



Anti-inflammatory Diet: Beverages



Soft, Hard, & “Medium”

- ▶ Soft drinks – non-alcoholic; especially one that is carbonated
- ▶ Tea – black, green, white
- ▶ Coffee
- ▶ Juices/juicing
- ▶ Fermented drinks
- ▶ Hard drinks – contains alcohol; distilled rather than fermented; beer is alcohol, but not a hard drink as it is fermented
 - ▶ Wine – red vs. white
- ▶ “Medium drinks” – I put energy drinks in this category since, although they do not contain alcohol, they have health risks
- ▶ Sports Drinks

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

The best anti-inflammatory beverage:

Water!

Why?

- the human body is 50 - 65% water
- the human brain is 77 - 78% water
- body muscle is 70% water; muscle cramping can be caused by dehydration
- chemical reactions occur in a fluid medium; dehydration = inefficient reactions
- Staying regular
- Flushes toxins
- Lubricates joints

How much?

- IOM recommends 101 ounces for men (a little < 13 cups) & 74 ounces for women (a little > 9 cups); this depends on weather, activity, etc.; easier to remember – about ½ your body weight (in ounces)



But I don't like plain water!

Tips to add flavor to water naturally

- ▶ Add fruit or veggie
 - ▶ Strawberry
 - ▶ Cucumber & lemon
 - ▶ Frozen berries
 - ▶ Mint
 - ▶ Basil and pineapple
- ▶ Flavoring extracts
 - ▶ Vanilla
 - ▶ Rum
 - ▶ Mint
 - ▶ Orange/citrus
- ▶ Flavored ice cubes
 - ▶ Add chopped herbs to tray
 - ▶ Juicy ice cubes
- ▶ Diluted sports drinks (gradually decrease over time)
- ▶ Juice
 - ▶ Diluted
 - ▶ Use frozen concentrate to flavor
- ▶ Vinegars
- ▶ Carbonated water (and do any of the above)

Water Enhancers

They add flavor but let's break it down



- ▶ Cost of flavoring water using 2ml (0.067oz) of “flavoring”
 - ▶ 2ml is “serving size” of the enhancers
 - ▶ \$0.50 per cup with enhancer, 0g sugar
 - ▶ \$0.04 per cup with juice, 0.02g sugar
- ▶ What are “Natural flavors?” – Flavors not derived from petroleum (artificial) and chemically extracted from a variety of substances: plants, dairy, seafood, nuts, wheat, meat
 - ▶ No nutrients contained in natural flavors
- ▶ “Energy” additives
 - ▶ B-vitamins not involved in making you energetic, body disposes of excess
 - ▶ Caffeine: 60mg/2ml (squirt) → Easy to overdo
 - ▶ Couldn't find info on whether it is worth it for the electrolytes



Soft drinks

- ▶ Sugary beverages:
 - ▶ high fructose corn syrup (weight gain => proinflammatory; insulin resistance => proinflammatory);
 - ▶ sugar => releases proinflammatory cytokines (chemical messengers)
- ▶ Sugar substitutes: allergies; alter gut bacteria which can lead to increased inflammation



Tea – Black, Green, White

- ▶ 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
 - ▶ White tea – wilted and unoxidized
 - ▶ Green tea – unwilted and unoxidized; particularly good as it contains EGCG (epigallocatechin 3-gallate) a powerful antioxidant
 - ▶ Black tea – wilted, sometimes crushed, and fully oxidized
 - ▶ Yellow – unwilted and unoxidized, but allowed to yellow
 - ▶ Oolong – wilted, bruised, and partially oxidized
- ▶ Herbal teas – not actual teas, but made from various herbs or herb mixtures; some have great anti-oxidant, anti-inflammatory effects:
 - ▶ Turmeric; curcumin



