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Nutrition in Disguise: Enticing Children to Choose Foods with Benefits

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Sun-Maid Growers & Bush's Best



Speaker Disclosure



- **Board Member/Advisory Panel/Consultant**

- **Present**

- *Chic-fil-A, Sun-Maid Raisins, National Dairy Council, Tree Top Apples, Bush's Beans, United Sorghum Checkoff Board.*

- **Past**

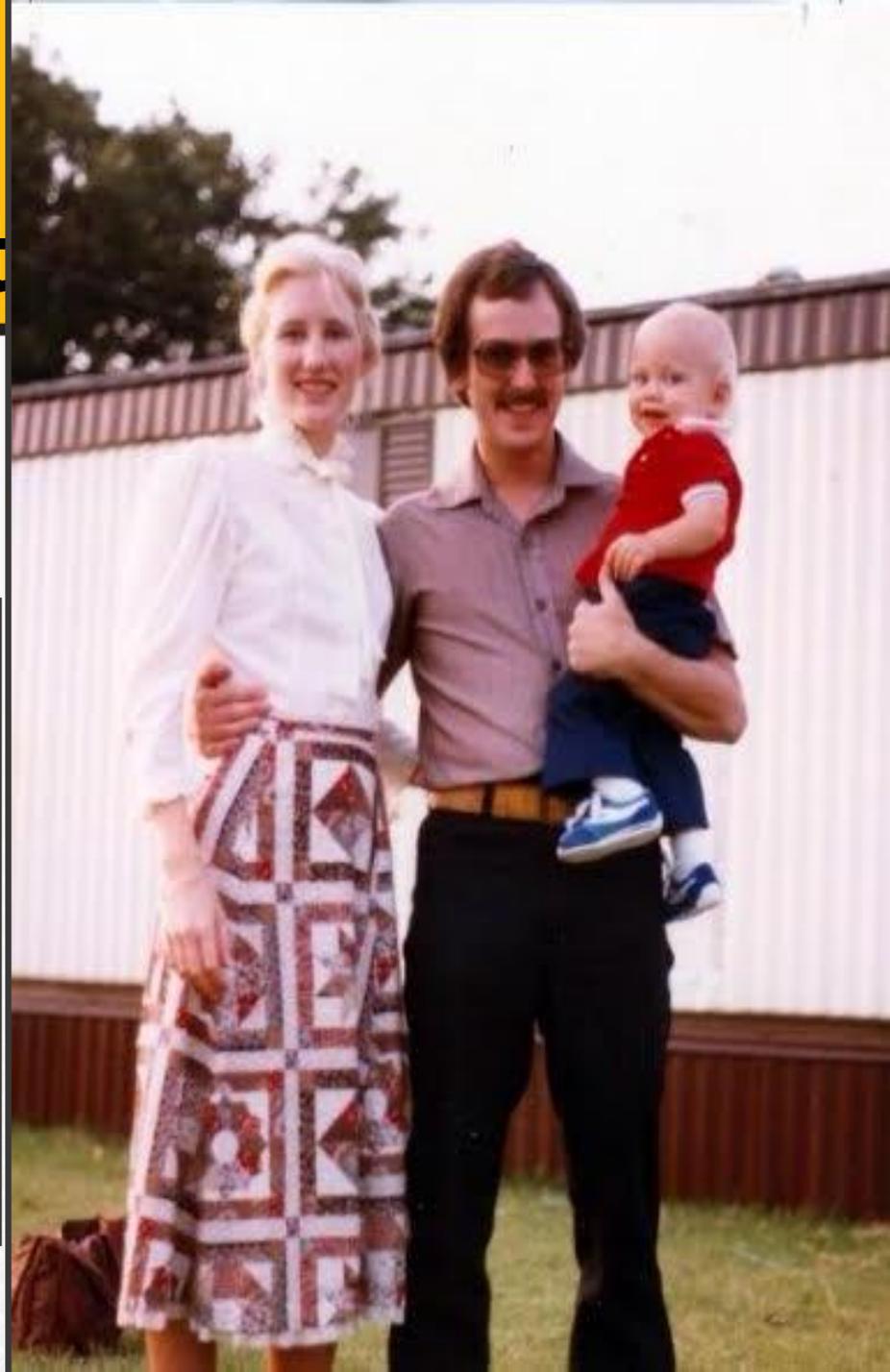
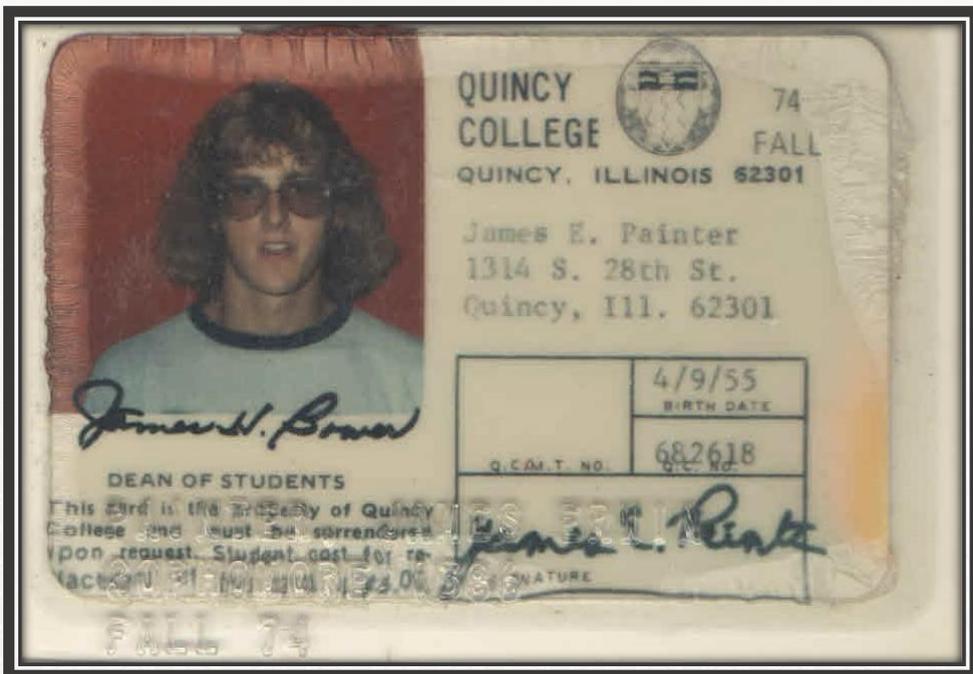
- *American Heart Association Eat Well Task Force, California Raisin Marketing Board, Wonderful Pistachios, White Wave Foods, Davidson's Safest Choice Eggs*

- **Honoraria**

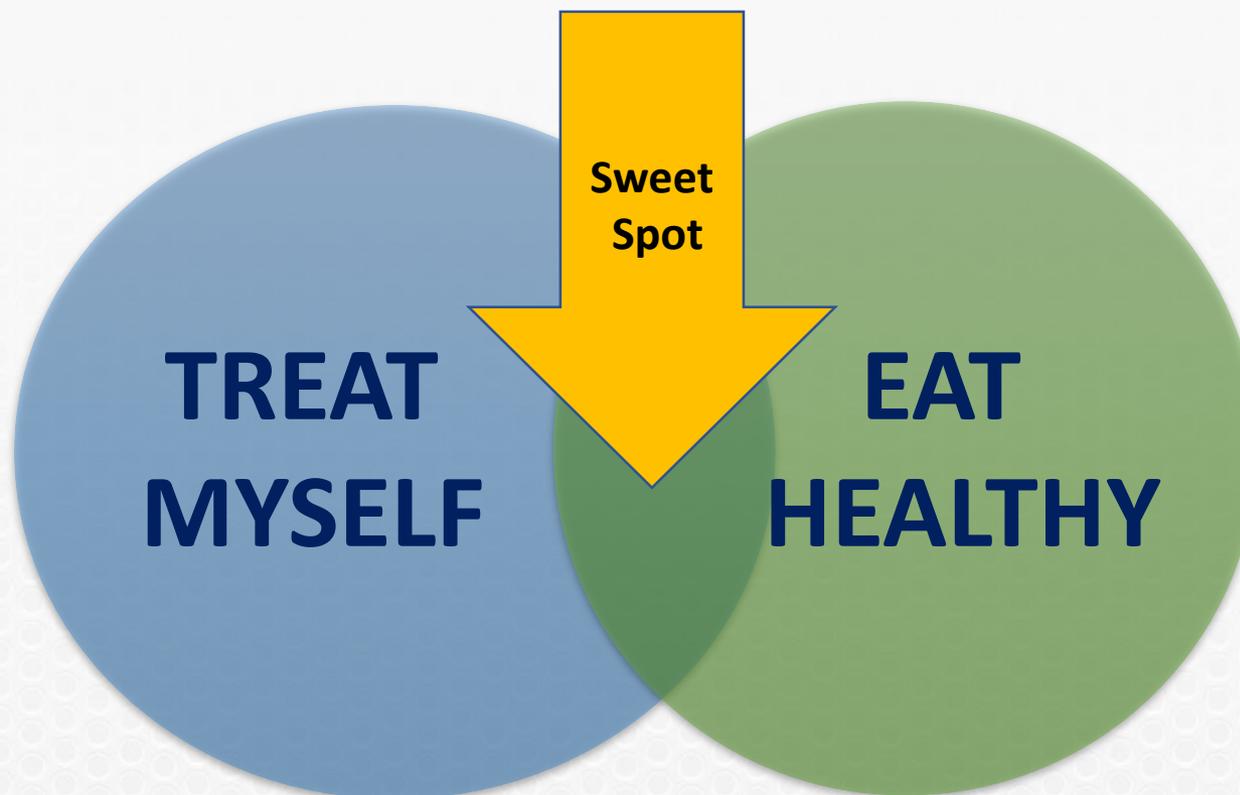
- Honorarium underwritten by Sun-Maid Growers of California & Bush's Best
- Dietitians of Canada, Exxon Mobil, Frito Lay, Midwest Dairy Council, Pennsylvania Nutrition Network, California Raisin Marketing Board, Alaska Tanker Company, Dairy Max, Texas AND, California AND, Florida AND, MINK, NY AND, South Carolina AND, Iowa AND, Nebraska AND, Manitoba Dairy Farmers, Dairy Farmers of Canada, Davidsons Safest Choice Eggs, National Dairy Council, New Products Conference, the Flavor Experience, BNP Media, and Cooper Vision.



Speaker Credential



Enticing Children to Eat Better



Creating delicious, slightly healthier meals with appealing descriptions

Sensory Nutrition Process



Menu

California Pepper
Jack Cheese Burger
with a
side of crisp
Sweet Potato
Fries



Select a dish,
and make it
slightly healthier



Romance the menu



Sell the sizzle

Romancing the Menu



- **Focus on ingredients:**
 - Pacific salmon
 - Selection of farmer's market vegetables
- **Tell a story:**
 - We only buy the freshest ingredients from local suppliers...
- **Describe preparation:**
 - “Thoughtfully prepared”
 - Pan-roasted

Don't Kill the Romance



Warning:

- Use “nutrition” and “health” cautiously when positioning
- Be careful with Light menus, lower calorie sections and options —sometimes the kiss of death



How Can We Make Foods:

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Look better?

Taste better?

Healthier?

Salmon

ASSOCIATION



BEFORE



"The Usual Dish"

AFTER



"Seductive Nutrition Dish"

513
calories

372
calories

What's Different?

- ✓ Grilling salmon cuts down on calories from fat
- ✓ Tomato cucumber relish saves calories, fat and saturated fat, while adding vitamins and minerals

Romancing Salmon on the Menu:

Line-caught Alaskan salmon grilled to perfection, then topped with a garden-fresh relish using heirloom tomatoes and cucumber

Taco

SCHOOL |

hot-NTA

BEFORE



"The Usual Dish"

AFTER



"Seductive Nutrition Dish"

445
calories

238
calories

What's Different?

- ✓ Baked white fish and avocado add good fat
- ✓ Corn tortilla provides more fiber with fewer calories
- ✓ Cilantro and lime add flavor without adding sodium

Romancing a Taco on the Menu:

California-style Fish Taco: We start with a fresh corn tortilla, layer on a generous portion of Baja-grilled tilapia, add fresh avocado slices, crisp shredded cabbage, tomato and sour cream, and garnish with chopped cilantro and fresh lime. This fish taco is a real catch!

Fried Shrimp

SCHOOL
NUTRITION
ASSOCIATION

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737
calories



521
calories

What's Different?

