



# Anti-Inflammatory Foods

Herbs, Spices,  
Condiments &  
Beverages

# Herbs and Spices

Herbs and spices provide phytonutrients and antioxidants.

- **Phytonutrients** - substances found in certain plants which are believed to be beneficial to human health and help prevent various diseases.
- **Antioxidants** - substances that inhibit oxidation, especially one used to counteract the deterioration of stored food products.  
(ex: Vit C, Vit E, carotenoids)

## Phytochemicals

- any chemical substance characteristic of plants.

- **Coumarin** – may reduce the risk of cancer, diabetes, cardiovascular and brain diseases.
- **Curcumin** - scavenges free radicals and protects DNA from oxidative damage.
- **Allicin** - protect the cardiovascular system
- **Ursolic acid** - antioxidant and anti-tumor properties.
- **Piperine** – shown to protect against oxidative damage *in vitro*
- **Rosmarinic acid** - helps to prevent cell damage caused by free radicals, thereby reducing the risk for cancer and atherosclerosis.
- **Apigenin** – free-radical scavenger and antioxidant that diminishes oxidative stress. Supports heart and brain health as well as healthier skin.
- **Diosmetin** – tumor-suppressing capabilities.

# Benefits of Herbs and Spices

- History of herbs and spices being used to heal
- Contain antioxidants
- Contain antifungals
- Contain antibacterial
- Many medicines derived from plants

# Herbs and Spices

- Turmeric
- Ginger
- Cumin
- Clove
- Cardamom
- Cinnamon
- Garlic
- Black pepper
- Rosemary
- Basil
- Thyme
- Oregano
- Cilantro
- Mint
- Fennel
- Parsley



# Fresh or Dried

- Both contain phytochemicals
- Dried loses potency: light, high heat, time
- Fresh spoils if not used quickly
- **Both add flavor**
- Easy to grow and dry for later use

## Fresh to Dry to Ground Herb Conversions

Herb	Fresh	Dried	Ground
Most herbs, such as cilantro, dill, oregano, rosemary, and thyme	1 Tbsp	1 tsp	3/4 tsp
Basil	2 tsp	1 tsp	1/2 tsp
Bay leaf	1 leaf	1 leaf	1/4 tsp
Parsley	2 tsp	1 tsp	1/2 tsp
Sage	2 tsp	1 tsp	1/2 tsp

- The majority of herbs can be converted from fresh to dry using the 3 to 1 ratio and from fresh to ground using the 4 to 1 ratio.
- However, there are some exceptions which are shown in the chart.

Spice	Whole	Ground
Allspice	1 tsp	1 tsp
Black pepper	1 tsp	1½ tsp
Cardamom	Approximately 12 pods, dehusked	1 tsp
Cinnamon	1 stick (1½-inch)	1 tsp
Cloves	1 tsp	¾ tsp
Coriander	1 tsp	1 ¼ tsp
Cumin	1 tsp	1 ¼ tsp
Fennel	1 tsp	1 ¼ tsp
Ginger	1 Tbsp fresh ginger	¼ - ½ tsp
Nutmeg	½ nutmeg	1 tsp
Mustard seeds	1 tsp	1 ½ tsp
Turmeric	1 Tbsp fresh turmeric	1 tsp

## How to Convert Whole Spices to Ground

- Most spices can be found in powdered form, but many may be stored in their whole form and then ground at home. If a recipe calls for ground spices and you have whole spices on hand, follow this guide to know how much whole spice you need to grind.



# Pastes

- An easy way to add flavor
- Longer shelf life
- Easy to control
- Use to add to soups/broths, salad dressings, pasta sauces, pan sauces, marinades and rubs



# Supplements?

- Consult your physician as some may interfere with medication (i.e. CoEnzyme Q, Black Cohash, Saw Palmetto, St. Johns Wort, etc)
- May have some benefit.....or may not.....
- Lack of standardization

# Oil

- Olive
- Avocado
- Canola
- Sunflower
- Flax seed
- Nut
- Coconut
- Corn
- Peanut
- Vegetable
- Grapeseed



## What Makes Cooking Oils Anti- Inflammatory?

- Omega-3 polyunsaturated: Flaxseed oil
- Omega-6 polyunsaturated: Corn, soybean, grapeseed, safflower, sunflower, hemp, walnut, and cottonseed oils
- Monounsaturated fats - Olive, avocado, canola, almond, and peanut oils
- Anti-Oxidants – Olive (Vit E, oleocanthal and oleuropein), Sesame (sesamol and sesaminol), Rice Bran Oil (oryzanol )

# What to look for.....

- Oils in higher in monounsaturated fat or omega-3 polyunsaturated fat. Good choices for anti-inflammatory oils include *olive oil*, *avocado oil* and *flaxseed oil*.
- Choose oils that are made by crushing or pressing plants or seeds, rather than through heat or addition of chemicals. Often seen on bottles of *flax*, *avocado* and *olive oil*, it means that the oil was not heated during extraction. Cold-pressed canola oil is also available, but harder to find.