Coffee

- ▶ Contains caffeine - small amounts of caffeine not harmful, large amounts can be through increased blood pressure and heart rate
- ▶ Contains polyphenols - antioxidants which can fight free radicals, decreasing damage that leads to inflammation
- ▶ Careful with the add-ins! Creams, sugars, sugar substitutes can all be pro-inflammatory (and add calories)



Juices/Juicing

- Can add vitamin C (an antioxidant) and some juices contain additional antioxidants/anti-inflammatory chemicals:
 - Tart cherry – anthocyanins (decreases inflammation in tissues and helps with muscle soreness)
 - Pineapple – bromelain which helps decrease pain, bruising and swelling
- But – careful with calories and while juicing can add fruits and vegetables to your diet, which is great, you still get more fiber from *eating* the produce, not just juicing it (let your body do the breaking down, not the blender!)
- Also – with dark greens – it's best to chew them; this helps to release nitric oxide which keeps blood vessels open; this reaction happens in the mouth, so if you don't chew them, you miss out on this benefit



Juices



Nutrition Facts	
Serving Size 8 fl oz (240mL) 1 cup	
Servings Per Container 8	
Amount Per Serving	
Calories 100	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Sodium 40mg	2%
Potassium 15mg	0%
Total Carbohydrate 28g	9%
Sugars 26g	
Protein 0g	
Vitamin C 100%	

Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, vitamin A, calcium and iron.

*Percent daily values are based on a 2000 calorie diet.

INGREDIENTS: Filtered Water, Sugar, Peach Juice (Water, Peach Juice Concentrate), Cranberry Juice (Water, Cranberry Juice Concentrate), Citric Acid, Natural Flavor, Grape Juice (Water, Grape Juice Concentrate), Sodium Citrate, Ascorbic Acid (Vitamin C).



Nutrition Facts	
8 servings per container	
Serving size 8 fl. oz. (240mL)	
Amount per serving	
Calories 45	
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 640mg	28%
Total Carbohydrate 9g	3%
Dietary Fiber 1g	4%
Total Sugars 7g	
Incl. 0g Added Sugars	0%
Protein 2g	
Vitamin D 0mcg 0%	Calcium 30mg 2%
Iron 0.5mg 2%	Potassium 470mg 10%
Vitamin A 180mcg 20%	Vitamin C 72mg 80%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

INGREDIENTS: VEGETABLE JUICE (WATER AND CONCENTRATED JUICES OF TOMATOES, CARROTS, CELERY, BEETS, PARSLEY, LETTUCE, WATERCRESS, SPINACH), SALT, VITAMIN C (ASCORBIC ACID), BETA CAROTENE, NATURAL FLAVORING, CITRIC ACID.

INGREDIENTS: APPLE JUICE, STRAWBERRY PUREE, ORANGE JUICE, BANANA PUREE, RASPBERRY PUREE, RED GRAPE JUICE FROM CONCENTRATE (WATER, RED GRAPE JUICE CONCENTRATE), POMEGRANATE JUICE FROM CONCENTRATE (WATER, POMEGRANATE JUICE CONCENTRATE), CRANBERRY JUICE FROM CONCENTRATE (WATER, CRANBERRY JUICE CONCENTRATE), FLAX SEED, FRUIT JUICE FOR COLOR, NATURAL FLAVORS, PYRIDOXINE HYDROCHLORIDE (VITAMIN B6), CYANOCOBALAMIN (VITAMIN B12).



Nutrition Facts	
Serving Size 15.2 fl oz (450mL)	
Servings Per Container 1	
Amount Per Serving	
Calories 320	Calories from Fat 80
% Daily Value*	
Total Fat 9g	14%
Saturated Fat 1g	5%
Trans Fat 0g	
Polyunsaturated Fat 6g	
Monounsaturated Fat 2g	
Cholesterol 0mg	0%
Sodium 30mg	1%
Potassium 780mg	22%
Total Carbohydrate 59g	20%
Dietary Fiber 6g	24%
Sugars 48g	
Protein 4g	
Vitamin A 0%	Vitamin C 25%
Calcium 4%	Iron 15%
Vitamin B6 130%	Vitamin B12 110%

*Percent Daily Values are based on a 2,000 calorie diet.