- ✓ Tapas-style meal lets guests have a combo of fried and grilled shrimp
- ✓ Slightly less cocktail sauce reduces calories and sodium
- ✓ Lemon and parsley add bright flavor with few calories

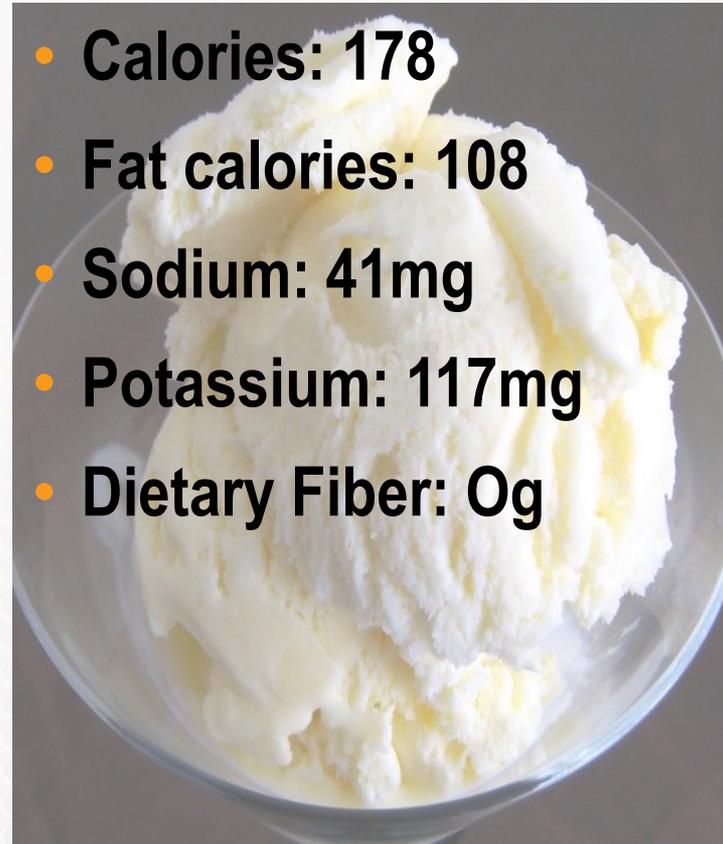
Romancing Fried Shrimp on the Menu:

Dig into a duo of fresh Gulf shrimp! Half of your order will be crispy fried shrimp served with our zesty house-made cocktail sauce; the other half consists of grilled shrimp lightly garnished with fresh-squeezed lemon and parsley.

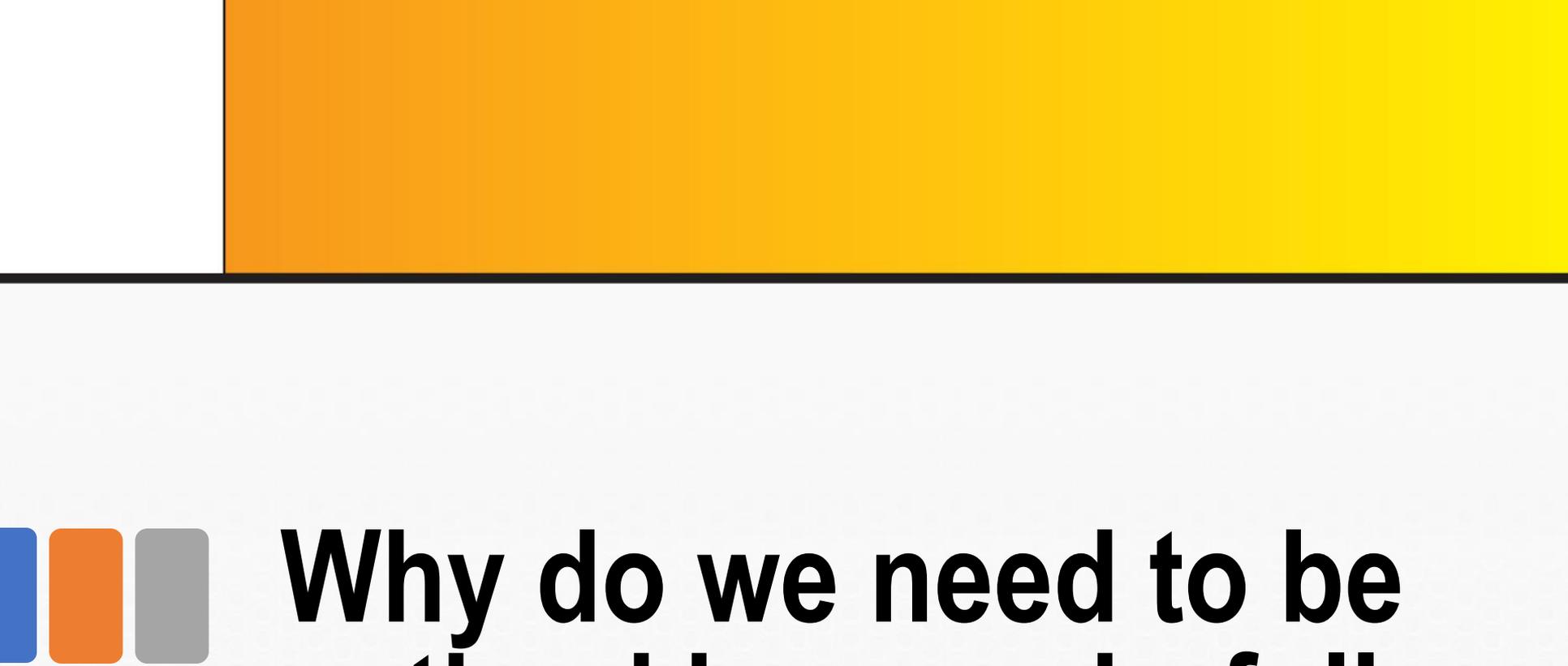
Berry Smoothie vs. Ice Cream



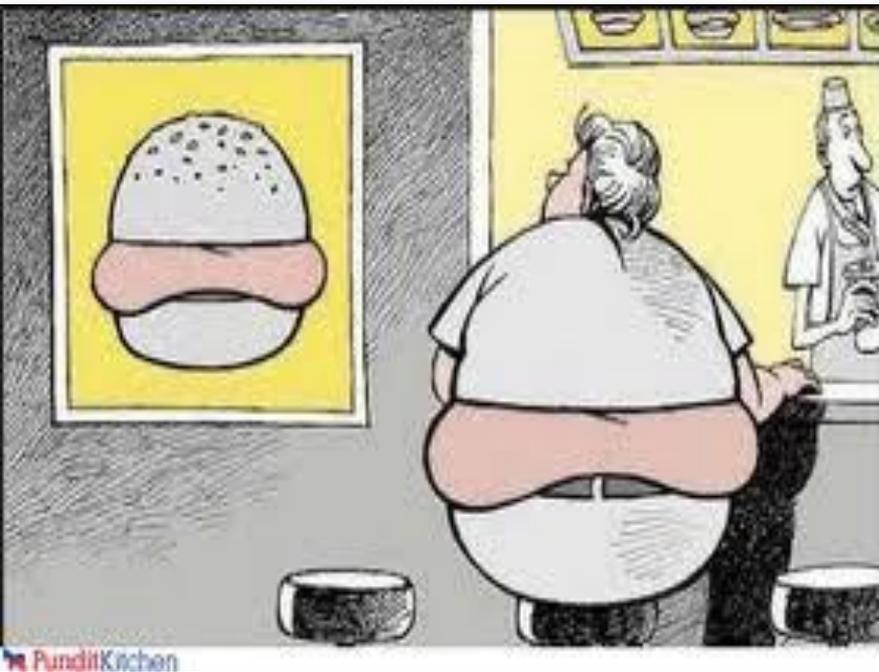
- **Calories: 231**
- **Fat calories: 54**
- **Sodium: 31mg**
- **Potassium: 746mg**
- **Dietary Fiber: 16g**



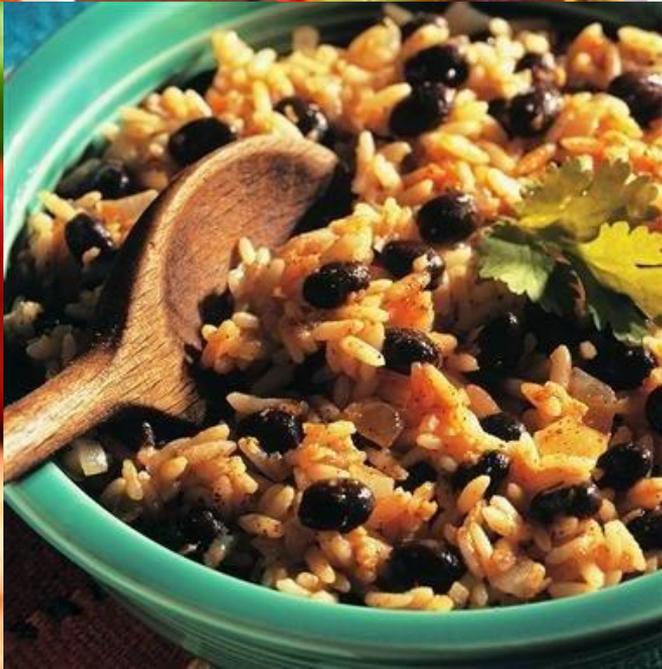
- **Calories: 178**
- **Fat calories: 108**
- **Sodium: 41mg**
- **Potassium: 117mg**
- **Dietary Fiber: 0g**



Why do we need to be enticed by wonderfully delicious, healthful foods?



“Low calorie, low fat, no salt. . . No wonder the dog doesn’t beg anymore”





Sugar: Friend or Foe?

- Sugar as a Friend

- When Does Sugar become a Foe?



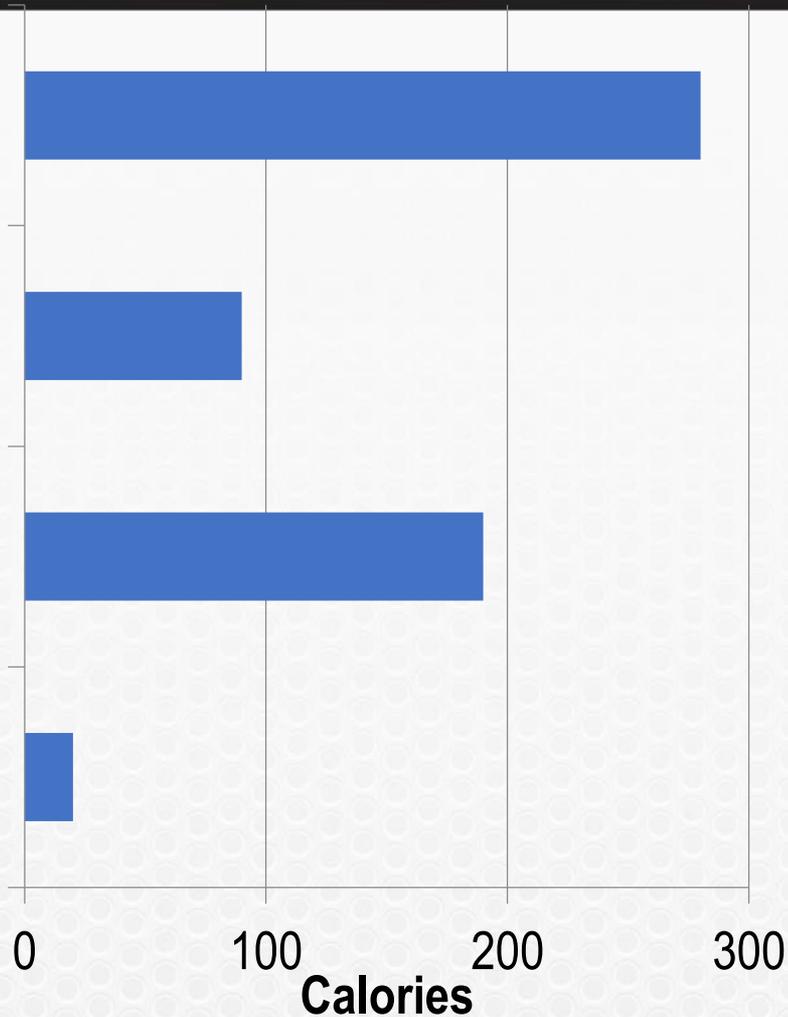
Sugar as a Friend Encouraging Salad and Veggie consumption

Cesar Salad w/ Creamy Caesar Dressing

Cesar Salad Plain

Side Salad w/ Creamy Ranch Dressing

Side Salad Plain



Milk Nutrients

- Children ages 2-8 do not get recommended amount of milk each day.
- Three-fourths of adolescents ages 9-19 do not receive recommended amounts each day.





