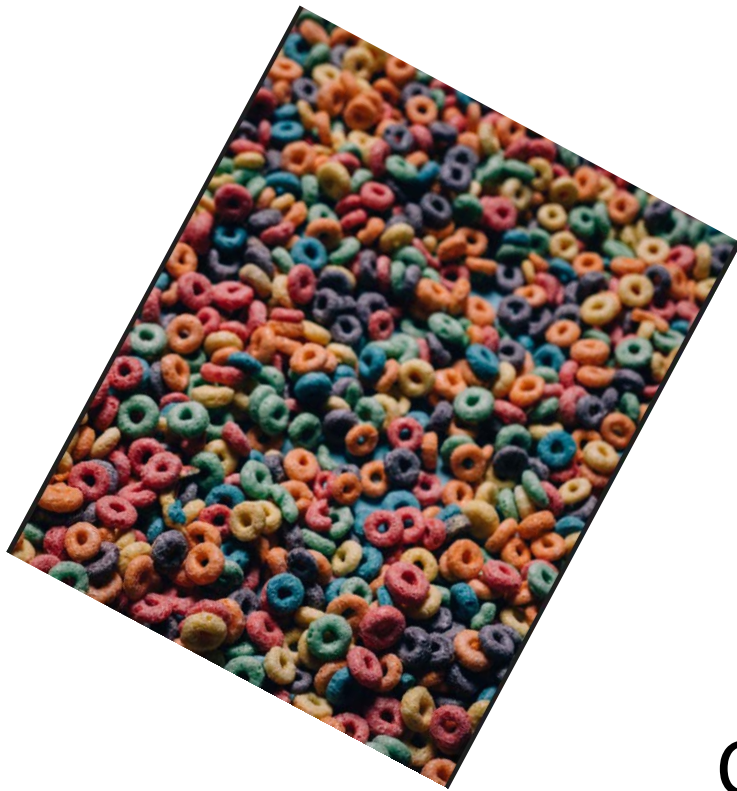




Food Additives

Cheryl Mehta, RDN, LD, CDCES



Get 1% Better Every Day

“Habits are the compound interest of self-improvement. Getting 1% better every day counts for a lot in the long run.”

Atomic Habits by James Clear

How did you do on your 1%?

Progress!!

What Food Swaps Did you Make to
Decrease Sodium in your Diet?



MEDITERRANEAN DIET

The diabetes portion plate



How to divide your plate

The diabetes portion plate is an easy to use tool that can help you visualize your portion sizes and make smart, healthy choices about what you eat.



Nonstarchy vegetables

Fill 1/2 of your plate with nonstarchy vegetables, such as tomatoes, green beans, peppers, zucchini, artichokes, and broccoli.



1/2

Use a 9-inch plate



1/4

Whole grains and starches

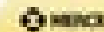
Fill 1/4 of your plate with grains and starchy foods, such as whole-grain breads, high-fiber cereal, brown rice, whole-grain pasta, and dried beans.



1/4

Protein

Fill 1/4 of your plate with protein, such as skinless chicken, lean cuts of beef or pork, fish, shrimp, eggs, and tofu.



Provided as an educational resource by Merck

Eat More Low Carb (non starchy) Vegetables

- Bell peppers
- Broccoli
- Cabbage
- Carrots
- Cauliflower
- Celery
- Green Beans
- Greens
- Salad Greens
- Spinach



INGREDIENTS: CORN SYRUP, ENRICHED BLEACHED FLOUR (WHEAT FLOUR, BARLEY MALT, NIACIN, REDUCED IRON, THIAMIN MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID), PALM AND SOYBEAN OILS WITH TBHQ AND CITRIC ACID TO PROTECT FLAVOR, WHOLE GRAIN ROLLED OATS, MOLASSES, RAISIN PASTE, SUGAR, WATER, DEXTROSE. CONTAINS 2% OR LESS OF EACH OF THE FOLLOWING: LEAVENING (BAKING SODA, AMMONIUM BICARBONATE, SODIUM ALUMINUM PHOSPHATE), WHEY, SALT, SOY LECITHIN, CORN STARCH, NATURAL AND ARTIFICIAL FLAVORS, MONO- AND DIGLYCERIDES, POLYSORBATE 60, SORBITAN MONOSTEARATE, DRIED EGGS, MODIFIED CORN STARCH, SORBIC ACID (TO PRESERVE FRESHNESS), SOY FLOUR, DRIED EGG WHITES, ANNATTO EXTRACT, BETA CAROTENE, CARAMEL COLOR, CHOCOLATE, COCOA BUTTER, CITRIC ACID, COCOA PROCESSED WITH ALKALI, HIGH FRUCTOSE CORN SYRUP, MODIFIED WHEAT STARCH, NONFAT DRY MILK, PALM AND PALM KERNEL OIL, PECTIN, POLYSORBATE 80, PROPYLENE GLYCOL MONOSTEARATE, RED 40 LAKE, RICE FLOUR, SODIUM CITRATE, SODIUM STEAROYL LACTYLATE, SOYBEAN OIL, TITANIUM DIOXIDE, TURMERIC EXTRACT.

