin A, niacin, pantothenic acid, and pyridoxine.

Cinnamon



- The sweet spice is loaded with health benefits.
- Cinnamon contains substances that work as antioxidants to protect cells against damage caused by harmful free radicals -- substances found in the environment and inside the body that destroy cells
- The spice may also be a diabetic's new best friend.
- We know that cinnamon has an effect on regulating blood sugar as studies show that it can significantly reduce fasting plasma glucose
- Several studies suggest that cinnamon may help regulate blood glucose as well as blood pressure in people with Type 2 diabetes.
- One study found that consuming two grams of cinnamon for 12 weeks significantly reduces the HbA1c [a test that shows blood sugar levels], systolic blood pressure and diastolic blood pressure in those with poorly controlled Type 2 diabetes
- Another study found that cinnamon extract significantly increased insulin sensitivity and improved hyperglycemia in mice.

Cinnamon

- What's more, a dash of cinnamon may help curb your sweet tooth.
- Sweet spices such as cinnamon can also satisfy cravings and when added to tea or fruit, may eliminate the need for supplemental sweeteners
- Cinnamon spice is readily available year-round in the markets, either in the form of sticks (quills) or powdered.
- In the store, buy whole sticks instead of powder since, oftentimes it may contain adulterated spicy powders. The sticks should be wholesome, compact, light brown color in Ceylon variety or dark brown in Indonesian variety.
- Whole sticks should be stored in cool, dry, dark place, in airtight glass containers for many months and can be milled using hand held mill as and when required. Ground/powder cinnamon spice should be stored in the refrigerator inside sealed containers and should be used as early as possible since it loses its flavor quickly.

Cayenne pepper



- Fiercely hot and pungent cayenne pepper is **one of the widely used spicy ingredients in many cuisines**.
- Cayenne fruits are long thin pods obtained from the plant belonging to the nightshade family of *Solanaceae*, of the genus; *capsicum*.
- Cayenne variety of chili pepper plant is native to Central American region where it was used as a spicy ingredient in Mexican cuisines for several thousand years.
- The spice was introduced to the rest of the world, especially in the Indian subcontinent, by Spanish and Portuguese explorers during 16th and 17th centuries.
- They are now one of the important commercial crops in India, Pakistan, China, Argentina and USA
- Cayenne contains a health benefiting alkaloid compound **capsaicin**, which gives strong spicy pungent character

Capsaicin

- What's more, the spice may help you slide into your skinny jeans.
- A Purdue University study found that **eating red peppers can help suppress appetite and burn more calories after a meal**, especially in those who don't eat the spice often.
- Other research shows that capsaicin **helps suppress body fat accumulation** -- in particular, a 2009 study published in the *American Journal of Clinical Nutrition* found that capsaicin plays **a role in abdominal fat loss**.
- That may be because the spice **affects key proteins found in fat**, triggering them to break down fat.
- And a Japanese study on mice found that taking capsaicin was **as effective as exercise** when it comes to maintaining body weight.
- However, keep in mind that the study was done on mice and take it with a grain of salt. In other words, don't use that as an excuse to cancel your gym membership and munch on hot chili peppers instead.
-

Capsaicin



- Dihydrocapsiate, a compound in chili peppers, **boosted fat-burning capacity** when people ate it three times a day during another study.
- And a recent study in *Cell Metabolism* showed that consuming **capsaicin**, the ingredient in chili peppers that provides heat, **lowered blood pressure** in lab animals.

Capsaicin

- Fresh cayenne peppers, red or green, are rich source of **vitamin-C**.
- Vitamin-C is a potent water soluble antioxidant. It is required for the collagen synthesis in the body. Topical Vitamin C serums are widely used
- Collagen is the main structural protein in the body required for maintaining the integrity of blood vessels, skin, organs, and bones.
- Cayenne chili peppers are perhaps the **richest source of vitamin A among the spices**
- In addition, this prized spice is also home of anti-oxidant flavonoids such as carotenes, and lutein. Together, these antioxidants in capsicum help to protect the body from injurious effects of free radicals generated during stress, and disease conditions.