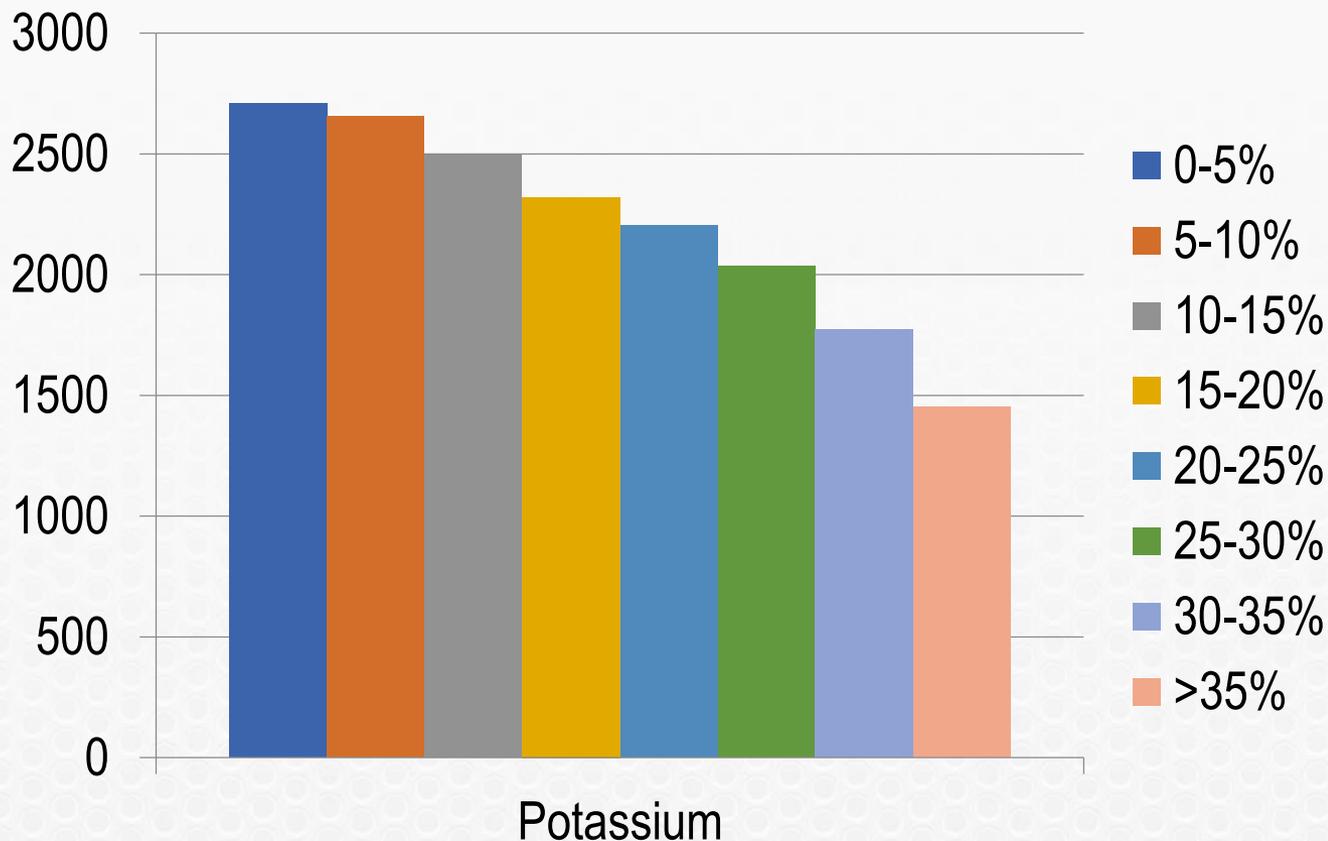
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Sugar: When does it change from a friend to a foe?



Reduction in Nutrients as Added Sugar Increases

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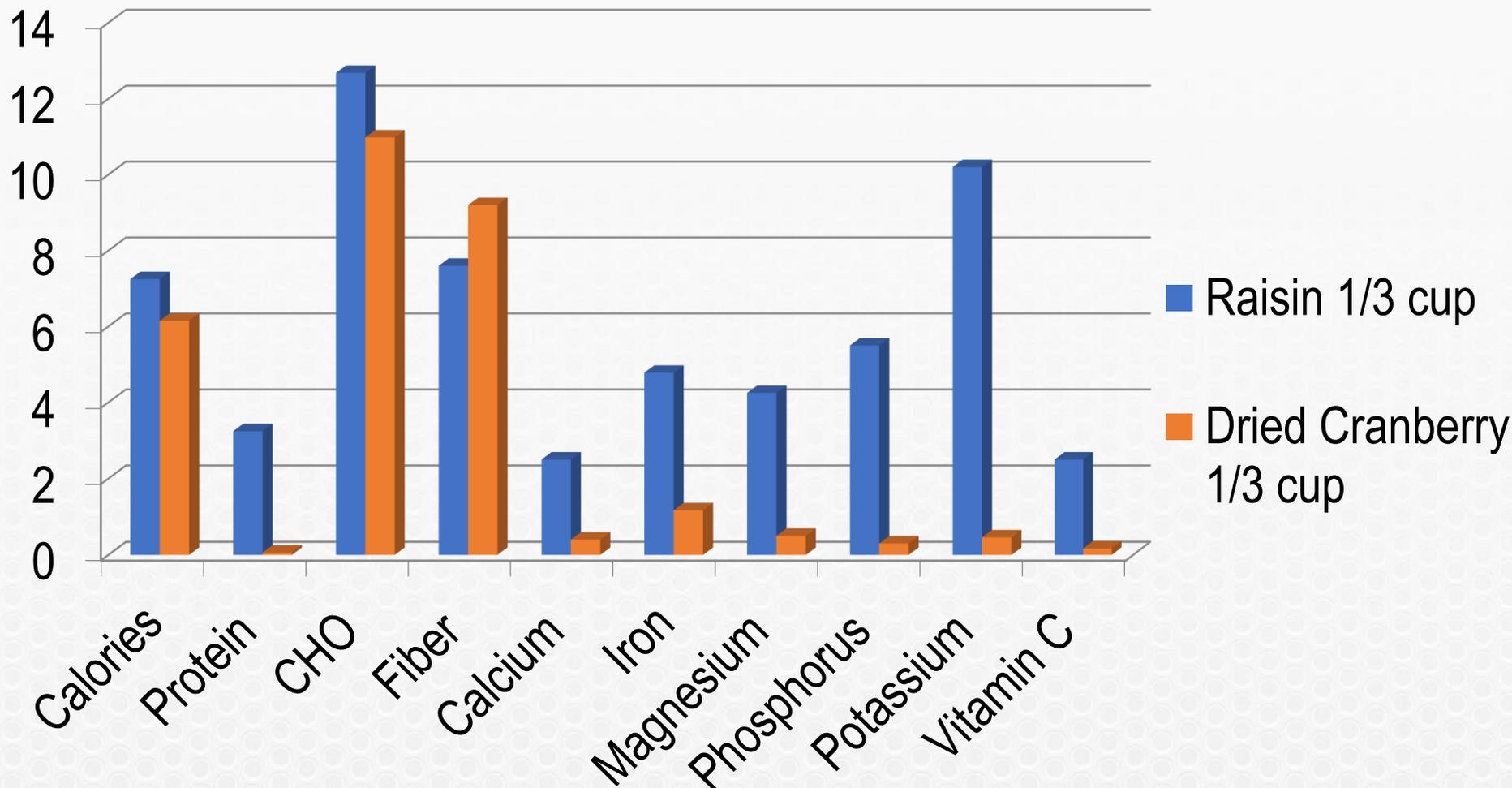


Marriott, B. P., Olsho, L., Hadden, L., & Connor, P. (2010). Intake of added sugars and selected nutrients in the united states, national health and nutrition examination survey (nhanes) 2003-2006. *Critical Reviews in Food Science and Nutrition*, 50, 228-258.



% RDA Comparison Raisins and Dried Cranberries

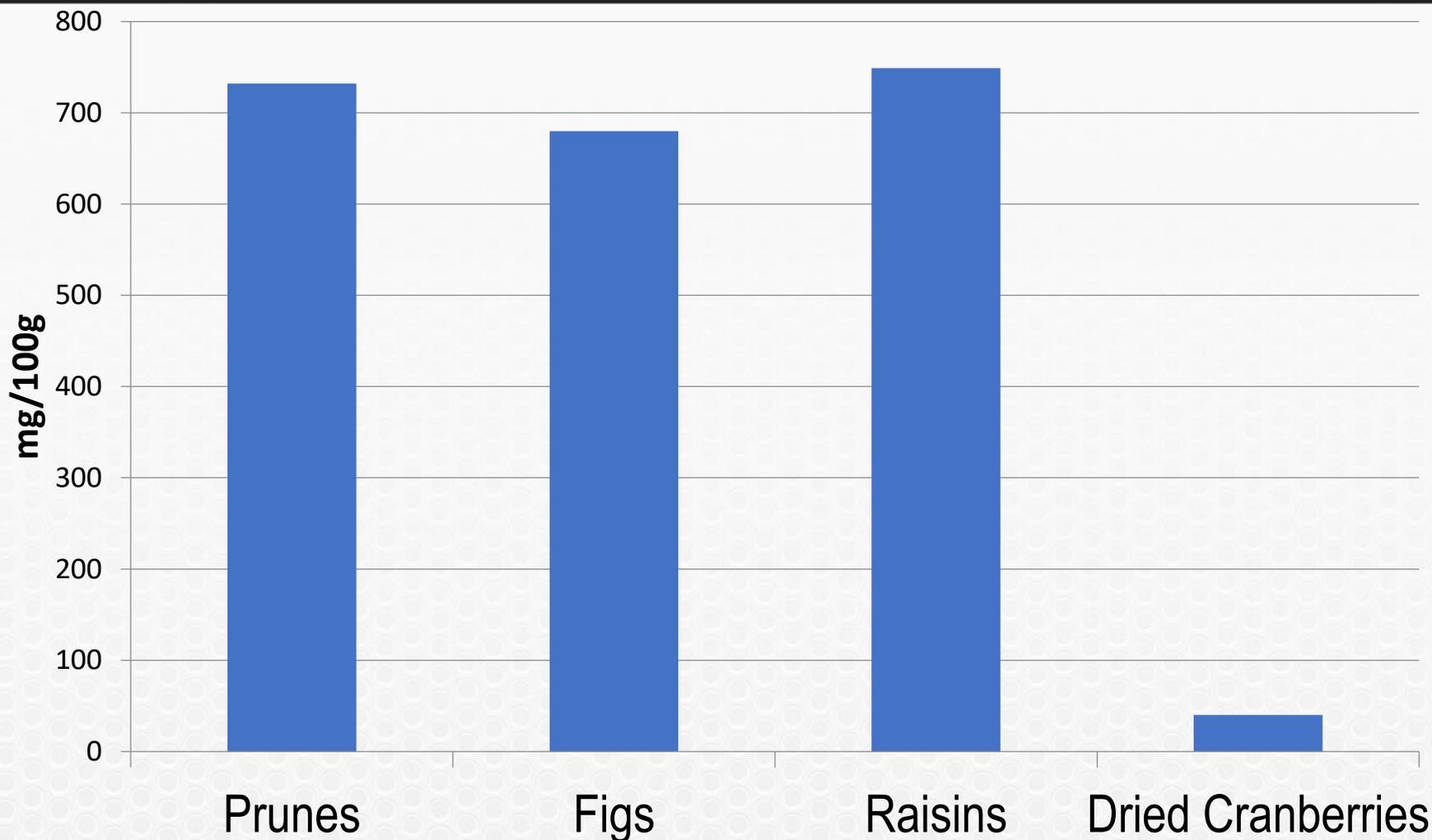
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Potassium

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Added Sugar (g)

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Guiding Star Comparison

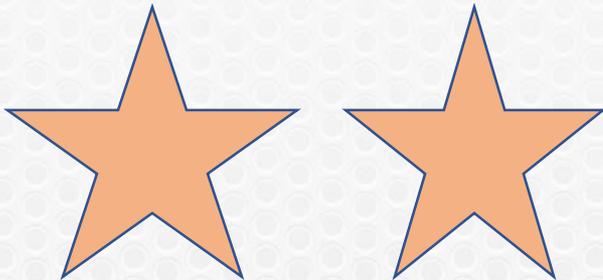
Raisins



Dried Cranberries

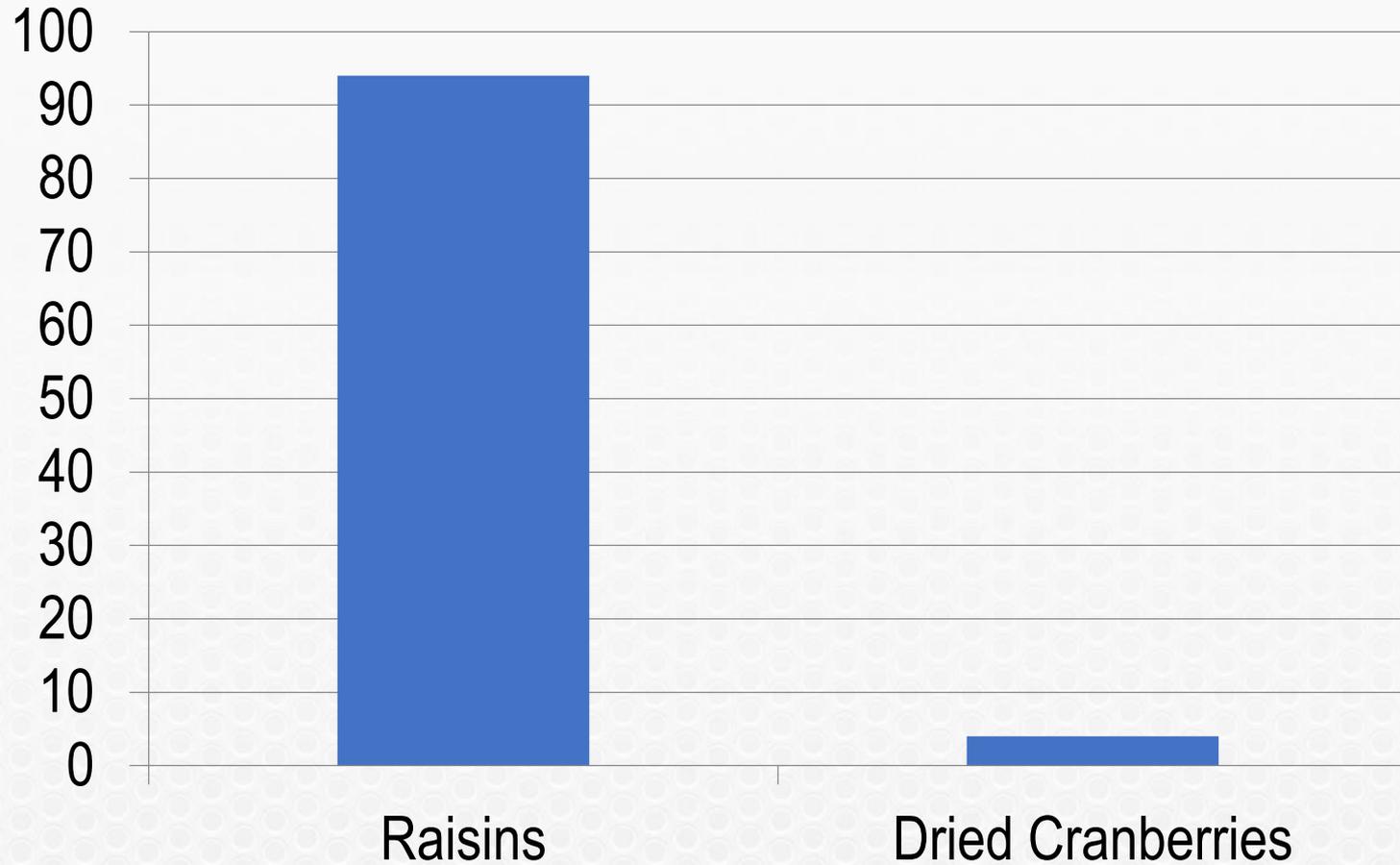


Guiding Stars®
Nutritious choices made simple®





Nuval Comparison





Cooking with Whole Foods Ingredients



Cook with Good Ingredients

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- Use visually appealing ingredients to make dishes look appetizing and to add depth to taste
- “Good” ingredients are more than just replacements for added sodium or sugar; they add in some healthful powerful punches!