ALLERGY INFORMATION: CONTAINS WHEAT, MILK, SOY, EGGS. MAY CONTAIN PEANUTS, TREE NUTS.

Chicken (boneless, skinless chicken breast containing up to 17% solution of water, seasoning [yeast extract, onion powder, sea salt, garlic powder, sugar, salt, corn maltodextrin, gum arabic, natural flavor, lemon juice concentrate, vinegar solids], chicken flavor [chicken breast meat, chicken stock, salt, maltodextrin], modified corn starch, dried vinegar, apple cider vinegar, water, soybean oil, sugar, cane molasses, salt, spices, chicken fat, dehydrated onion, yeast extract, corn maltodextrin, lemon peel, dehydrated garlic, red bell pepper, paprika, parsley, xanthan gum, natural flavor [including smoke] and calcium disodium EDTA [to protect quality], high oleic canola oil with dimethylpolysiloxane added to reduce foaming), brioche bun (water, enriched flour [wheat flour, niacin, reduced iron, thiamin mononitrate, riboflavin, folic acid], grain blend [whole wheat flour, whole grain yellow corn flour, organic whole grain oat flour, whole grain barley flour, whole grain triticale flour, whole grain rye flour, salt], sugar, yeast, soybean oil, honey, wheat gluten, cultured wheat flour blend [wheat flour, cultured wheat flour], salt, monoglyceride, guar gum, rolled baby oats, degerminated yellow corn flour, dextrose, wheat starch, vinegar, wheat bran topping, wheat flour, maltodextrin, acetic acid, pea protein, cornstarch, enzymes, ascorbic acid [dough conditioner], canola oil, natural flavor, paprika, calcium carbonate, calcium sulfate, medium chain triglycerides, organic rice concentrate, turmeric, sunflower oil, potato protein, faba bean protein, gum arabic, citric acid), tomato, green leaf lettuce, Soybean oil, sugar, water, distilled vinegar, honey, mustard (water, distilled vinegar, mustard seed, salt, turmeric, spices. may contain paprika and garlic powder), tomato paste, egg yolks, salt, onion puree, natural smoke flavor, annatto color, potassium sorbate and sodium benzoate added as preservatives, spice, xanthan gum, lemon juice concentrate, mustard seed, propylene glycol alginate, dehydrated onion, spices, caramel color, dehydrated garlic, calcium disodium EDTA added to protect flavor

Ingredients: Enriched flour (wheat flour, niacin, reduced iron, vitamin B1 [thiamin mononitrate], vitamin B2 [riboflavin], folic acid), sugar, soybean and palm oil (with TBHQ for freshness), corn syrup, dextrose, high fructose corn syrup, bleached wheat flour. Contains 2% or less of molasses, salt, leavening (baking soda, sodium acid pyrophosphate, monocalcium phosphate), cinnamon, wheat starch, soy lecithin, gelatin, caramel color.