Cayenne



- Capsaicin from cayenne peppers and other co-compounds are used in the preparation of ointments, rubs and tinctures for their astringent, counter-irritant and analgesic properties.
- These formulations have been in use in the **treatment of neuropathic pain, sore muscles, post surgery pain, and arthritic pain such as osteoarthritis and rheumatoid arthritis, etc.**
- Capsaicin works by **first stimulating and then decreasing the intensity of pain signals** in the body. Although pain may at first increase, it usually decreases after the first use. Capsaicin stimulates the release of a compound believed to be involved in communicating pain between the nerves in the spinal cord and other parts of the body.
- Capsaicin in cayenne chilies when eaten initially elicit inflammation when it comes in contact with the delicate mucus membranes of oral cavity, throat and stomach, and soon produces severe burning sensation that is perceived as 'hot' through free nerve endings in the mucosa.
- **Eating cold yogurt helps reduce the burning pain** by diluting capsaicin concentration and also preventing its contact with stomach walls.

Clove: "Pain Relief's Loyal Servant"



- Oil is **mild anesthetic** and has been used in the dental industry for its numbing properties; also helps boost circulation and can also **fight gingivitis, periodontitis, and stomatitis**
- Has been shown to fight a variety of **bacteria and viruses** throughout the body such as *H. Pylori*, herpes simplex, and Hepatitis C, repel mosquitos and protect against bites, stop blood clots, and be anti-cancer
- Study found that the oil of clove – eugenol – **stopped the growth of 30 strains of H. pylori and did so 25 times faster than amoxicillin.** Also, the bacteria didn't develop any resistance to eugenol

Cloves



- Hepatitis C : Millions of Americans are infected with hepatitis C virus, which can lead to cirrhosis and liver cancer
- Japanese researchers found that eugenol caused near total inhibition of the virus
- May prove to play a great role as an anti-hepatitis agent

Cumin



- The Mediterranean spice is a good source of iron and like cinnamon, animal studies have shown it may help **lower blood glucose levels**.
- Cumin also has **antibacterial properties**. Several studies have found that the spice is effective at **killing Helicobacter pylori**, a bacteria linked with stomach ulcers

Got achy joints from arthritis? Black cumin (nigella sativa) can help reduce inflammation associated with rheumatoid arthritis, according to several animal studies.

Cumin: “Keeping Diabetes Under Control”



- Most popular spice in Mexican cuisine
- Shown to **reduce levels of cholesterol, triglycerides, blood sugar levels, and levels of damaging fat and inflammation in pancreatic cells**, delayed progression of cataracts, cut the formation of advanced glycation endproducts (AGEs) by 40-90%, helped with osteoporotic bone loss and helped with preventing/stopping cancer and cancerous tumor growth
- Rich in phytoestrogens and vitamins A and C
- Study in India: researchers treated lab animals with type 2 diabetes with either cumin or the diabetes drug Diabeta
- They found **both worked equally well**

Cumin



- Animal studies have found that cumin:
- **Prevented the formation of colon tumors** in rats fed cancer-causing substances
- **Reduced the risk of cervical cancer by 82%** compared to animals not receiving the spice
- Significantly **decreased the incidence of stomach and liver cancer**

Turmeric



- The bright yellow spice, which is part of the ginger family, does much more than make a mean curry.
- It may also help **fight cancer**.
- Turmeric owes it preventive and curative skills to its active ingredient: curcumin
- A new study published in the *Journal of Biological Chemistry* found that curcumin -- the potent antioxidant in turmeric -- **improves the effectiveness of chemotherapy in breast cancer patients and has potential to be developed into an complementary chemotherapy drug.**

Turmeric/Curcumin

- Another study published in the journal *Clinical Cancer Research* found that turmeric supplements **suppress a cell signaling pathway that fuels the growth of head and neck cancer**. (The biggest downside: The study participants' mouths and teeth turned bright yellow because of the spice -- a small price to pay for reducing the risk of cancer.)
- Researchers at M.D. Anderson Cancer Center compared curcumin to anti-inflammatory and pain-killing medications, and to cancer drugs, testing those agents for their effectiveness in **reducing inflammation and stopping the proliferation of cancer cells**
- Curcumin proved to be **more effective at reducing inflammation than over the counter aspirin and ibuprofen and as effective as the more powerful prescription drug Celebrex**

Turmeric/Curcumin

- It also proved **as effective in thwarting breast cancer cells as tamoxifen**, a drug widely used to stop the spread or recurrence of breast cancer
- Studies also show that curcumin can be effective in the fight against Alzheimer's Disease
- Alzheimer's is caused by accumulation of plaque between brain cells (neurons) which thwarts communication between those cells
- Scientists don't know **why** these plaques form, but they do know **how** the develop
- The trigger is a protein called amyloid-A