# Benefits

- MUFA and PUFA (Mono and poly unsaturated fats)
- Heart health
- Blood pressure
- Cholesterol

# Vinegar

- Vinegar may be made from fruit, grain, or any other sugar-containing substance.
- Some kinds of vinegar can be a good source of antioxidants. The darker the vinegar, the more antioxidants remain in the liquid. Darker = less processed.
- May decrease “bad” cholesterol and triglycerides.
- May improve postprandial insulin sensitivity in insulin-resistant subjects.
- Con: Acetic acid may cause enamel erosion

# Using Flavored Oil and Vinegar

- Mix oil and vinegar to make vinaigrette
- Drizzle over pasta dishes
- Use to marinate chicken or fish
- Use for stir fry shrimp or veggies
- Toss veggies for roasting





# Condiments

- **Mustard** – generally made of mustard seeds, distilled vinegar, garlic powder, **turmeric**, lemon juice, and salt.
- **Salsa** – can be made of many different items, but generally contains tomatoes, peppers, onions, cilantro, garlic, lime juice.
- **Guacamole** – generally made w/avocado, tomato, onion, cilantro, lime juice
- **Honey** – contains flavonoids and phenolic acids, and because of their antioxidant and anti-inflammatory properties, they may play an important role in human health
- **Hot Sauce** - antioxidant and anti-inflammatory properties as well as bioactive compounds such as flavonoids, phenolic acids, carotenoids and vitamins C, E, and A.



# Beverages



What do you think is the best anti-inflammatory beverage?



# Water

“But water is so blah.....”

- Add fruit or veggie
  - Strawberry
  - Cucumber & lemon
  - Frozen berries
  - Mint
  - Basil and pineapple
- Flavored ice cubes
  - Add chopped herbs to tray
  - Juicy ice cubes
- Juice
  - Diluted
  - Use frozen concentrate to flavor
- Carbonated water (and do any of the above)

# Tea

True teas only come from one plant species, based on when the leaves are dried after harvesting; the leaves begin to wilt and oxidize after harvesting; heating stops this process

- **Green tea:**

- Made with steamed tea leaves, it has a high concentration of EGCG and has been widely studied.
- *May* interfere with the growth of bladder, breast, lung, stomach, pancreatic, and colorectal cancers
- *May* prevent clogging of the arteries, counteract oxidative stress on the brain, reduce risk of neurological disorders like Alzheimer's and Parkinson's diseases, reduce risk of stroke, and improve cholesterol levels.

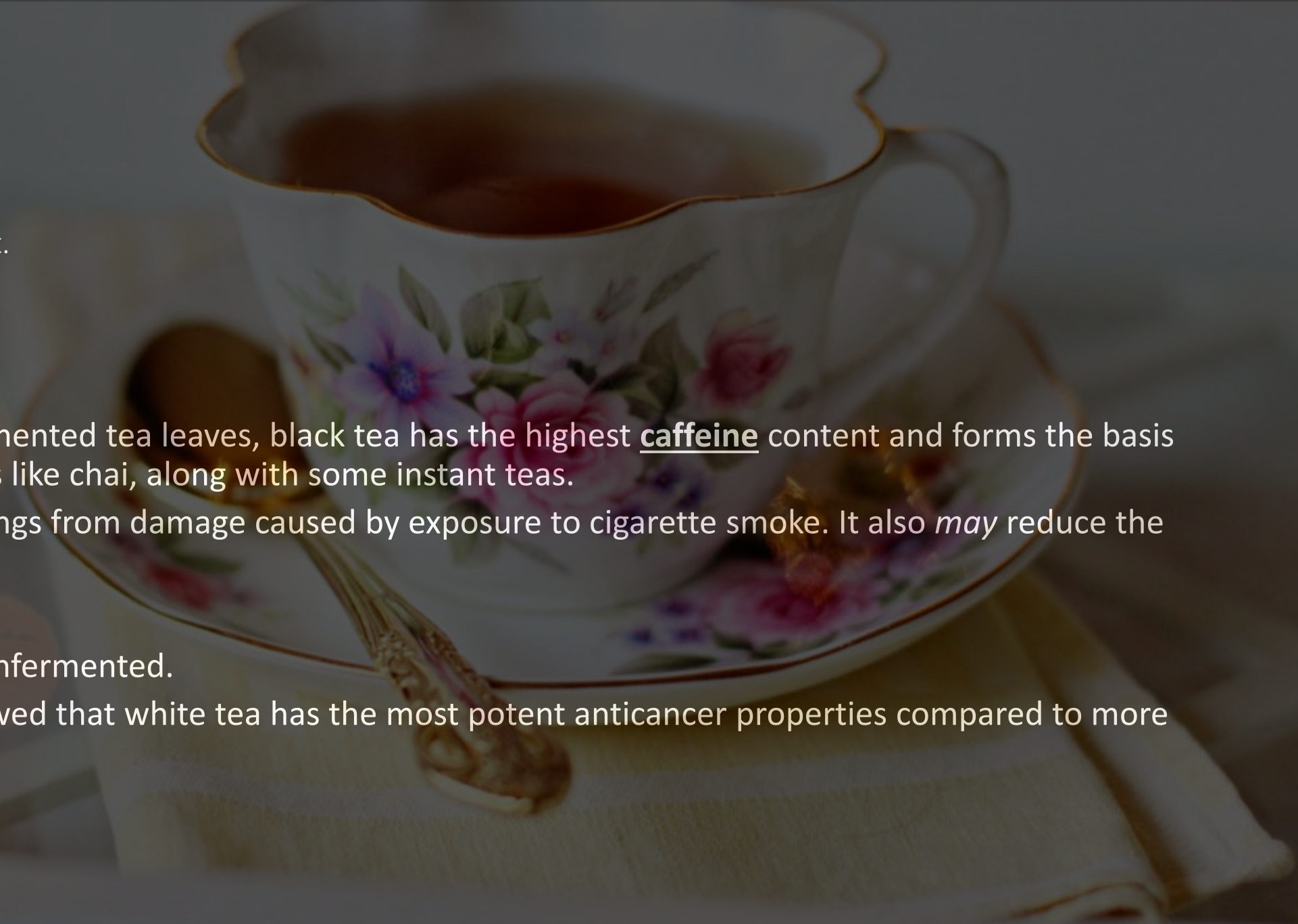
# Tea, cont.