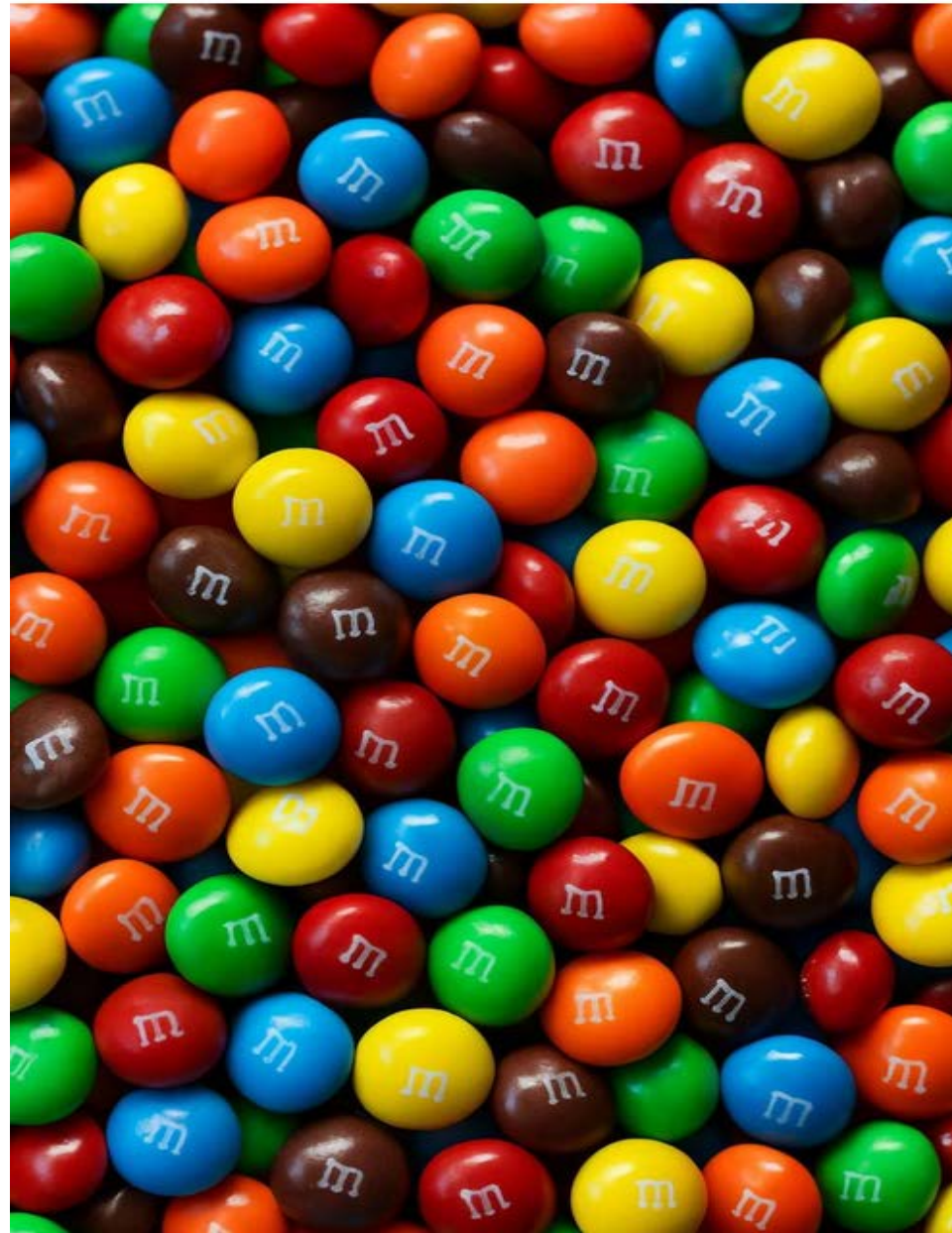
Eat

the

Colors

of the

Rainbow



Concerns About Food Additives

- “While many of them are considered safe, new research suggests that some may have negative effects of inflammation, metabolic disorders, and gut bacteria, especially if you eat them often or in large quantities.” J. Wesley McWhorter, PhD, RD, spokesperson for the Academy of Nutrition and Dietetics.

Negative effects on chronic disease patterns and risks. *Frontiers in Nutrition*. “Edible evolutions: The Significance of Food Additives in Shaping Human Health.” Jan 8, 2026.