“Good” Ingredients

- Nuts



- Omega-3 fatty acids



- Fiber



- Cocoa



Effects:

- Lower the risk of coronary heart disease
- Lower TC and LDL when consumed in moderation as part of a low fat diet
 - Fiber
 - Phytosterols
 - MUFA/PUFA
 - Antioxidants
 - Amino Acids



Research studies: Nuts

Study	Sample description	Amount of nuts	Effects
Adventist Health Studies (3 studies total), 1976	35,000 California Seventh-Day Adventists for up to 12 years	Consume nuts 5 or more times per week	Reduced risk of heart attack Lower lifetime risk of CHD
Nurse's Health Study, 1984	86,000 women for 14 years	5 or more ounces per week	35% reduced risk for CHD Reduced risk of heart attack
Iowa Women's Health Study, 1986	35,000 postmenopausal women without CHD for 7 years	Consume nuts and seeds more than 4 times a month	40% reduced risk of CHD
Physician's Health Study, 2002	21,454 males without CHD for 12 months	Consumed nuts 2 or more times/wk	Reduced CHD risk by ~30%



Individual Research Studies: Nuts

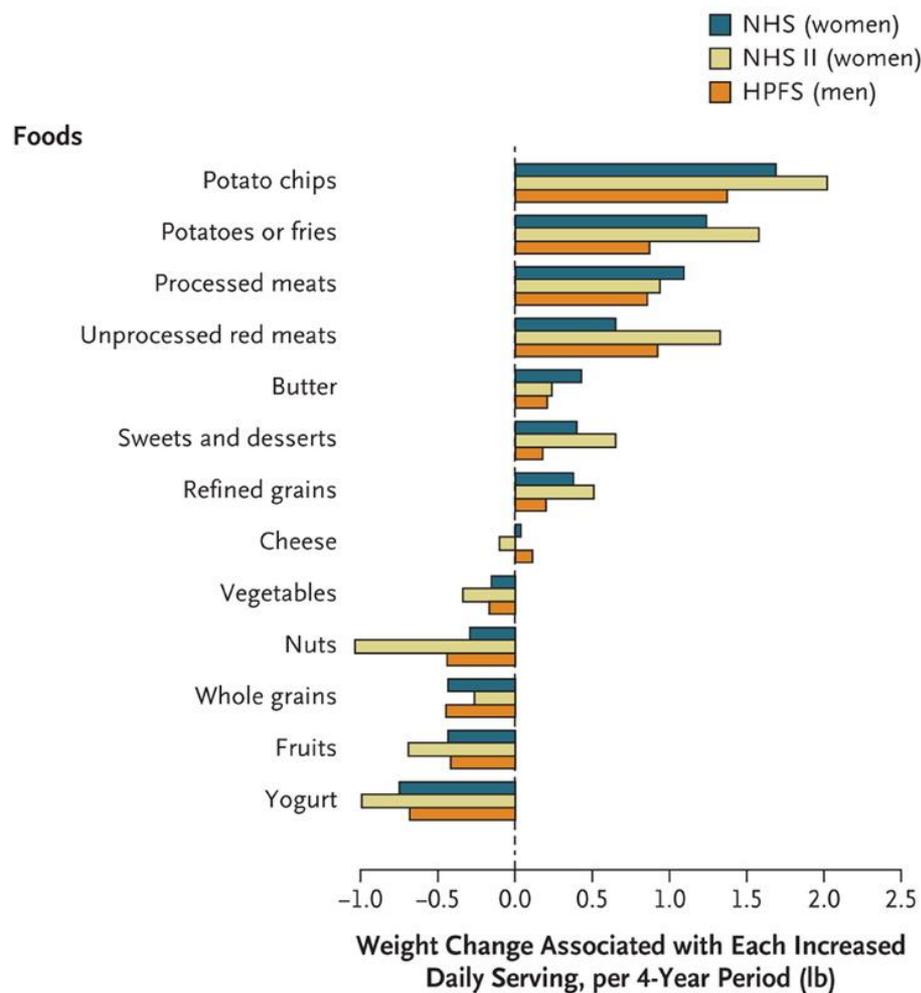
	Study	Sample description	Amount of nuts	Effects
	Rajaram et al., 2009	25 normal-hyperlipidemic adults (23-65 years)	42.5g walnuts twice/wk for 4 weeks	Reduced CHD risk ~18.6%
	Sheridan et al., 2007	15 adults (36-75 years) with moderate hypercholesterolemia	2-3 oz pistachio nuts/day for 4 weeks	Reduced LDL-C/HDL-C ~14% Reduced LDL-C ~9%
	Griel et al., 2007	25 healthy adults (25-65 years)	~1.5 oz macadamia nuts/day	Reduced TC and LDL-C concentration Reduced MI risk ~17%
	Jalali-Khanabadi et al., 2010	30 males with mild hyperlipidemia (38-52 years)	60g almonds for 4 weeks	Reduced LDL by ~14%



Diet & Lifestyle Study

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- Harvard University Lifestyle and Long-term Weight Gain Study
- 20 year study
- Relationships between changes in food and beverage consumption and weight



Let's Cook With Nuts!





Curry-Spiced Chocolate Nut Mix

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Ingredients:

- 3 tablespoons granulated sugar
- 1 tablespoons curry powder
- 1 teaspoon kosher salt
- 3 cups combination of raw, unsalted nuts and seeds such as pistachios, pecans, walnuts, sunflower seeds, pumpkin seeds**
- 1 cup raisins
- 1/4 cup finely chopped crystallized ginger
- 1 cup milk chocolate chips

Sun-Maid. (n.d.). *SunMaid*. Retrieved April 23, 2014, from http://www.sunmaid.com/en/recipes/recipe/curry_spiced_chocolate_nut_mix.html



Balance Omega-3 and Omega-6 Fatty Acids



- Effects:
 - Reduction of high blood pressure
 - Prevents vascular clotting
 - Lowers triglyceride levels
 - Reduction of atherosclerosis
 - Anti-inflammatory effects



Process of Inflammation

Omega-6

Omega-3



Arachidonic Acid

EPA/DHA

Cyclooxygenase pathway

PGE2

PGE3

Pro-inflammatory

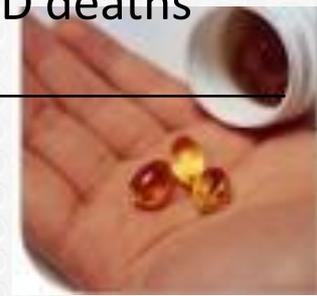
anti-inflammatory



Omega-3 Intervention Studies

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Study	N	Treatment	Result
Gissi et al. 1999	11,324	0.850-0.882 g/d of EPA + DHA for 3.5 years	Decreased CVD death and non-fatal MI
Von Schacky et al. 1999	223	6 g/d fish oil; 3 months 3g/d fish oil; 21 months	Decreased CVD death, fatal and non-fatal MI
Singh et al. 1997	360	1.8 g/d EPA + DHA for 1 year	Decreased cardiac deaths and non-fatal MI
Burr et al. 1994	227	3 g/d fish oil for 2 years	Decreased CHD deaths





Sources: Fish and Seafood



Sources: Fish and Seafood Omega-3's in 3.5 oz, raw

Sardines (in oil, cooked	3.3g
Mackerel, Atlantic	2.5g
Trout, lake	1.6g
Salmon, pink	1.0g
Oysters, Pacific	0.6g
Tuna	0.5g
Shrimp	0.3g
Lobster	0.2g

Let's Cook With Omega- 3s!



Melt-in-Your-Mouth Broiled Salmon



Ingredients:

- 1 clove garlic, chopped
- 2 tablespoons olive oil
- 4 (6 ounce) salmon fillets**
- 1/2 cup butter
- 2 tablespoons Worcestershire sauce
- 2 tablespoons lemon juice
- 1/4 cup white wine
- 1 teaspoon ground black pepper
- 1 teaspoon garlic salt
- 1 1/2 teaspoons fines herbs
- 1/4 cup chopped fresh dill

Swanson, D. (n.d.). Melt-in-your-mouth broiled salmon. *Allrecipes.com*.



Soluble Fiber



Effects:

- Reduces total and LDL cholesterol
- Reduces CHD risk



Table 2 Pooled treatment effect of psyllium on serum lipid

Variables	No. of studies	No. of subjects	Effect size ^a (95% CI) (mmol/l)	Heterogeneity (Q)
Total cholesterol	21	1717	0.375 (0.257–0.494)	0.0001
LDL cholesterol	21	1696	0.278 (0.213–0.312)	0.8825
HDL cholesterol	20	1430	0.0353 (0.0003–0.0514)	0.9980
Triglyceride	19	1397	-0.0077 (-0.0907–0.0346)	0.9251

^aEffect size for each trial was computed as the difference of lipid level change between psyllium and placebo groups. The pooled effect size was calculated with standard, fixed- or random-effect model. Any 95% CI that included zero indicated no significant result.

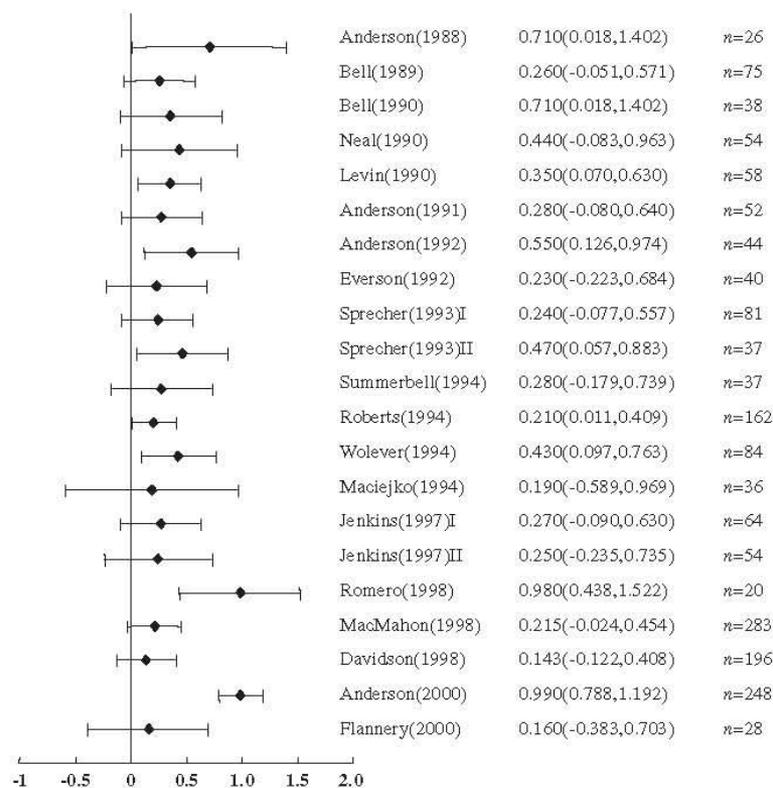


Figure 1 The effect size (and 95% CI) of psyllium on total cholesterol of all studies included in the meta-analysis. The horizontal lines denoted the 95% CIs.