Turmeric/Curcumin

- In healthy brains, this protein is broken down and eliminated
- In Alzheimer's the protein clumps together and hardens
- Animal studies show that **curcumin binds to amyloid-A, stopping it from clumping together and blocking neural activity**
- Curcumin can also **slow oxidative damage to neurons, reduce damage to neural synapses (the pathways of communication between brain cells) and reduce levels of toxic metals in the brain that might contribute to Alzheimer's**
- India, with a high intake of curcumin, has one of the lowest rates of Alzheimer's disease as well as cancer and diabetes

Turmeric/Curcumin

- Curcumin has also been studied in connection with **Parkinson's** disease (both oxidative damage and inflammation have been implicated in Parkinson's)
- Researchers at John Hopkins University School of Medicine found that curcumin **dramatically reduced the rate of oxidative damage in cells in a study on Parkinson's**
- Researchers in Thailand tested curcumin's anti-inflammatory power against ibuprofen in an experiment involving 107 older people with severe chronic osteoarthritis
- Curcumin was **just as effective as the ibuprofen**

Turmeric/Curcumin

- NSAIDs – non-steroidal anti-inflammatory drugs such as aspirin, Aleve, Ibuprofen, Motrin
- Combat inflammation
- Irritate the lining of the GI tract – **nearly 1 in 3 of the 13 million people** taking NSAIDs suffers from GI problems which hospitalize 103,000 people yearly and kill more than 16,000 with sudden and massive bleeding from an ulcer
- Researchers tested **curcumin's anti-inflammatory power** against ibuprofen in an experiment involving 107 people with severe chronic osteoarthritis
- Half took 800 mg ibuprofen, while the other half took 2,000 mg of a curcumin extract
- Researchers found curcumin to be **just as effective in alleviating knee pain and improving knee function**

Turmeric/Curcumin

- To date, thousands of animal and human studies from around the world have found that curcumin can **combat more than 70 diseases**, including some of the biggest health threats like cancer, heart disease, type 2 diabetes, and Alzheimer's disease
- There is no spice under more scientific scrutiny in the US and around the world – and no spice offering more promise – for better health – than turmeric



Curcumin and Depression

- Study comparing safety and efficacy of curcumin with fluoxetine (Prozac) in people with major depressive disorder – MDD
- 60 people were randomized in a 1:1:1 ratio for 6 weeks with **combination fluoxetine or Prozac (20 mg) and curcumin (1000 mg)**, or **just fluoxetine** or **just curcumin**
- Response rates based on Hamilton Depression Rating Scale
- Proportion of responders was highest in the **combination group (77.8%)**
- **Fluoxetine (64.7%) and the curcumin (62.5%) – not statistically significantly different**
- **Curcumin was essentially as effective as Prozac without any of the adverse side effects**



Curcumin and Depression

- Polyphenols such as curcumin are **highly protective to the structure and function of brain cells**
- By helping the brain have **less friction** they help to modulate and improve the flow of neurotransmitters also anti-inflammatory
- Antidepressants, on the other hand, prop up the supply of neurotransmitters regardless of the current level of friction (inflammation) that is interfering with nerve transmission

Curcumin and Cholesterol

- Curcumin works in the liver where it increases the production of proteins that **attach to LDL particles and escort them out of the body**
- Curcumin also stimulates the liver to **produce more bile**, which helps break down and eliminate excess cholesterol
- In addition, animal studies have found that curcumin has the ability to : **lower triglycerides, block the production of homocysteine (an amino acid linked to heart disease), regulate blood pressure and reduce damage from a heart attack**

What is Curry?



- Curry powder is **not one spice**
- It is a **combination of spices** the English invented in the 18th century as a shortcut to spice up food
- Spices in curry powder typically include **coriander, cumin, fenugreek, black pepper and always turmeric**
- Curry powder has nothing to do with the true spice curry
- That spice is derived from the curry leaf, which is from a different botanical family
- There is NO curcumin in the true spice curry

Curcumin

- If taking as a supplement, look for products **standardized for 95% curcuminoids** that also contain piperine or black pepper extract
- Curcumin supplements are poorly absorbed from the GI tract but research has shown that absorption is **greatly enhanced by the presence of piperine**, a compound in black pepper
- Can be taken **with antidepressants**. Start with 1,000 mg per day
- Do not use if you have gallstones or bile duct dysfunction
- Caution with use with chemotherapy as it can interfere with treatment