FOOD DYES



FOOD DYES

Natural: plants,
spices, minerals

- Artificial:
synthetic, or man-made chemicals,
often petroleum based

FOOD DYES

Natural: plants, spices, minerals

- Beet powder or juice
- Turmeric
- Fruit juice
- Blue Spirulina extract

FOOD DYES

Natural

- Doesn't automatically mean safe or no concerns.
- Often sprayed with pesticides (fruits, vegetables)
- Natural dyes: use a self-certifying process vs. synthetic dyes which are highly regulated
- Less known about toxicology, safety - especially in large quantities

Artificial FOOD DYES

Eight Currently Approved & certified by FDA

- Blue No. 1
- Blue No. 2
- Citrus Red No. 2
- Green No. 3
- Orange B
- Red No. 40
- Yellow No. 5
- Yellow No. 6

Vitamin D/Vitamina D	2mcg 10%	4.2mcg 20%
Calcium/Calcio	0mg 0%	220mg 15%
Iron/Hierro	4.5mg 25%	4.5mg 25%
Potassium/Potasio	60mg 0%	340mg 6%
Vitamin C/Vitamina C	25%	25%
Thiamin/Tiamina	20%	25%
Riboflavin/Riboflavina	20%	45%
Niacin/Niacina	20%	25%
Vitamin B ₆ /Vitamina B ₆	20%	20%
Folate/Folato	20%	20%
(folic acid/ácido fólico)	(45mcg)	(45mcg)
Vitamin B ₁₂ /Vitamina B ₁₂	20%	50%

* 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. / El % Valor Diario (VD) le indica cuánto un nutriente en una porción de alimentos contribuye a una dieta diaria. 2,000 calorías al día se utiliza para asesoramiento de nutrición general.

Ingredients: Corn flour blend (whole grain yellow corn flour, degerminated yellow corn flour), **sugar, wheat flour, whole grain oat flour, modified food starch, contains 2% or less of** vegetable oil (hydrogenated coconut, soybean and/or cottonseed), oat fiber, maltodextrin, salt, soluble corn fiber, natural flavor, red 40, yellow 5, blue 1, yellow 6, BHT for freshness.

Vitamins and Minerals: Vitamin C (ascorbic acid), reduced iron, niacinamide, vitamin B₆ (pyridoxine hydrochloride), vitamin B₂ (riboflavin), vitamin B₁ (thiamin hydrochloride), folic acid, vitamin D₃, vitamin B₁₂.

CONTAINS WHEAT INGREDIENTS.

Ingredientes: Mezcla de harina de maíz (harina de maíz amarillo integral, harina de maíz amarillo desgerminado), **azúcar, harina de trigo, harina de avena integral, almidón alimentario modificado, contiene 2% o menos de** aceite vegetal (coco hidrogenado, soya, y/o semilla de algodón), fibra de avena, maltodextrina, sal, fibra de maíz soluble, sabor natural, rojo 40, amarillo 5, azul 1, amarillo 6, BHT para mantener la frescura.

Vitaminas y Minerales: Vitamina C (ácido ascórbico), hierro reducido, niacinamida, vitamina B₆ (clorhidrato de piridoxina), vitamina B₂ (riboflavina), vitamina B₁ (clorhidrato de tiamina), ácido fólico, vitamina D₃, vitamina B₁₂.

CONTIENE INGREDIENTES DE TRIGO.

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Two Main Issues with Artificial Food Dyes

1. Hyperactivity and brain/behavioral issues in children
 - No Evidence to date that this is a problem

2. Increase Cancer Risk?
 - Research continues on artificial dyes and cancer risk
 - Risks to humans aren't clear

If Don't Read Food Label- Which Food Probably Has the Most Sodium?

A. Canned peaches

B. Frozen dinner

C. Frozen corn

Other Food Additives

- Food Additives:
 - Man-made substances added to food during processing
 - Not considered a food ingredient
 - Not consumed by itself

Food Additives

- Have to Be Authorized by FDA
- Safety has to be supported by science

GRAS –Generally Recognized as Safe

- No premarket review by FDA
- Have data that supports safety
- Qualified experts: adequately shown to be safe

Why Food Additives are Used

- Preservative
- Smooth, consistent texture- emulsifiers
- Anti-caking – prevents food from sticking together
- Improves nutritional value
- Color, flavor enhancer
- Leavening

Food Additives

Synthetic

- Misinformation is common
- Uncertain science
- Research is ongoing
- Some are considered safe
- BUT... there is reason for concern

Food Additives - Usually in Ultra Processed Foods

- Limit Ultra Processed Food
- Contain more sugar, salt, and fat
- Have less nutritional value
- Often contain food dyes and food additives