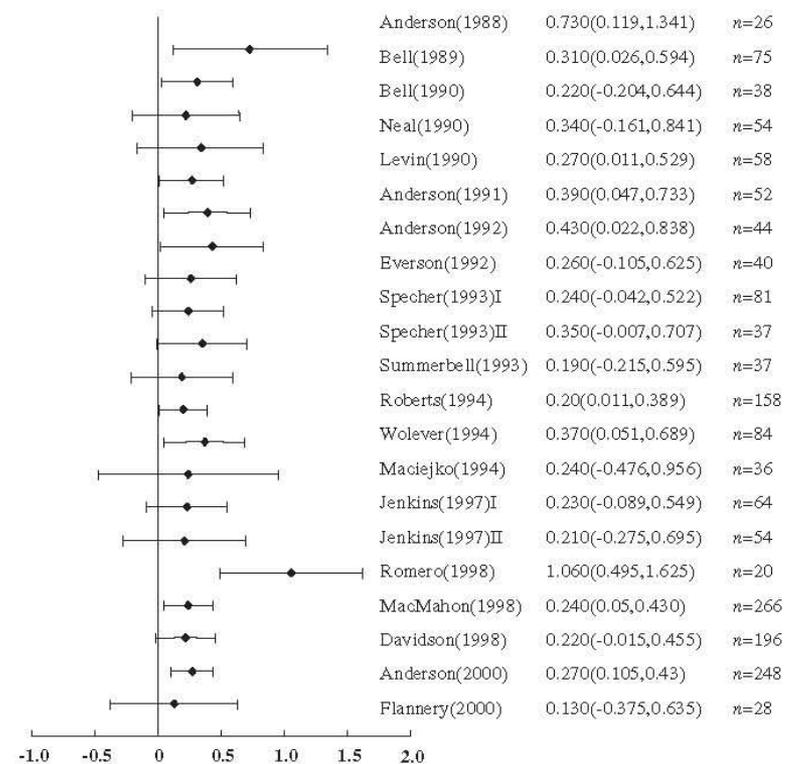
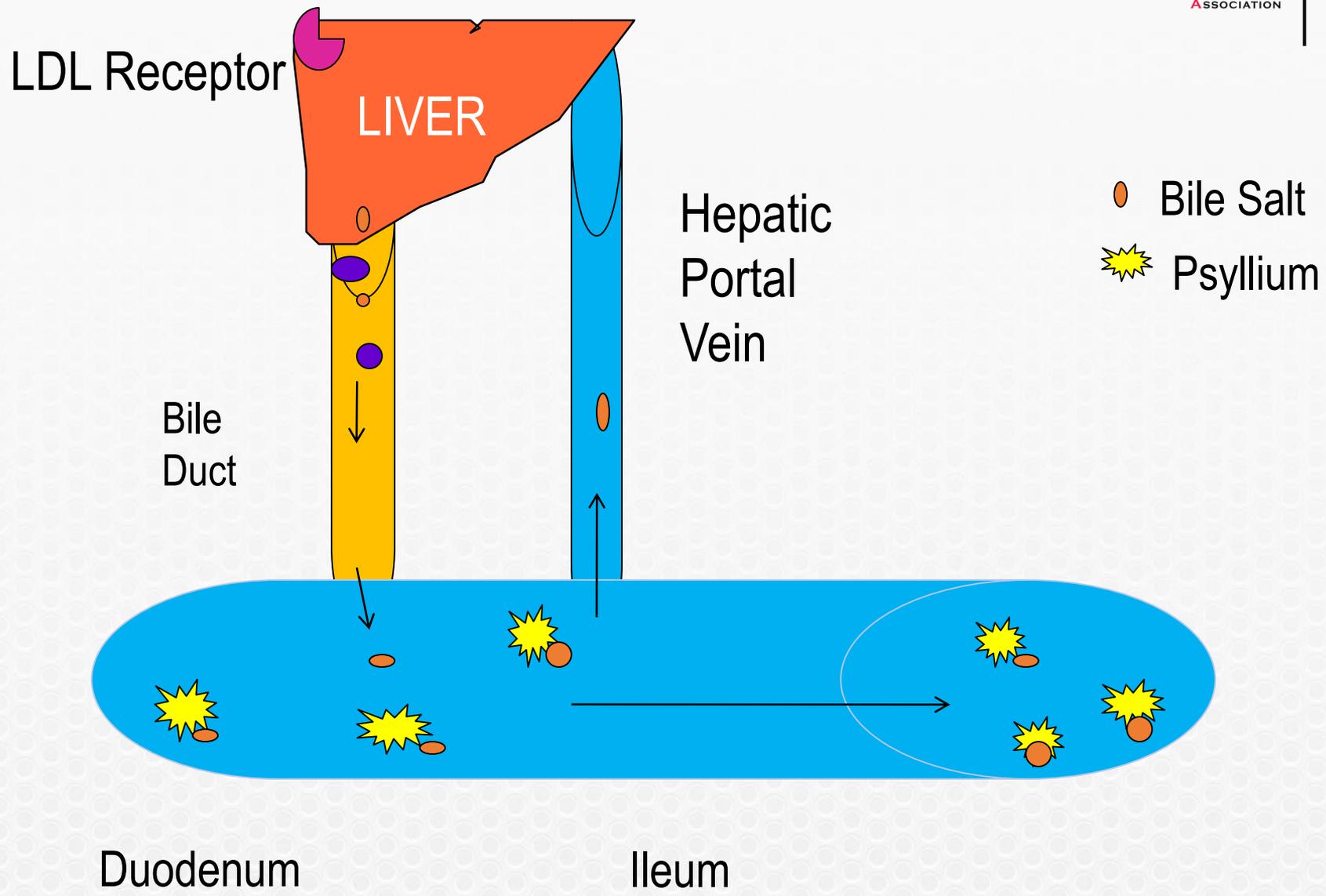


Figure 2 The effect size (and 95% CI) of psyllium on LDL cholesterol of all studies included in the meta-analysis. The horizontal lines denoted the 95% CIs.

Mechanism: Soluble Fiber

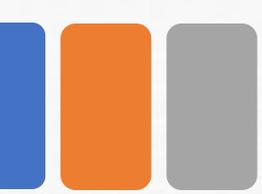




Sources: Fiber



- oatmeal, cooked
- peas
- beans
- potato, baked with skin
- whole wheat bread
- bran flake cereal
- spinach
- certain fruits
 - apples
 - bananas
 - oranges
 - pears
- psyllium (grain found in some cereal products)



Fiber in Beans

Beans – A Look at the Label

Nutrition Facts	
Serving Size 1/2 cup (120g)	
Servings Per Container 26	
Amount Per Serving	
Calories 90	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 140mg	6%
Total Carbohydrate 16g	5%
Dietary Fiber 5g	20%
Sugars 1g	
Protein 6g	
Vitamin A 0%	Vitamin C 0%
Calcium 15%	Iron 40%
* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carb	300g 375g
Dietary Fiber	25g 30g

Powerful
Protein

Strong
Bones!

Fat Free

We ♥ Fiber

High Iron

Let's Cook with Beans!





Sweet Bean Waffles with Bacon Crumble



Ingredients:

- 4 slices bacon
- 1-1/2 cup all purpose flour
- 1/2 cup cornstarch
- 1/2 cup confectioners sugar
- 2 tsp baking powder
- 1 cup milk
- *1/2 cup cannellini beans, canned, drained*
- *1/2 cup black eyed peas, canned, drained*
- 3 eggs, separated
- 4 tbsp butter, cold, diced pinch salt
- 1/4 cup canola oil
- 1 cup maple syrup, heated
- 1 cup whipped cream

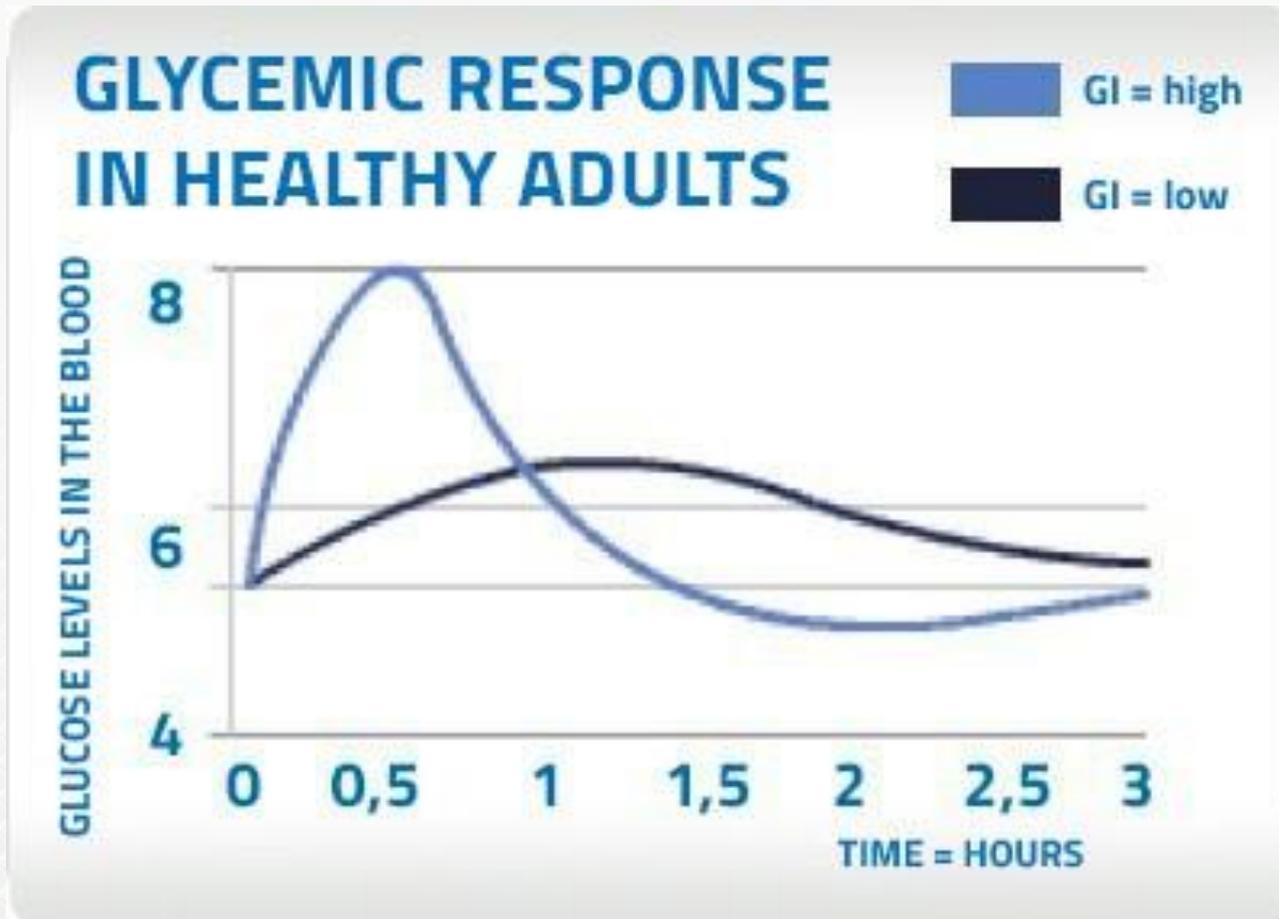


Recipe by Chef Rebecca Peizer

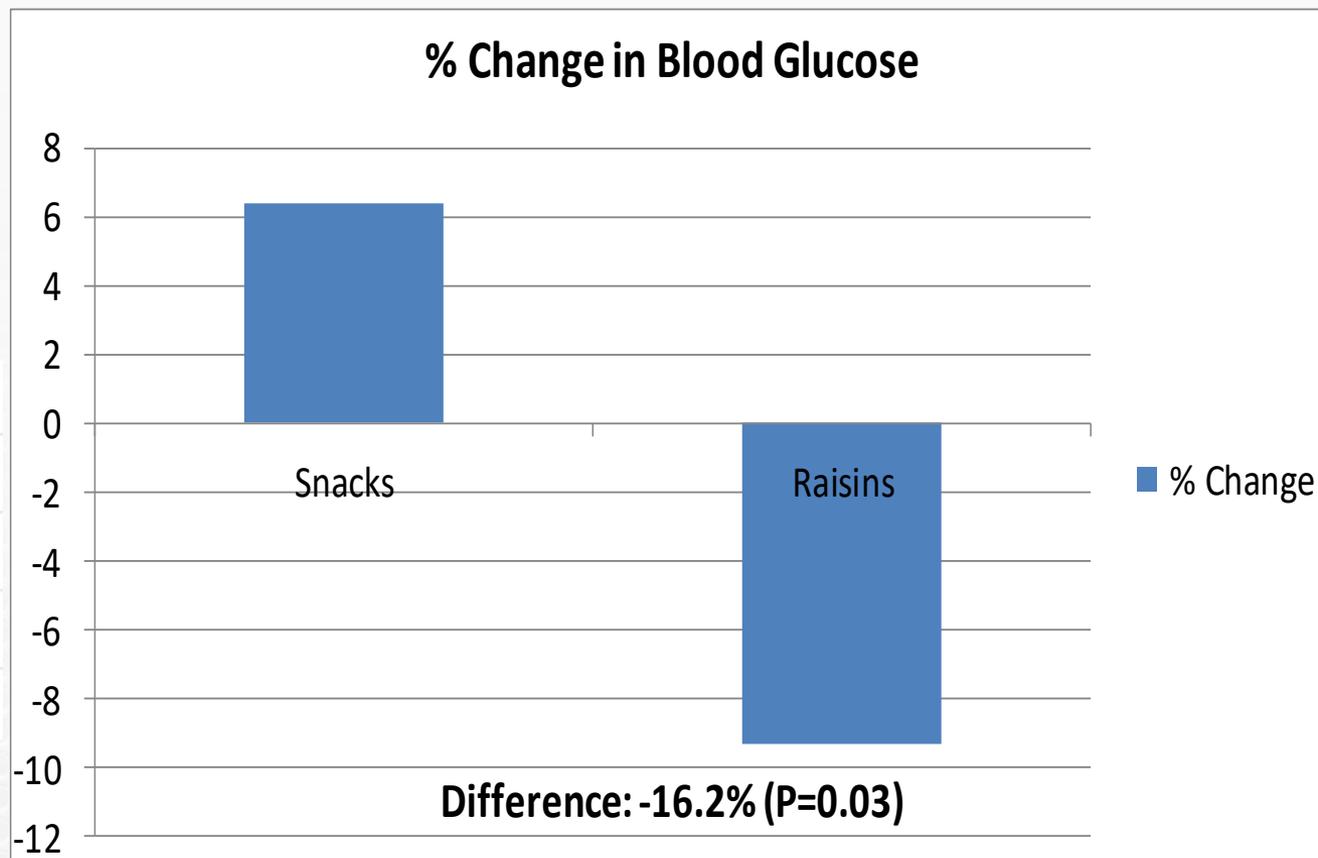
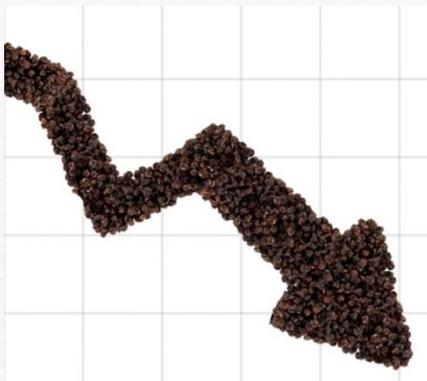