Oregano



- A staple of Italian dishes, oregano is loaded with antioxidants and can also help fend off bacteria.
- When it comes to natural and effective barriers against *E. coli*, *Salmonella* and *Listeria*, oregano oil was found to be **the most effective antimicrobial**, followed by allspice and garlic, according to a study in the *Journal of Food Science*, published by the Institute of Food Technologists.
- A phytochemical in oregano called carvacrol is the active ingredient with anti-bacterial properties
- The major components of oregano oil – **carvacrol and thymol** – are powerfully antibacterial, antiviral, anti-fungal and anti-parasitic

Oregano



- Numerous studies have demonstrated the antioxidant properties of oregano.
- Its active agent, rosmarinic acid, clears out the free radicals that age us and contribute to disease.
- Additionally, oregano is also one of the **strongest and most effective broad-spectrum antibiotics and antifungals out there**. It can help kill Candida, or yeast infection, as well as fungal nail infections.
- Packed with antioxidants, 1 tsp of oregano contains as much antioxidants as 3 cups of broccoli!
- Several animal studies show that oregano oil can **strengthen and heal the liver** – good news for the tens of millions of Americans with non-alcoholic fatty liver disease, hepatitis C, Cirrhosis and other liver diseases

Ginger



- The spice is well known for its myriad health benefits, including **anti-inflammatory benefits**.
- Traditionally used to relieve colds and stomach troubles, ginger is rich in **inflammation-fighting compounds**, such as gingerols, which some experts believe may hold promise in fighting some cancers **and reducing arthritis pain**.
- Two other phytochemicals, shogaol and zingerone, in ginger have anti-tussive and anti-inflammatory properties - this means they bring relief for cough and congestion from a cold or the flu.
- They are also known to minimize discomfort from the ravages of **arthritis**.
- Sore from the gym? Have some ginger. Research published in the *Journal of Pain* shows that **consuming two grams of ginger supplements daily eased exercise-induced muscle pain by 25% over an 11 day period.**

Ginger: Quieting That Queasy Feeling



- Has been used for thousands of years in China, India, the Middle East and Roman Empire to "quit that queasy feeling"
- Shown to help **motion sickness, morning sickness, nausea after surgery, chemo-induced nausea**
- Gastroenterologists from the University of Michigan asked 13 volunteers with a history of motion sickness (from car, boat, or plane) to sit in a spinning chair
- They all became nauseated
- When volunteers took either 1,000 mg or 2,000 mg of ginger **before** they sat in the chair, it took them 35% longer to develop nausea, the nausea was less intense by 30% and the nausea was far less severe 15, 30 and 45 minutes after the chair stopped spinning

Ginger: Quieting That Queasy Feeling

- Ginger may be an **effective treatment for nausea and vomiting in pregnancy**
- Italian scientists wrote in *Obstetrics and Gynecology* that after evaluating data from six studies on ginger and morning sickness involving 675 women, that ginger offers the clinician and pregnant woman **a safe alternative to prescription medications for nausea**
- In a recent study researchers divided 67 pregnant woman into 2 groups: One took 250 mg of ginger 4 times a day and the other took a placebo
- After 4 days, those taking ginger had **a 41% decrease in vomiting**



Ginger



- Another study found that ginger extract injections helped **relieve osteoarthritis pain** of the knee.
- Researchers at the University of Miami studied 247 people with osteoarthritis of the knee, dividing them into two groups
- One took a ginger extract, while the other took a placebo
- After 6 weeks, those taking ginger had **31% less knee pain on standing, 42% less knee pain after walking 50 feet and they took less pain medication**



Thyme



- There are over 100 different varieties of thyme, each with a subtly different flavor
- But all those varieties have one factor in common – the volatile oil thymol
- Thymol is one of Mother Nature's most powerful antiseptics
- Thymol is the primary antiseptic in the mouthwash Listerine ("Kills germs on contact")
- Thymol is in a class of phytonutrients called monoterpenes, that have powerful antioxidant and anti-inflammatory compounds

Thyme

- The herb, which is part of the mint family, can help **suppress inflammation**, according to a study in the *Journal of Lipid Research*.
- Researchers looked at the essential oils of **thyme, clove, rose, eucalyptus, fennel and bergamot** and found that they reduced COX-2 expression in cells by at least 25%
- But the real star was thyme oil, which **lowered COX-2 levels by nearly 75%**.
- Thyme oil also has powerful antimicrobial properties.
- Researchers who looked at the antimicrobial activity of eight plant essential oils found that thyme oil was the most effective -- it almost completely eradicated bacteria within 60 minutes.
- Yet another study showed that thyme oil was able to inhibit antibiotic-resistant *Staphylococcus aureus* (MRSA).