Antioxidants? Sugar? Sodium?
Fiber?

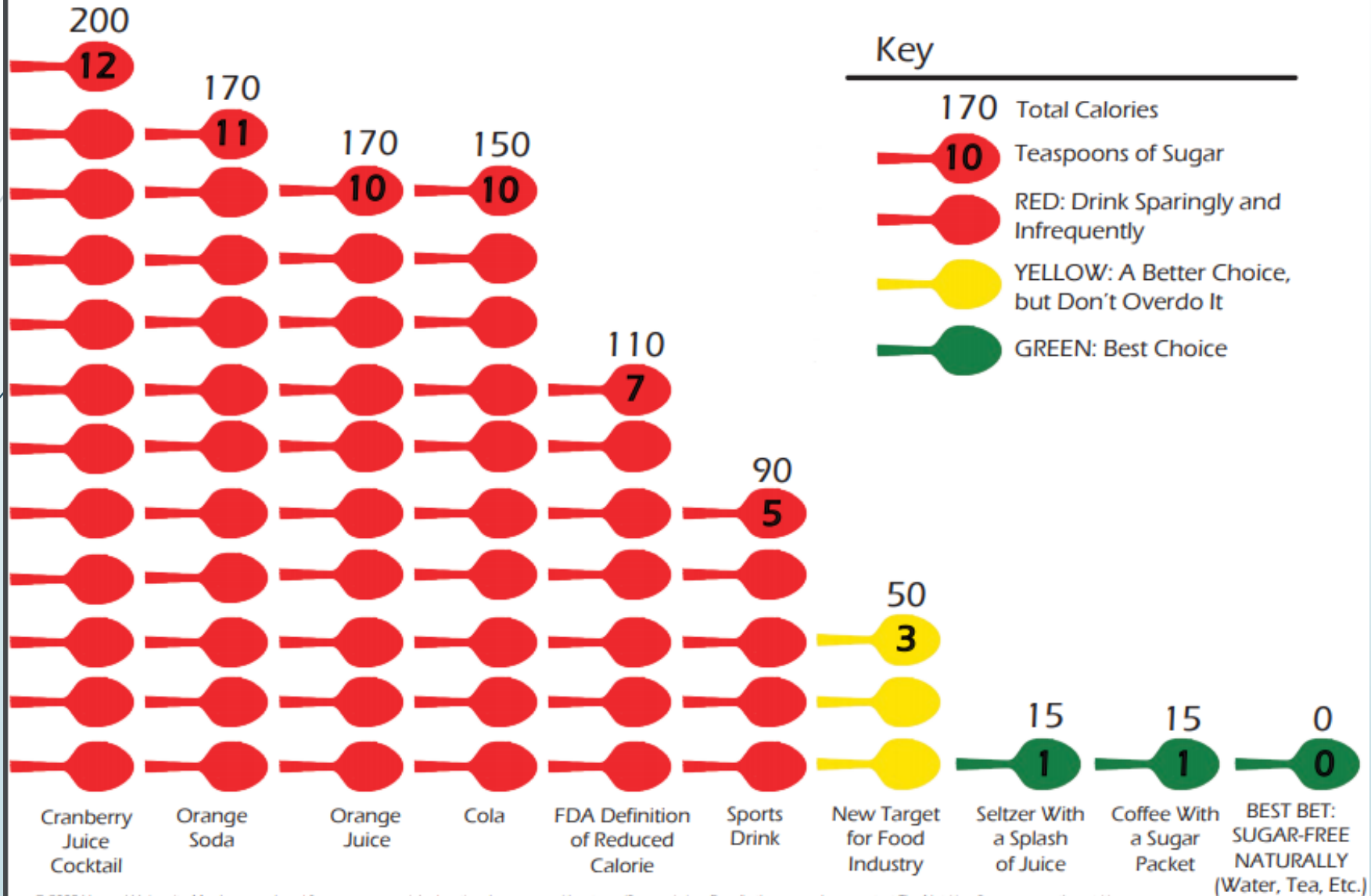
Juice doesn't come close to the real thing...