- **Black tea:**

- Made with fermented tea leaves, black tea has the highest caffeine content and forms the basis for flavored teas like chai, along with some instant teas.
- *May* protect lungs from damage caused by exposure to cigarette smoke. It also *may* reduce the risk of stroke.

- **White tea:**

- Uncured and unfermented.
- One study showed that white tea has the most potent anticancer properties compared to more processed teas.



# Is Tea Always Good For Your Health?

- Limited research has been done on the health benefits of herbal teas, but claims that they help to shed pounds, stave off colds, and bring on restful sleep are largely unsupported.
- Most teas are benign, but the FDA has issued warnings about so-called dieter's teas that contain senna, aloe, buckthorn, and other plant-derived laxatives.
- The agency also warns consumers to be wary of herb-containing supplements that claim to kill pain and fight cancer. None of the claims are backed by science and some of the herbs have led to bowel problems, liver and kidney damage, and even death.
- The FDA cautions against taking supplements that include:
  - Comfrey
  - Ephedra
  - Willow bark
  - Germander
  - Lobelia
  - Chaparral

# Coffee

- Coffee is particularly rich in several powerful antioxidants, including hydrocinnamic acids and polyphenols
  - Polyphenols (antioxidants which can fight free radicals, decreasing damage that leads to inflammation) in coffee *may* prevent a number of conditions, such as heart disease, cancer and type 2 diabetes



# Coffee, cont.

- **Caution:**
- Too much coffee over a short period, may cause one to experience mental and physical symptoms, including:
  - Restlessness, anxiety, dizziness, upset stomach, irritability, insomnia, fast heartbeat, tremors
- Coffee drinks (i.e. Macchiato, Mocha, etc)
  - high in Kcals (can be as high as 1600 kcals) and CHO (up to 64 g = 16 tsp sugar) which can cause inflammation

# Fermented Drinks

- Fermented drinks help the gut bacteria produce short chain fatty acids (SCFA) which help with keeping the lining of the gut healthy and keep the population of “bad” bacteria down
- Two most common in US:
  - **Kombucha** – fermented tea; probiotic; antioxidant; flavonoids (quercetin and theaflavin) and catechins – anti-inflammatory phytochemicals
  - **Kefir** – fermented milk product; probiotic; antioxidant; many vitamins and minerals needed to retain gut health; may help moderate the immune response



# Wine

Note: some is ok, more is NOT better

Women – 1 or less drinks/day

Men – 2 or less drinks/day

Wine – 5 oz of 12% alcohol by volume

- Red wine

- Can cause some allergic reaction; allergic reactions cause inflammation

- Red wine (and red grape juice) contains resveratrol an anti-inflammatory phytochemical; also contains catechins & proanthocyanins – antioxidant chemicals

- White wine

- White wine tends to create a higher incidence of allergic reactions than red wine; allergic reactions cause inflammation

- Does contain some phenols that have mild anti-inflammatory properties



# In Conclusion.....

- Herbs, spices, condiments and beverages play a large role in the anti-inflammatory style of eating.
- Consuming anti-inflammatory foods/beverages may help prevent certain cancers, support gut health, reduce heart disease risk, etc.
- **NOTE: While anti-inflammatory diets are effective at reducing inflammation and improving symptoms, saying that they are a cure for autoimmune and chronic conditions is an overstatement.**

# Thank You

What new herb or spice are you going to try this week?

Might you try to create your own salad dressing?

Any questions?