Thyme

- Many, many animal studies have found thyme to be **effective for:**
- Anti-cancer
- Anti-clot
- Anti-herpes
- Anti-infection
- Anti-colitis
- Anti-ulcer
- Anti-alcoholism



Rosemary



- In ancient Greece, scholars wore rosemary garlands to help them study—and one recent study found that **people performed better on memory and alertness tests when mists of aromatic rosemary oil were piped into their study cubicles.**
- Rosemary is often used in marinades for meats and poultry, and there's scientific wisdom behind that tradition: rosmarinic acid and other antioxidant compounds in the herb **fight bacteria and prevent meat from spoiling, and may even make cooked meats healthier.**

Rosemary



- Grilling, frying, broiling or smoking at high temperatures causes molecules in certain foods to break down and produce **toxic chemicals called heterocyclic amines, or HCAs**
- When consumed, HCAs are readily absorbed and traces of them have been found in **human colon, breast, and prostate cells**
- They've been found to **induce DNA damage** in test animals
- Population studies over the years link a **high intake of grilled meat with an increased risk of various cancers, including colon, breast, prostate and pancreas**

Rosemary



- Studies conducted during the last 3 decades consistently have found that HCAs start to build up on all flesh foods – meat, poultry and even fish – 4 minutes after the temperature reaches **352 degrees F.**
- The longer the cooking time and the higher the temperature, the greater the toxic build up
- In one study for example, food fried at 435 degrees contained **6 times as many** HCAs as the same type of food fried at 352 degrees
- The standard household broiler is set at 500 degrees and high-end steakhouses cook meats at 600 degrees
- Studies show that **rosemary is a potent antioxidant that can wipe out HCAs**

Rosemary



- When researchers in Austria fried hamburgers at a relatively moderate temperature of 356 degrees F for 20 minutes, they found HCAs continued to rise as the meat was being cooked
- When they sprinkled rosemary on another set of burgers before putting them on the grill, and fried them at the same temperature for the same amount of time, **61% fewer HCAs were detected**
- Researchers at Kansas State University have consistently shown in studies that putting a little edible rosemary extract on hamburgers significantly decreased levels of HCAs – in some instances HCAs **could not be detected at all**

Rosemary



- Rosemary's carcinogen-killing talent comes from a special blend of antioxidants – *rosmarinic acid*, *carnosic acid* and *carnosol*
- More than 50 animal and test tube studies show that carsanol, carnosic acid and other components of rosemary can **suppress and kill cancer cells**
- Researches in Israel reporting in the journal *Oncology*, found that rosemary **increased survival time in mice with leukemia**
- Researchers at the University of Illinois found rosemary extract could **significantly inhibit the initiation and promotion of breast cancer in animals exposed to carcinogens**

Rosemary

- US Researchers found that a supplement containing rosemary extract **reduced pain by up to 50% in people with arthritis**
- Studies in Mexico found that adding rosemary to the diets of test animals helped alleviate the pain and inflammation from chemically induced arthritis
- Repeated treatment with rosemary extract **dramatically reduced pain** and inflammation and helped restore "nearly normal" joint health in test animals with experimentally induced rheumatoid arthritis, according to a study in the *Journal of Rheumatology*



Sage

- Sage has been held in high regard throughout history both for its culinary and medicinal properties. Its reputation as a panacea is even represented in its scientific name, *Salvia officinalis*, derived from the Latin word, *salvere*, which means "to be saved."
- Like rosemary, its sister herb in the mint family, sage contains a **variety of volatile oils**
- Want some sage advice? Boost your wisdom quotient by liberally adding sage to your favorite soups, stews and casserole recipes.
- Research published in the June 2003 issue of *Pharmacological Biochemical Behavior* confirms what herbalists have long known: sage is an outstanding memory enhancer.