How Sweet Is It?

Calories and Teaspoons of Sugar in 12 Ounces of Each Beverage

For more information, see The Nutrition Source, www.hsph.harvard.edu/nutritionsource/healthy-drinks/



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

Red vs White

- ▶ 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



“Medium” drinks: Energy Drinks

- ▶ Health Risks:
 - ▶ Alter heart's electrical activity and increase blood pressure
 - ▶ Medication interaction
 - ▶ Children – the American Academy of Pediatrics recommends that children not drink these
 - ▶ Can raise stress levels
 - ▶ Can thicken blood
 - ▶ Decreases dilation during exercise which then does not allow good oxygenation to working muscles
 - ▶ Can cause insomnia
 - ▶ Can cause GI irritation
 - ▶ Can cause muscle restlessness and twitching
 - ▶ Guarana, a substance in many energy drinks, is banned by the NCAA
- ▶ If you do drink these: limit to 1 can/day



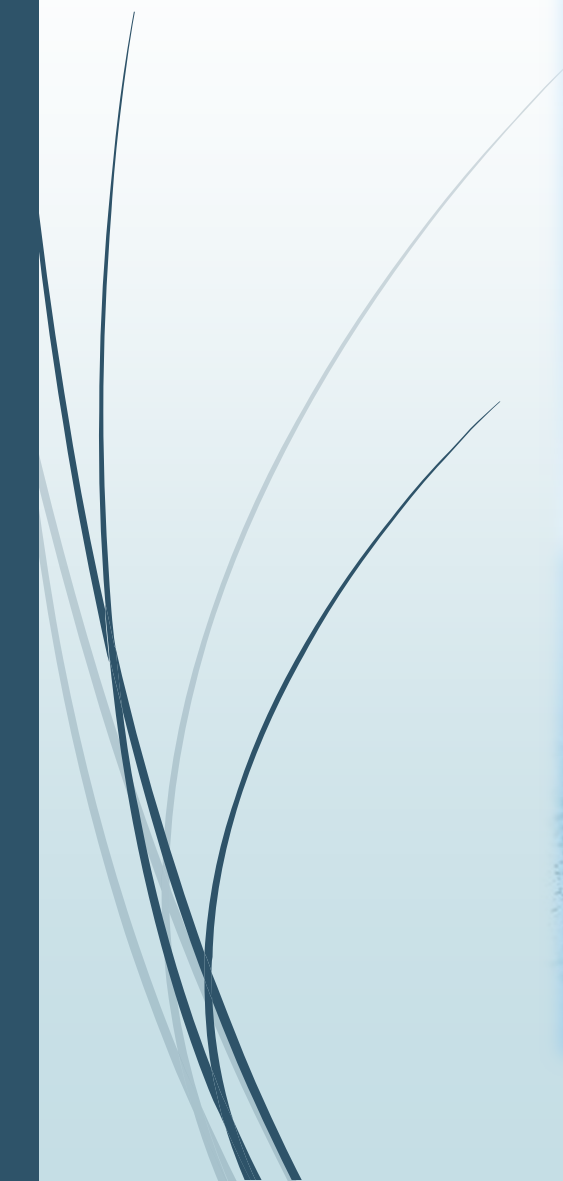
Sports Drinks – Gatorade, Powerade, etc.

- ▶ Contain sugar or sugar substitutes – careful with amount
- ▶ You only need a 1:10 solution for rehydration and electrolyte replacement (1 part sports drink, 9 parts water)
- ▶ These are still processed beverages so not a great choice



Questions?

- Did your questions for today's topic get answered?
- What one thing might you do now that you've learned about AID and beverages?
- What might be challenging to making a change in this area?



Thank
you!