Fiber in Raisins

Raisin and Glycemic Response



Raisins and Blood Glucose



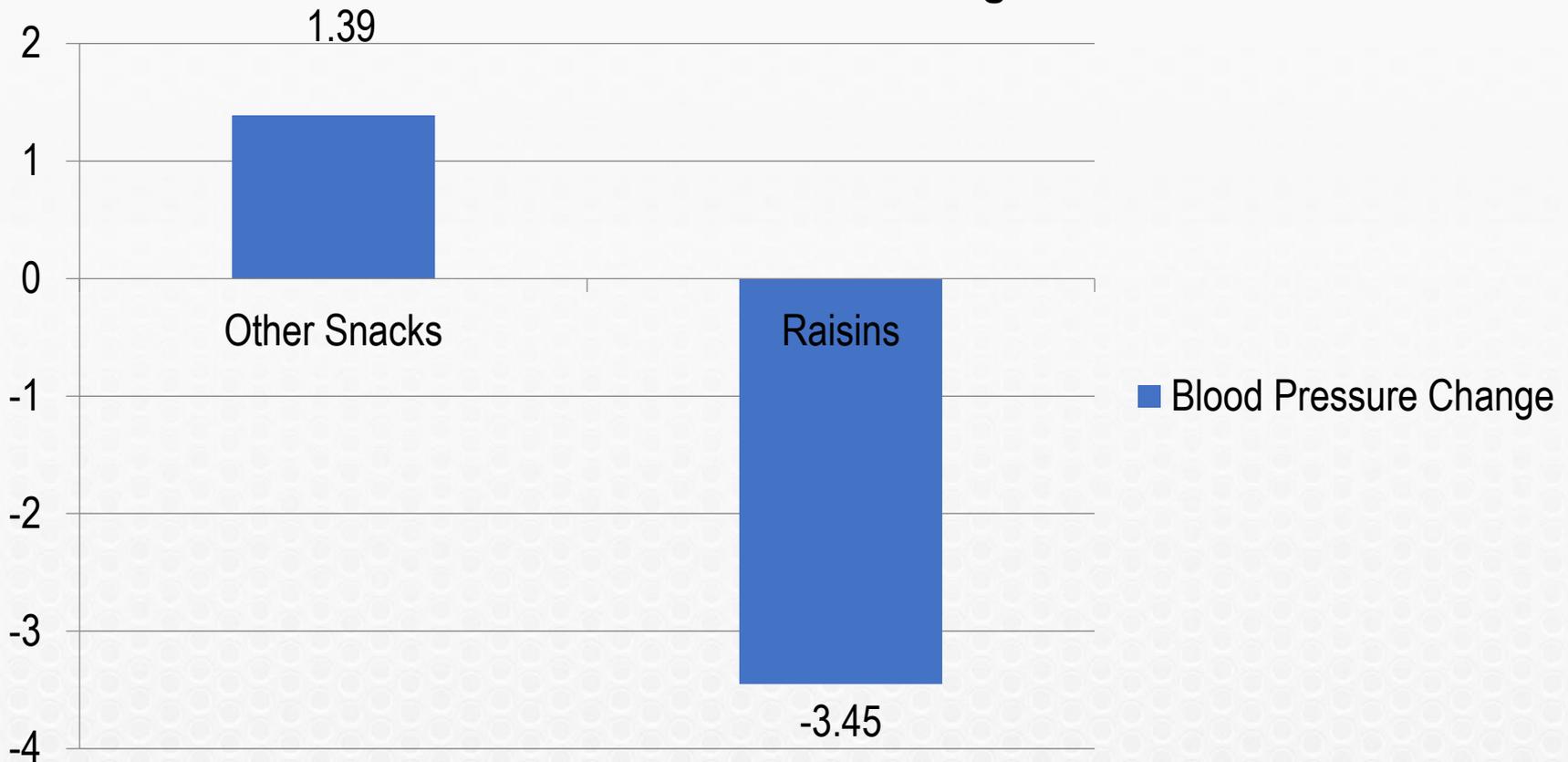
Anderson, J. W., Weiter, K. M., Christian, A. L., Ritchey, M. B., & Bays, H. E. (2014). Raisins compared with other snack effects on glycemia and blood pressure: a randomized, controlled trial. *Postgraduate medicine*, 126(1), 37-43.



Blood Pressure and Raisins



Blood Pressure Change

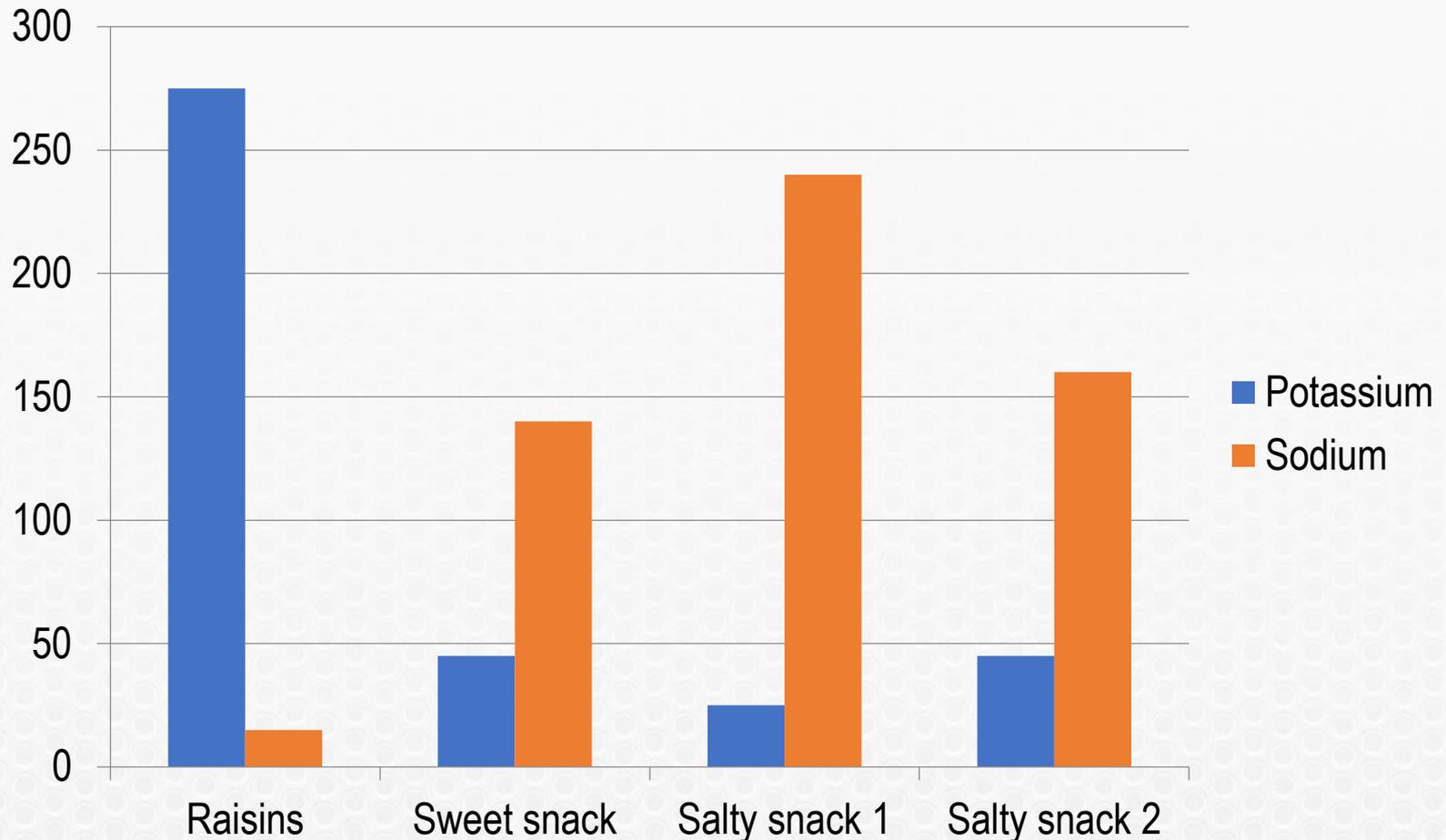


Anderson, J. W., Weiter, K. M., Christian, A. L., Ritchey, M. B., & Bays, H. E. (2014). Raisins compared with other snack effects on glycemia and blood pressure: a randomized, controlled trial. *Postgraduate medicine*, 126(1), 37-43.



Why Raisins May Reduce Blood Pressure

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Chocolate/Cocoa

- Cocoa processed with alkali is not beneficial
- High fat chocolate is not beneficial
- High sugar chocolate is not beneficial
- Cocoa **is beneficial**





Effects: Cocoa Comparison of Antioxidant Content

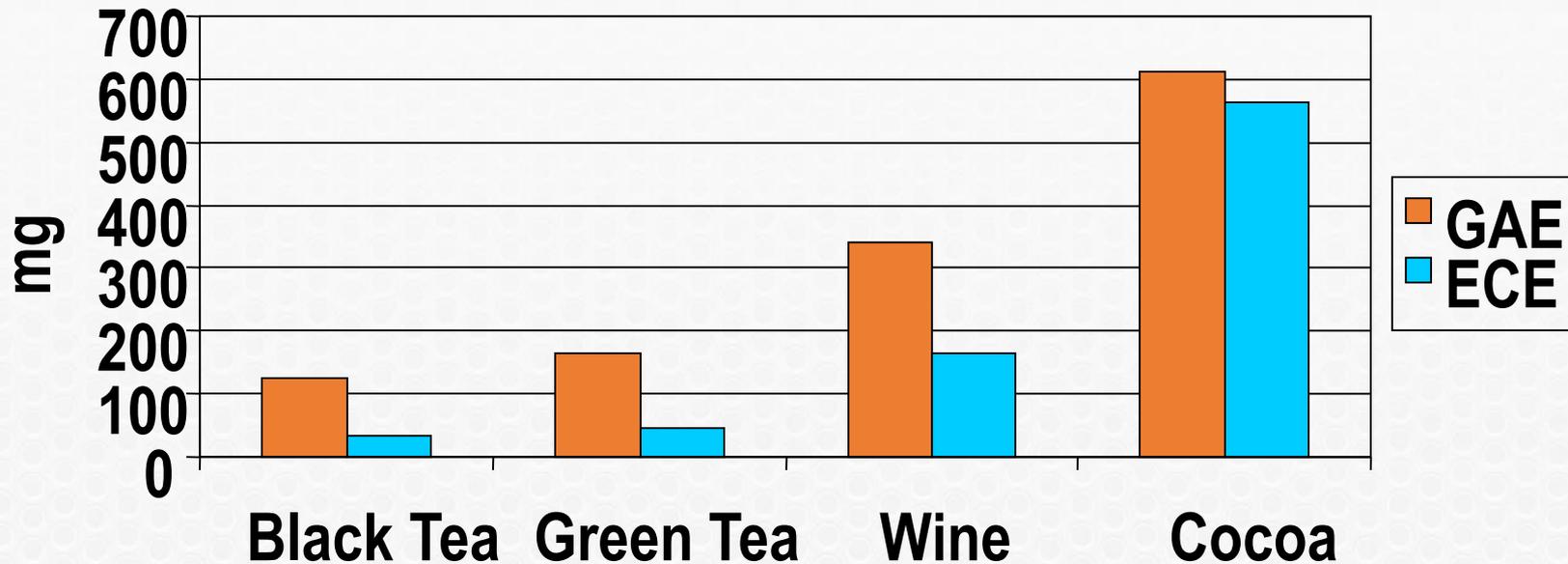
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- Black tea (2gm bag) 100⁰ C for 2 min.
- Green tea (2gm bag) 100⁰ C for 2 min.
- Wine 140 ml. California Merlot.
- 2 Tbs. commercial Cocoa pwd. 200 ml H₂O

Total Flavonoid and Phenolic Content of Tea, Wine and Cocoa



(per serving)



Gallic acid equivalents (GAE), phenolic
Epicatechin equivalents (ECE), flavonoid

Lee et al. (2003). Cocoa Has More Phenolic Phytochemicals and Higher Antioxidant Capacity than Teas and Red Wine. *Journal of Agriculture and Food Chemistry*, 51, 7292-7295.