Sage



- In this placebo-controlled, double-blind, crossover study, two trials were conducted using a total of 45 young adult volunteers.
- Participants were given either placebo or a standardized essential oil extract of sage in doses ranging from 50 to 150 microls.
- Cognitive tests were then conducted 1, 2, 4, 5, and 6 hours afterwards. In both trials, even the 50 microl dose of sage **significantly improved subjects' immediate recall.**
- Preliminary research suggests the herb may improve some symptoms of early Alzheimer's disease by preventing a key enzyme from destroying acetylcholine, a brain chemical involved in memory and learning.
- In another study, college students who took sage extracts in capsule form **performed significantly better on memory tests, and their moods improved**

Nutmeg



- Fragrant rich nutmeg is one of the highly prized spices known since antiquity for its **aromatic, aphrodisiac, and curative properties.**
- Nutmegs are evergreen trees, native to the rain forest Indonesian Moluccas Island, also known as the **Spice Islands.**
- A rare, costly spice once prized by Byzantine traders, nutmeg has an ancient history for its curative as well as culinary uses.
- Originally from the Spice Islands, **nutmeg was one of those sought-after spices that launched a thousand ships.**
- The spice wars between Indonesia, Portugal, and the Netherlands almost rendered the nutmeg tree extinct, but early transportation and cultivation saved it for posterity

Nutmeg

- Nutmeg gets its intense flavor from myristicin, a volatile oil found in many plants including carrots, celery and parsley, but most abundant in nutmeg
- Test tube and animal studies on the healing power of nutmeg show that it can help with:
 - High cholesterol
 - Cancer
 - Anxiety and depression
 - Memory
 - Epilepsy
 - diarrhea



Nutmeg



- Since ancient times, nutmeg and its oil were being used in Chinese and Indian traditional medicines for illnesses related to the nervous and digestive systems.
- The compounds in this spice such as *myristicin* and *elemicin* have been soothing as well as stimulant properties on brain.
- Nutmeg oil contains *eugenol*, which has been used in dentistry for toothache relief.
- The oil is also used as a local massage to reduce muscular pain and rheumatic pain of joints.
- Freshly prepared decoction with honey has been used to relief of nausea, gastritis, and indigestion ailments.

Garlic: "Strong Enough to Battle Heart Disease"



- Popularly called the "stinking rose"
- Was hung on doors at night during the Middle Ages to repel evil spirits
- In 3000 BC, Charak, father of India's Ayurvedic medicine, "claimed that garlic strengthens the heart and keeps blood fluid"
- Research around the world has found garlic to lower BP, thin blood, lower total cholesterol, decrease artery-clogging plaque, make arteries more flexible, lower risk of MI, prevent colon cancer, stop advance of early colon cancer, prevent other cancers, prevent airborne infection, colds, diabetes, prostate problems, aging skin, oral candidiasis, sickle cell anemia, and alopecia areata (disease of patchy hair loss)
- The active ingredient, allicin, minimizes the oxidation, inflammation and other cell-destroying processes underlying every one of the major chronic diseases we have today

Garlic



- Garlic is one of the world's most potent natural medicines
- The medical database of the National Institutes of Health contains more than 3,200 studies on the therapeutic power of garlic
- Many of those studies are about preventing, slowing and reversing cardiovascular disease – the heart attacks and strokes that kill more Americans than any other health problem
- When a team of medical researchers reviewed the vast scientific literature about garlic and heart disease they figured that if everybody ate one or two garlic cloves a day, the worldwide risk of heart disease would drop by 25%
- Many studies show that dried and powdered garlic can be more therapeutic than fresh

Garlic

- Dr. Matthew Budoff, at the UCLA Medical Center, recently reported a study indicating that taking just one teaspoon of liquid garlic extract might save your life, especially if you are also taking a statin drug to lower cholesterol. This research was a year long, double-blind study and the results showed that **Kyolic Aged Garlic Extract**:
 1. Significantly slowed plaque formation (up to 70%).
 2. Increased good cholesterol (HDL) -- no drug on the market can do this.
 3. Decreased oxidized LDL (major risk factor for heart disease)
 4. Reduced triglycerides (fat in the blood).
 5. Detoxified and lowered homocysteine which is a major risk factor for heart disease.
 6. Offers antioxidant cell protection



Garlic

- Chop or mince garlic **several minutes before use.**
- Chopping or mincing **releases the disease-fighting compounds.**
- Heat will kill these compounds unless you wait to add garlic to heat to allow the compounds to become fully activated!