Safe To Eat – Small Controlled Amounts

Sulfites

- Keep food safe
- Act as preservatives
- Prevent foods from turning brown
- **DON'T USE IF:**
 - Have asthma
 - Sulfite sensitive/allergy

Found In

- Dried fruit
- Wine, beer
- Soups, sauces, other packaged foods
- Sulfur dioxide, sodium sulfate, sodium bisulfate

Monosodium Glutamate (MSG)

- Research - no link with MSG and adverse/serious health effects
- Approved by FDA
- Older research was flawed
- Myths of ill effects – racial and cultural bias
- Umami “fifth taste”
- Flavor enhancer
- 3 times lower sodium content than table salt
- Decreases need for table salt
- Contains sodium

Artificial Sweeteners (non-nutritive)

- Almost no calories or carbohydrates. No effect on blood sugar.
 - Saccharin: Sweet N'Low
 - Aspartame: NutraSweet, Equal
 - Acesulfame-Potassium : Sunette, Sweet One
 - Sucralose: Splenda
 - Stevia/Truvia/PureVia
 - Monk Fruit
 - Allulose



Artificial Sweeteners

- FDA safety data – considered safe in recommended amounts
- .. “ ‘safe’ doesn’t always mean ‘completely free of questions’”. *

Artificial Sweeteners

PRO

- Helps cut back sugar intake
- Doesn't increase blood sugar
- Fewer calories vs. table sugar
- Decreases overall calorie intake
- *MAY* help with weight loss - controversial

Artificial Sweeteners

CON

- May make you want more sweets – Increase cravings
- Highly processed
- Lower in sugar doesn't make it healthy
- Alters gut bacteria (small studies)
- May impact how well insulin works

Artificial Sweeteners

- Findings often based on limited evidence
- Health impacts on microbiome unclear
- Eating variety of fiber rich foods – more powerful positive impact on microbiome
- Need more research – larger, human studies, well-designed

Alternatives to Sugar Sweetened Beverages

- Infused water – add cucumber, fresh mint, citrus, fruit. Let steep in refrigerator up to 24 hours (or buy the machine!)
- Add lemon juice or wedge to unsweet tea

Alternatives to Sugar Sweetened Beverages

- Vegetable juice
- Coffee with (regular) vanilla almond milk
- Honey Bush Tea (Numi is brand name)
- Low-fat milk or unsweetened almond milk

Sugar Alcohols

- Fewer calories & carbohydrates vs. table sugar
 - Little to no effect on blood sugar
 - Body can't fully process them
 - More slowly absorbed
 - Food package claims "sugar-free" "no added sugar"
- Examples:
 - Xylitol
 - Erythritol
 - Isomalt
 - Maltitol
 - Mannitol
 - Sorbitol

Risks of Sugar Alcohol

- Laxative effect- varies from person to person
- GI upset: bloating, gas, stomach upset

Risks of Sugar Alcohols

- Xylitol & Erythritol – may increase risk for heart attack and stroke, blood clotting and death- especially if person also at high risk for heart disease (like person with diabetes)
- Need more research on sugar alcohols & increased risk of heart disease
- Association doesn't mean causation

Nutrition Facts

4 servings per container

Serving size 1 1/2 cup (208g)

Amount per serving

Calories

240

% Daily Value*

Total Fat 4g **5%**

Saturated Fat 1.5g **8%**

Trans Fat 0g

Cholesterol 5mg **2%**

Sodium 430mg **19%**

Total Carbohydrate 46g **17%**

Dietary Fiber 7g **25%**

Total Sugars 4g

Includes 2g Added Sugars **4%**

Sugar Alcohol 0g

Protein 11g

Vitamin D 2mcg 10%

Calcium 260mg 20%

Iron 6mg 35%

Potassium 240mg 6%

* 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.