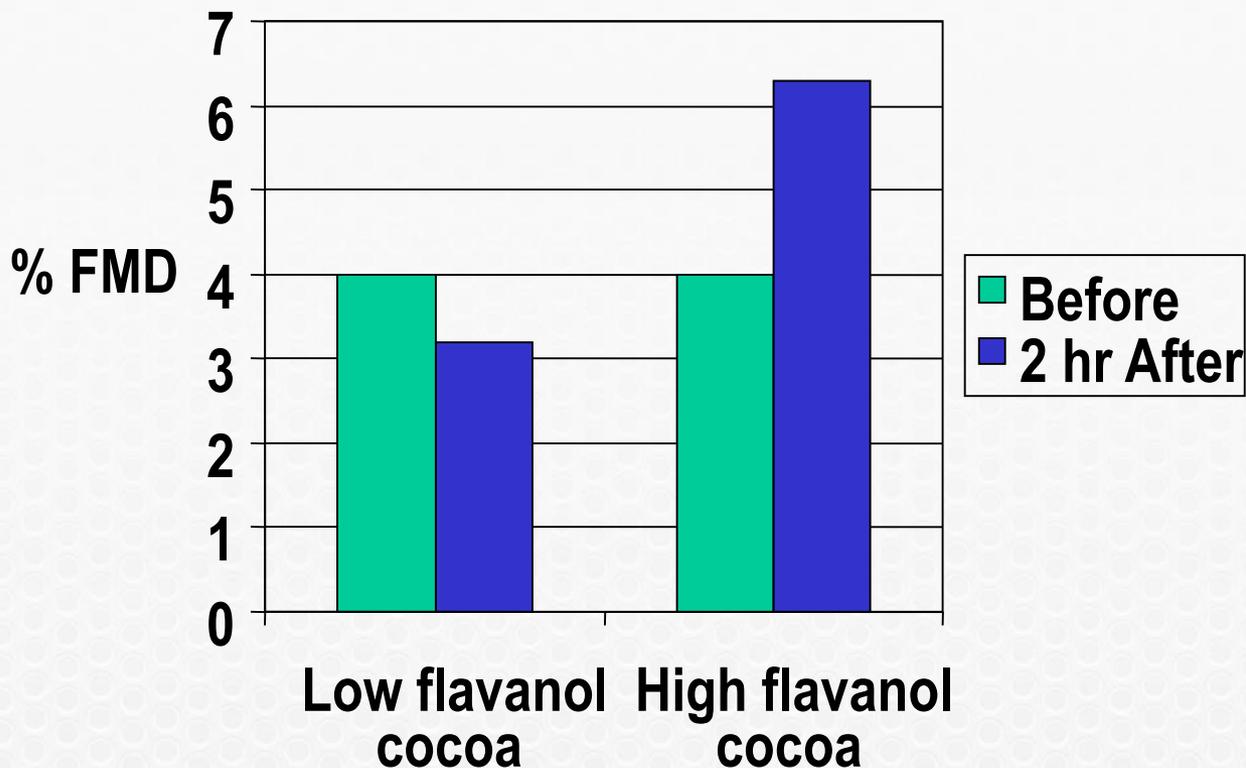
Cocoa Inhibits Blood Flow and Vessel Dilation

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- Subjects: 20 individuals at risk of CHD
- Consumed a cocoa drink
- 2 groups: high and low flavanol
- Brachial artery flow and dilation were measured

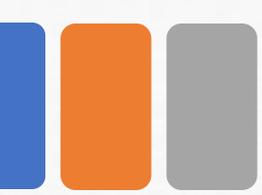
Sies, et al. 2005. Cocoa Polyphenols and Inflammatory Mediators. American Journal of Clinical Nutrition, 81, 304s-12s.

Vaso-dilation with Cocoa Flavanols



FMD (Flow-mediated Dilation)

Sies, et al. 2005. Cocoa Polyphenols and Inflammatory Mediators. American Journal of Clinical Nutrition, 81, 304s-12s.



Application Ideas

Homestyle Baked Beans

Ingredients: (6 servings)

- 2 16 oz. cans black beans
- 1 16 oz. can pinto beans
- ½ cup raisins paste
- ¼ cup date paste
- 4 tbsp. tomato paste
- 1 small onion diced
- 3 tbsp. prepared mustard
- 1 tbsp. cider vinegar
- 1 tsp minced garlic



Combine all ingredients in a large baking pan.

Cover pan and bake @300F for 130 minutes.

Uncover the last 30 minutes.

Cocoa Bean Torte

(30 Servings)

Ingredients:

- ½ tsp baking soda
- ⅛ tsp of salt
- ½ cup of cocoa powder
- 1 16 oz. can black beans, drained
- ½ cup of raisin paste
- ¾ cup of date paste
- 1 cup coconut milk
- 5 large eggs
- 6 tbsp. of butter
- ½ tsp vanilla



**This could be eaten
as a dessert or an
entrée with all of the
powerful ingredients!**

Sweet Garbanzo Bean Cake

INGREDIENTS *(12 servings)*

- 4 cans (16 oz.) garbanzo beans, drained and rinsed
- 1 cinnamon stick
- 2 cans (14 oz) sweetened condensed milk
- Zest and juice of 1 orange
- 6 eggs
- 1 cup butter, melted
- 1 ¼ cup raisins
- ½ cup cornstarch
- 1 tbsp. baking powder
- 1 tbsp. powdered sugar, for garnish



http://www.bushbeans.com/en_US/recipe/sweet-garbanzo-bean-cake



Chocolate Mousse with Aquafaba

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Ingredients:

- Liquid from 16 oz. can garbanzo beans
- 1 can of coconut milk or 16 ounce package of whipping cream
- $\frac{1}{4}$ tsp of cream of tartar
- 1 tbsp. of cocoa powder
- $\frac{1}{4}$ cup of date paste





Raisins vs. Sugar



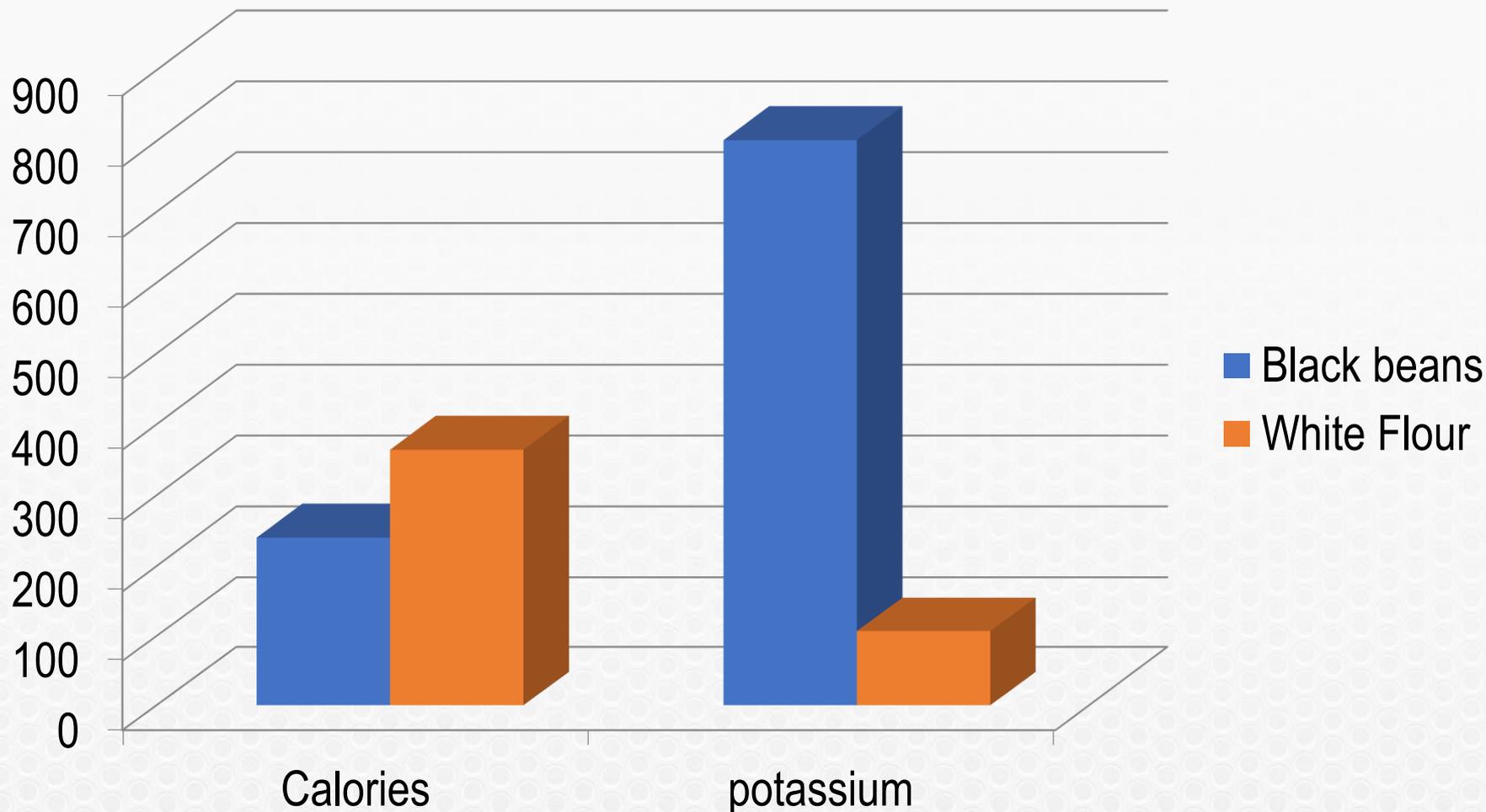
Nutrition Facts			
Raisins, seedless ▾			
Amount Per 100 grams ▾			
Calories 299			
		% Daily Value*	
Total Fat 0.5 g			0%
Saturated fat 0.1 g			0%
Polyunsaturated fat 0 g			
Monounsaturated fat 0.1 g			
Cholesterol 0 mg			0%
Sodium 11 mg			0%
Potassium 749 mg			21%
Total Carbohydrate 79 g			26%
Dietary fiber 3.7 g			14%
Sugar 59 g			
Protein 3.1 g			6%
Vitamin A	0%	Vitamin C	3%
Calcium	5%	Iron	10%
Vitamin D	0%	Vitamin B-6	10%
Vitamin B-12	0%	Magnesium	8%

Nutrition Facts			
Sugar ▾			
Amount Per 100 grams ▾			
Calories 387			
		% Daily Value*	
Total Fat 0 g			0%
Saturated fat 0 g			0%
Polyunsaturated fat 0 g			
Monounsaturated fat 0 g			
Cholesterol 0 mg			0%
Sodium 1 mg			0%
Potassium 2 mg			0%
Total Carbohydrate 100 g			33%
Dietary fiber 0 g			0%
Sugar 100 g			
Protein 0 g			0%
Vitamin A	0%	Vitamin C	0%
Calcium	0%	Iron	0%
Vitamin D	0%	Vitamin B-6	0%
Vitamin B-12	0%	Magnesium	0%