Mint: The Essence of Freshness



- 600 plants in mint family.
- **Peppermint** = sweet mint that flavors the tasty treats like candy and ice cream
- **Spearmint** = savory mint
- Peppermint helpful for **Irritable Bowel Syndrome (IBS)**, indigestion, colonoscopy, and upper endoscopy
- Peppermint relaxes the muscles of the GI tract helping to normalize those contractions and ease symptoms
- Menthol, compound peppermint is rich in, has been shown to help **ease nasal congestion, reduce coughs and relieve sensation of respiratory discomfort** according to studies from Germany, Wales, UK and Japan

Mint

- Peppermint isn't for all digestive problems
- Some people notice that mint **can irritate those with heartburn, hiatal hernia and kidney stones** because peppermint's ability to relax the GI tract might make those problems worse



Parsley



- Parsley is much more than the throw away garnish on your plate!
- Parsley is uniquely rich in *apigenin* – an antioxidant that helps other antioxidants to work better
- University of Missouri scientists found that this herb **can actually inhibit breast cancer-cell growth**
- Researchers at Harvard Medical School analyzed the flavonoid content of the diets of 1,140 women with ovarian cancer and 1,180 women without the disease and found that **only apigenin intake was linked to a lower incidence of ovarian cancer - 21% lower**
- In one study, animals that were given apigenin, a compound abundant in parsley (and in celery), boosted their resistance to developing cancerous tumors.
- Experts recommend adding a couple pinches of minced fresh parsley to your dishes daily.

Parsley



- Parsley is used in Morocco as a **traditional medicine for heart disease**
- A team of Moroccan researchers tested the effectiveness of parsley in **reducing platelet aggregation**, the blood thickening that triggers the artery-clogging blood clots that cause most heart attacks and strokes
- Parsley **reduced platelet aggregation by up to 65%**
- **Eat Your Parsley!**

Cooking with Herbs and Spices

- Place herbs/spices in oil and allow flavor to infuse into the oil and use for cooking
- Make marinades and sauces for meat, poultry, or fish
 - Rosemary with lamb
- Make herb butter, herb cheese, or stuffing



Cooking with Herbs and Spices

- **Soup:** Bay leaf, chervil, tarragon, marjoram, parsley, savory, rosemary.
- **Salads:** Basil, chives, tarragon, garlic, parsley, sorrel (best used fresh in salads or added to salad dressing).
- **Fruit:** Anise, cinnamon, coriander, cloves, ginger, mint.
- **Vegetables:** Basil, chervil, chives, dill, tarragon, mint, parsley, pepper, thyme.
- **Cheese:** Basil, chervil, chives, curry, dill, fennel, garlic, chives, marjoram, oregano, parsley, sage, thyme.
- **Bread:** Caraway, marjoram, oregano, poppy seed, rosemary, thyme.

Cooking with Herbs and Spices



- **Poultry:** Bay leaf, chervil, tarragon, marjoram, parsley, savory
- **Beef:** Bay leaf, chives, cloves, cumin, garlic, hot pepper, marjoram, rosemary, savory.
- **Lamb:** Garlic, marjoram, oregano, rosemary, thyme.
- **Pork:** Coriander, cumin, garlic, ginger, hot pepper, pepper, sage, savory, thyme.
- **Fish:** Chervil, dill, fennel, tarragon, garlic, parsley, thyme

Ethnic Spice Blends

- **Japanese:** Garlic, ginger, miso, sesame seeds, wasabi, tamari.
- **Caribbean:** Allspice, cilantro, curry, garlic, ginger, lime, vanilla.
- **French:** chives, garlic, pars-ley, tarragon, lemon peel
- **Indonesian:** Basil, chilies, cilantro, cinnamon, cumin, curry, garlic, ginger, lime, mint, nama shoyu
- **Italian:** Basil, garlic, oregano, rosemary.
- **Latin American:** Chiles, cumin, cilantro, garlic, limes, chocolate, cinnamon.
- **Chinese:** Basil, ginger, sesame seeds, tamari

Ethnic Spice Blends



- **Indian:** Anise, cardamom, chilies, cinnamon, cloves, coriander, cumin, curry, fennel, garlic, ginger, mint, mustard, saffron, tamarind, turmeric.
- **Middle Eastern:** Anise, cilantro, chilies, cinnamon, coriander, cumin, dill, garlic, lemon, mint, oregano, parsley, saffron, sesame, tahini.
- **Thai:** Basil, chilies, cilantro, cumin, curry, garlic, ginger, lemongrass, lime, mint, tamarind, turmeric.