Sugar Alcohols

- Manufacturers voluntarily list sugar alcohols in nutrition facts label
- If a health claim is made, sugar alcohols have to be in nutrition facts label
- Look at ingredient list
- Ingredients are listed from the most to the least
- Compare “Sugar-Free” foods to original food



Nutrition Facts

10 servings per container
Serving size 1 pack (22.6g)

Amount per serving
Calories 90

% Daily Value*

Total Fat 4.5g	6%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 85mg	4%
Total Carbohydrate 16g	6%
Dietary Fiber 2g	7%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Sugar Alcohol 6g	

Protein less than 1g

Vitamin D 0mcg	0%
Calcium 10mg	0%
Iron 1mg	6%
Potassium 30mg	0%

* 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: UNBLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID), MALTITOL, CANOLA OIL, PALM OIL, POLYDEXTROSE, CORNSTARCH, COCOA (PROCESSED WITH ALKALI), LEAVENING (BAKING SODA AND/OR CALCIUM PHOSPHATE), SORBITOL, SALT, SOY LECITHIN, CHOCOLATE, ARTIFICIAL FLAVOR, SUCRALOSE, ACESULFAME POTASSIUM.

CONTAINS: WHEAT, SOY.

CONTAINS A BIOENGINEERED FOOD INGREDIENT

Cause for Concern

- Phosphates
- Emulsifiers
- And other food additives

Processed Meats

- Any meat that is cured, salted, fermented, or smoked to enhance flavor or preserve the product
- Often contain nitrates/nitrites
- International Agency for Research on Cancer released a report linking processed meat to increased risk of cancer

Do Nitrates and Nitrites Cause Cancer?

- Nitrates/nitrites naturally occur in soil, water, some foods
- Forms another substance known to cause cancer in animals
- May cause cancer in humans

• National Cancer Institute Cancer Trends Progress Report. Last reviewed April 2025, accessed 9/9/26.

The Research

- Processed and red meats associated with increased risk of Type 2 Diabetes, Cardiovascular Disease and Cancer
- More research, evidence needed
- Still some uncertainty about current evidence

- American Diabetes Association, Diabetes Care, 2020 Jan 13;43(2): 265-271

The Research

- Processed red meat linked with dementia
- “Swapping out one daily serving of red processed meat with one serving of nuts, legumes, fish, or chicken, was linked with up to 19% lower risk of dementia.”

Environmental Nutrition, Volume 48, Issue 5-May 2025; *Neurology*, January 2025

Processed Meats

- Bacon
- Beef jerky and other dried meats
- Canned meats: Spam, Vienna sausage
- Corned beef
- Deli meat, cold cuts: ham, bologna, pastrami
- Dried, salted, or preserved fish or meat
- Hot dogs
- Meat-based sauces like gravy
- Sausages – pork, turkey or chicken

What About “Nitrate-Free” Meat?

- Not any safer
- Natural sources like celery juice, celery salt, celery powder are high in nitrates

Easy Food Swaps

Eat This	Instead of That
Sandwiches: canned/pouched tuna or salmon salad, leftover home cooked chicken or turkey, rotisserie chicken from grocery store	Bologna, hot dogs, ham, cold cuts
Wraps or sandwiches: hummus, mashed beans, peanut butter	Cold cuts, deli meats
Salads, whole grain bowls with lettuce, vegetables, beans, chicken or eggs, topped with nuts	Cold cut sandwiches
Snacks: Nuts, nuts & raisins, peanut butter on whole grain crackers, fruit & yogurt	Beef jerky

How Much is the Food Processed?



How Much is the Food Processed?



INGREDIENTS:

Pollock, Water, Vegetable Oil, Wheat Flour, Modified Food Starch, Yellow Corn Flour, Bleached Wheat Flour, Salt, Whey, Dextrose, Dried Yeast, Sugar, Cellulose Gum, Paprika and Turmeric Extract, Natural Flavors, Enriched Flour, Soybean Oil, Wheat Gluten, Potato Flour, May Contain One or More Dough Conditioners (DATEM, Ascorbic Acid, Mono and Diglycerides, Enzymes), Vinegar, Pickle Relish, Egg Yolk, Onions, Distilled Vinegar, Spice, Xanthan Gum, Potassium Sorbate, Parsley, Milk, Cream, Sodium Citrate, Cheese Cultures, Citric Acid, Enzymes, Soy Lecithin, Color Added

Six Take Aways

1. Read ingredient lists on food labels.
2. Compare foods. When possible, choose the food with no or fewer additives.
3. Limit processed meats and artificial sweeteners.

Take Aways

4. Limit ultra processed foods
5. How OFTEN and how MUCH
6. Follow a Mediterranean or other similar eating plan that includes fresh or minimally processed plant foods: vegetables, fruit, whole grains, nuts & seeds, legumes