Beans vs. All Purpose Flour

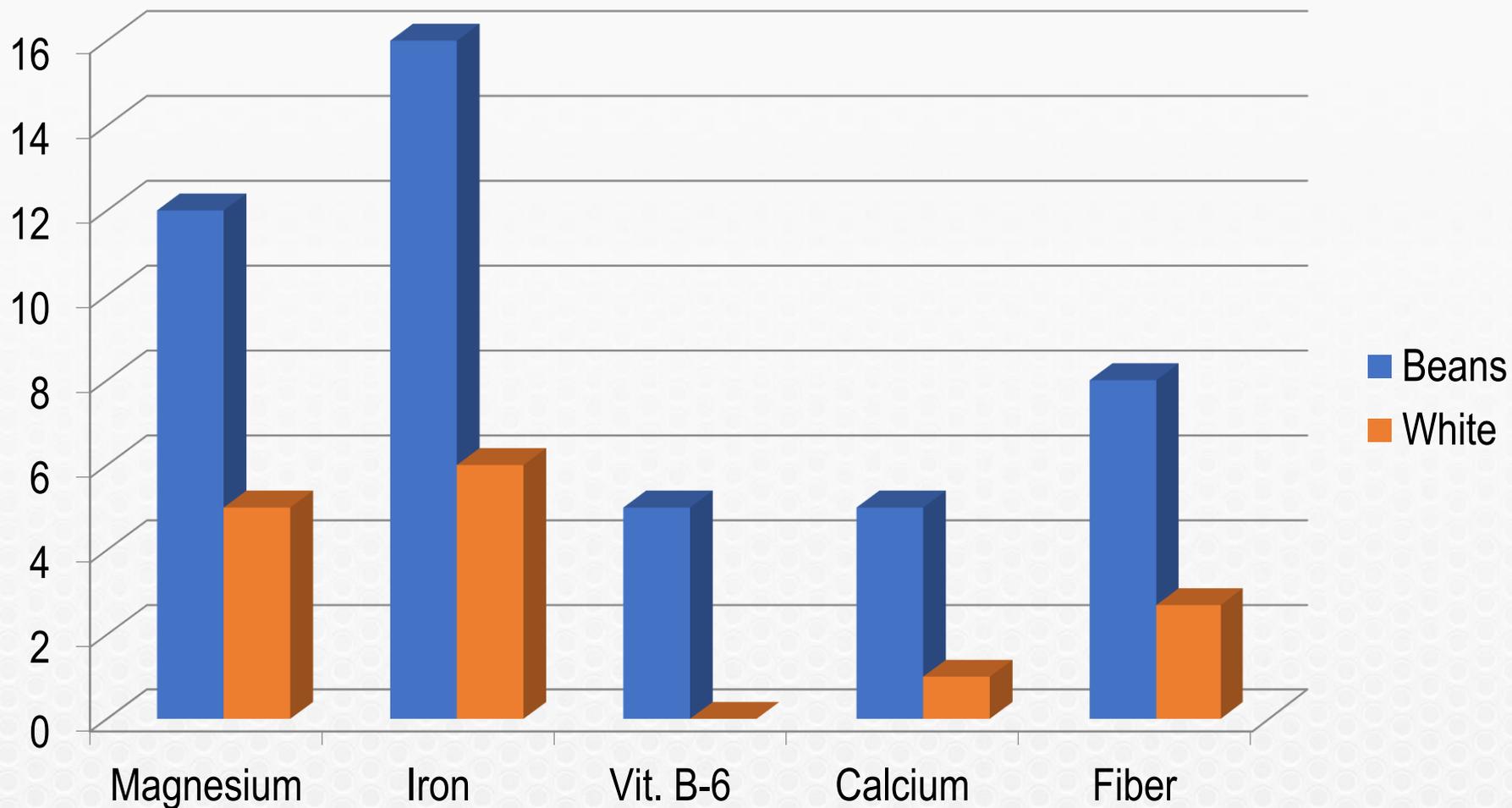
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Beans vs. All Purpose Flour

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Basic Report 28358, GLUTINO, Gluten Free Wafers, Lemon Flavored



Nutrition Facts

Serving Size 3 Wafers (30g)
Servings Per Container about 7

Calories 160
Calories from Fat 70

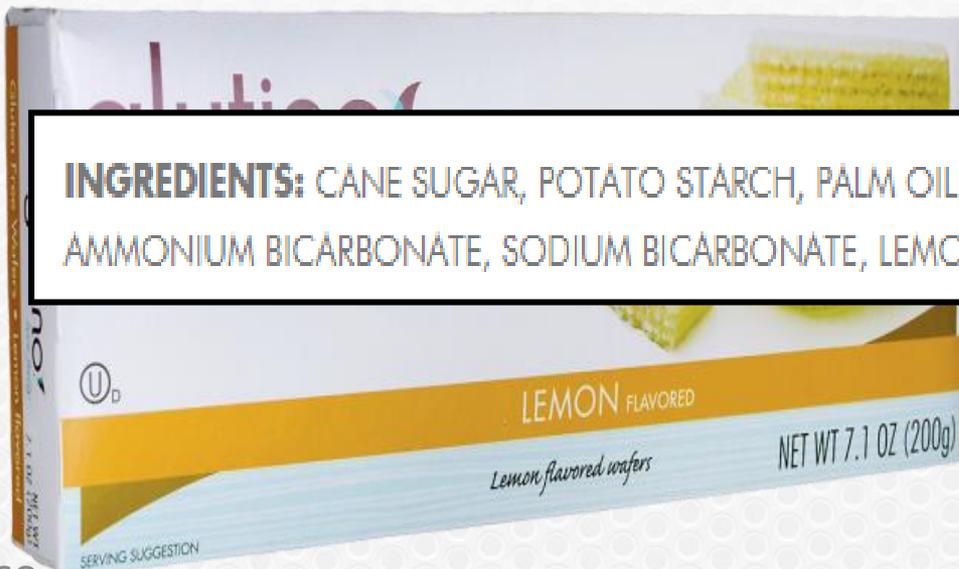
Amount Per Serving	% Daily Value*	Amount Per Serving	% Daily Value*
Total Fat 7g	11%	Total Carbohydrate 23g	8%
Saturated Fat 3.5g	18%	Dietary Fiber 0g	0%
Trans Fat 0g		Sugars 12g	
Cholesterol 0mg	0%	Protein 0g	
Sodium 40mg	2%		
Vitamin A 0%	•	Vitamin C 0%	
Calcium 0%		•	Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

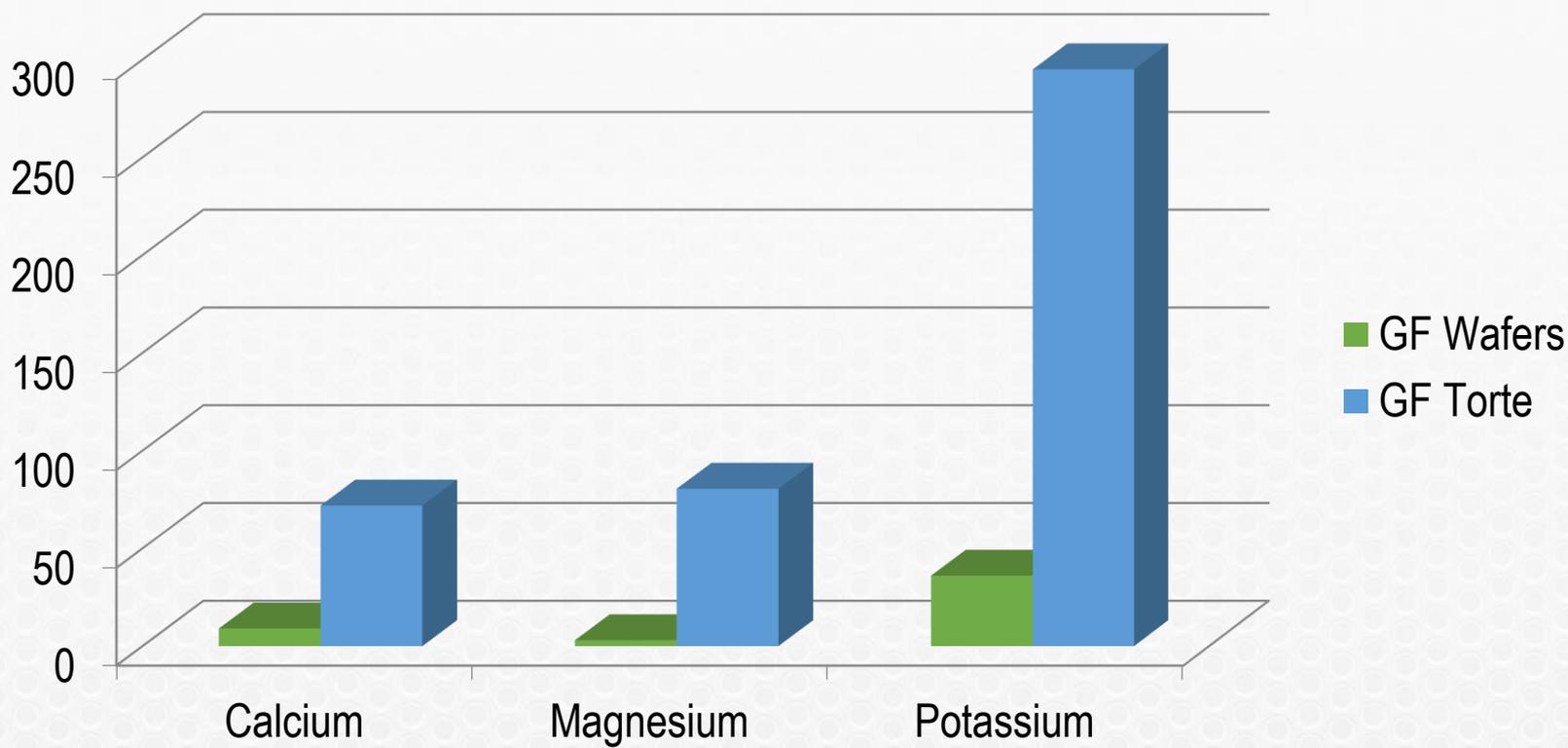
	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

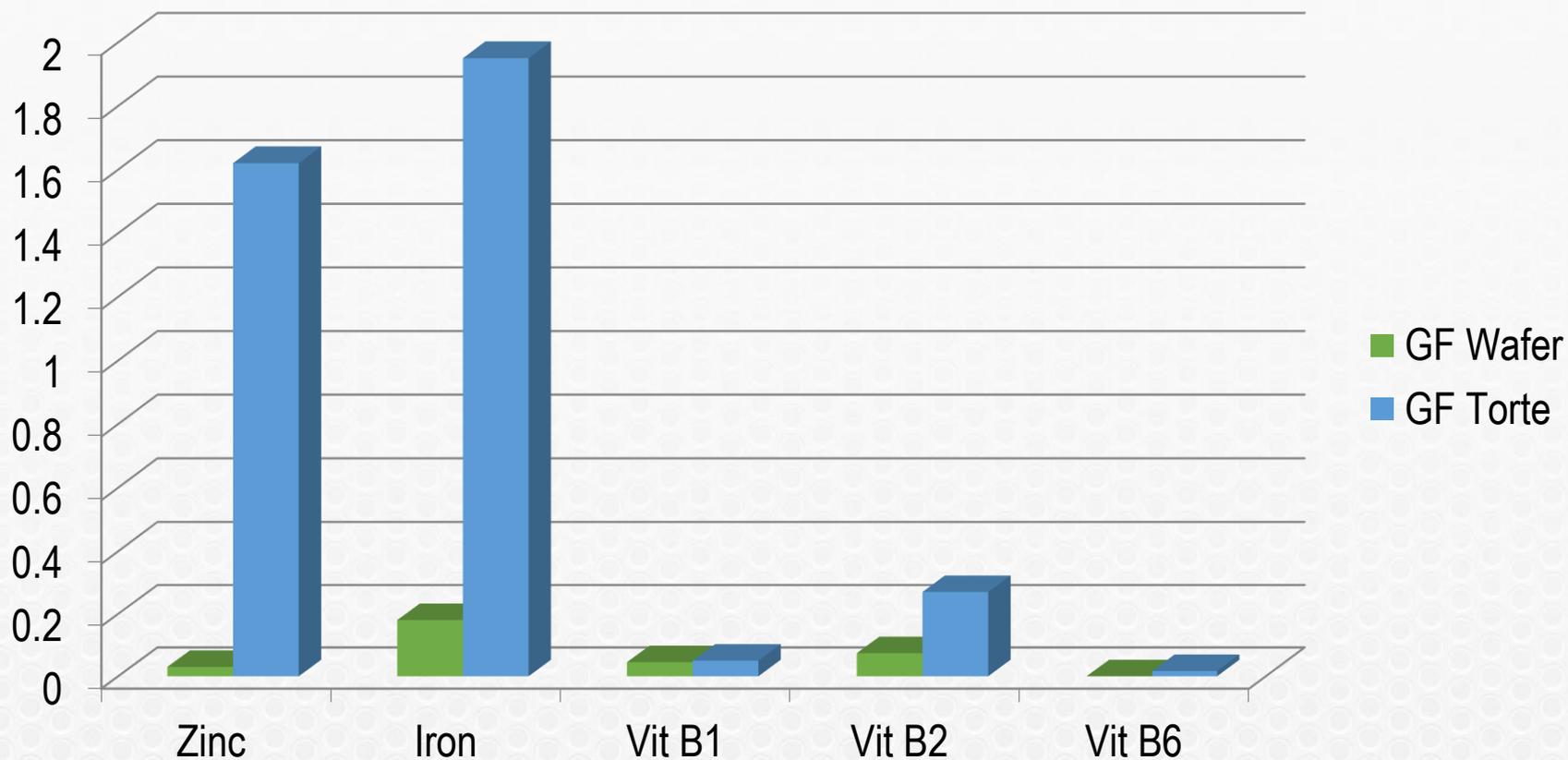
INGREDIENTS: CANE SUGAR, POTATO STARCH, PALM OIL, SOY OIL, SOY LECITHIN, CITRIC ACID, SALT, AMMONIUM BICARBONATE, SODIUM BICARBONATE, LEMON FLAVOR.



Wafer vs. Torte



Wafer vs. Torte





Conclusions



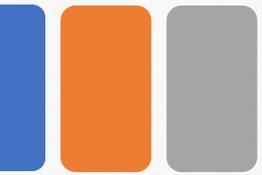
- Use whole food ingredients whenever possible
- Use description and garnishes to entice students
- Substitute beans for flour in gluten-free products
- Incorporate raisins to decrease added sugars

Conclusion

- Sugar is a friend if it encourages nutrient dense foods
- Added sugar is a foe when it reduces nutrient content
- Substitute whole fruits for sugar
- Make delicious foods healthy by stealth
- Include fruits, nuts and beans to add fiber
- Replace refined flour with beans, nuts, and whole grains

Thank You!





Thank you!

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Thank you to Sun-Maid Growers of California and Bush's
Best for making this presentation possible

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