Origins of Herbs & Spices

<u>New World</u>	<u>Europe</u>	<u>Near East</u>	<u>India</u>	<u>Far East</u>
Allspice	Bay	Anise seed	Basil	Garlic
Annatto	Chives	Borage	Cardamom	Juniper
Chilies	Dill	Cumin	Peppercorn	Lemongrass
Paprika	Oregano	Cilantro	Turmeric	Star Anise
Echinacea	Parsley	Fenugreek	Cinnamon	Cilantro
Juniper	Rosemary	Poppy	Mace	Cloves
Horseradish	Sage	Sesame	Nutmeg	Ginger
Tamarind	Tarragon	Marigold		Galangal
Vanilla	Thyme	Pyrethrum		Chives
	Caraway	Coriander		
	Fennel	Cilantro		
	Lavender	Saffron		
	Marjoram			
	Mint			
	Savory			
	Chamomile			
	Lemon balm			

Tips on buying herbs and spices:

- Spices provide **high levels of phytonutrients** that help fight disease. When it comes to buying a spice, you'll want to **avoid fillers (e.g., sugar, maltodextrin, gluten, artificial colors, preservatives, synthetic anti-caking agents)**.
- If you buy spices in bulk, **store them in air-tight glass or tin containers**. Don't buy large quantities – only what you will use within 6-12 months.
- You can buy herbs and spices in their fresh, dried, whole, cracked, coarsely ground, and finely ground forms.



Tips on buying herbs and spices:

- Store in a **cool, dark place** (ideally between 50-60 degrees)
- Heat, light, and moisture will accelerate loss of flavor. High temperatures can cause spices to cake or harden and change or lose color.
- Grind whole spices as you need them. Whole spices have very little, if any, aroma until they are ground
- **Don't let them sit around the stove**. Close container well after using.
- Roast slowly before grinding for maximum impact.

Tips on buying herbs and spices:

- Under ideal conditions, **ground spices will keep for about a year and whole spices for 2-3 years.**
- To test, rub between fingers to detect presence of aroma.
- If an herb or spice smells and tastes flavorful, it's probably still potent and good for use.
- **Label the date of purchase on the container** with a permanent pen to know how long you've had it.



Ways to get more herbs and spices in your eating:

- Add to smoothies.
- Make tea and add to smoothies.
- Combine finely chopped garlic and basil to extra virgin olive oil and lemon juice as a salad dressing.
- Add fresh herbs such as cilantro, chives, basil or mint to salads or sandwiches.
- Sprinkle cumin or fennel seeds in soups or salads.
- Marinate lean meats in curry powder or curry pastes.
- Sprinkle cinnamon and nutmeg over oatmeal or wholegrain toast for breakfast, steamed soymilk, and even on vegetables.
- Add fresh parsley or chives to scrambled eggs.
- Stew fruits with cinnamon stick and a vanilla pod.
- Steep lemongrass, ginger or mint in hot water.
- Add freshly grated garlic and basil to mayonnaise.
- Add fresh or dried herbs to your favorite pasta dish.
- Add spices to ghees or organic butter, honeys, oils, salts, and sprinkles.

Equivalents and Substitutions

- As a general rule, substitute fresh and dried herbs and spices as follows:
 - ☐ 1/4 to 1/2 tsp **ground dried** equals
 - ☐ 1 tsp **crumbled dried** equals
 - ☐ 1 T **freshly minced**



General Rules for When to Add:

- **For fresh herbs:** Add near the end of cooking time or just before serving as flavor and aroma can be lost during long periods of cooking.
- **Add delicate herbs** (basil, chives, cilantro, parsley, marjoram, mint, dill leaves) near the very end of cooking or just before serving.
- **Add less delicate herbs** (oregano, rosemary, tarragon, thyme, dill seeds) may be added about the last 20 minutes of cooking.

General Rules for When to Add:



- For dried herbs and spices:
- Ground herbs and spices release flavor quickly. Work best in short cooking recipes or **near the end of longer cooking recipes.**
- **Mild herbs** such as basil and parsley are best added near the end of cooking
- **Robust herbs** such as thyme and rosemary will work better during longer cooking periods.

- Let's Get Cooking!

