



ANTI-INFLAMMATORY APPROACHES TO HELP YOU BE YOUR BEST SELF

Family History of Diabetes

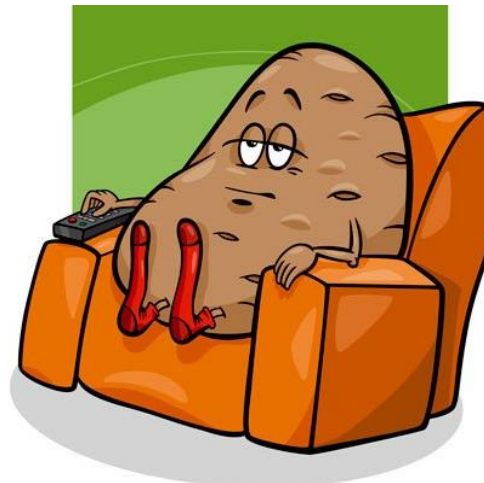
Ethnicity

Aging

Overweight/ High Body Fat

Poor Food Choices

Physical Inactivity



Diabetes affects an estimated 25.8 million Americans of all ages — over 8% of the population.

The most common form is type 2 diabetes, which accounts for 90% to 95% of all diagnosed cases in adults.

Diabetes leads to excess glucose, a type of sugar, in the blood.

Over time, high blood glucose damages nerves and blood vessels, leading to complications such as heart disease, stroke, blindness, kidney disease, nerve problems and amputation.

HOW INFLAMMATION CONTRIBUTES TO DIABESITY

There are more adipose cells in obese people than in lean people, and the tissue holds a much higher level of macrophages.

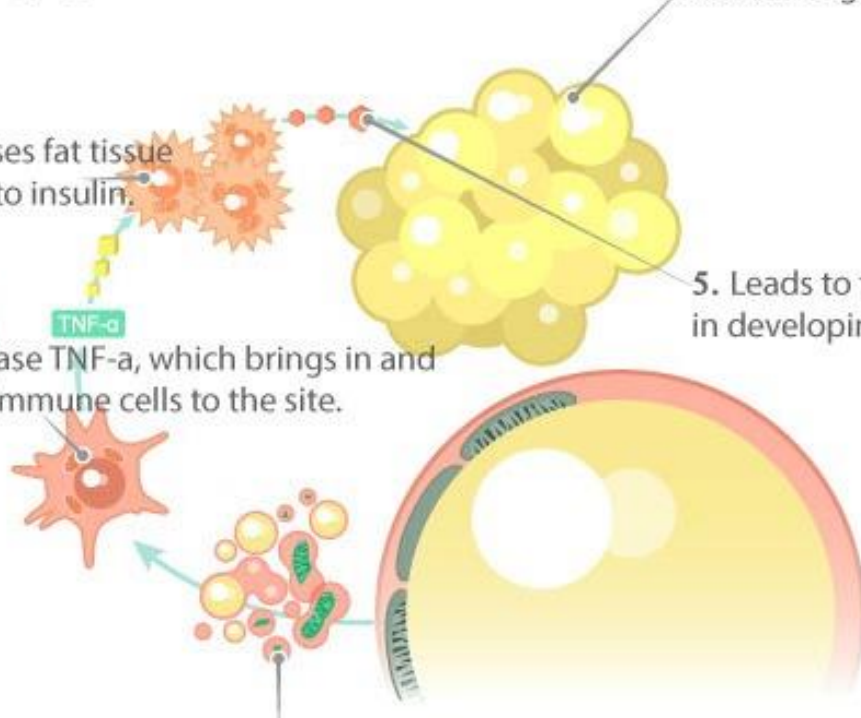
1. After storing an excess of fat, the stressed adipose cells release inflammation-inducing components and undergo apoptosis.

4. Inflammation causes fat tissue to become resistant to insulin.

3. Macrophages release TNF- α , which brings in and activates additional immune cells to the site.

2. This activates macrophages in an M1 inflammatory state.

5. Leads to the first step in developing diabetes.



Researchers discovered that in people with type 2 diabetes, cytokine levels are elevated inside fat tissue.

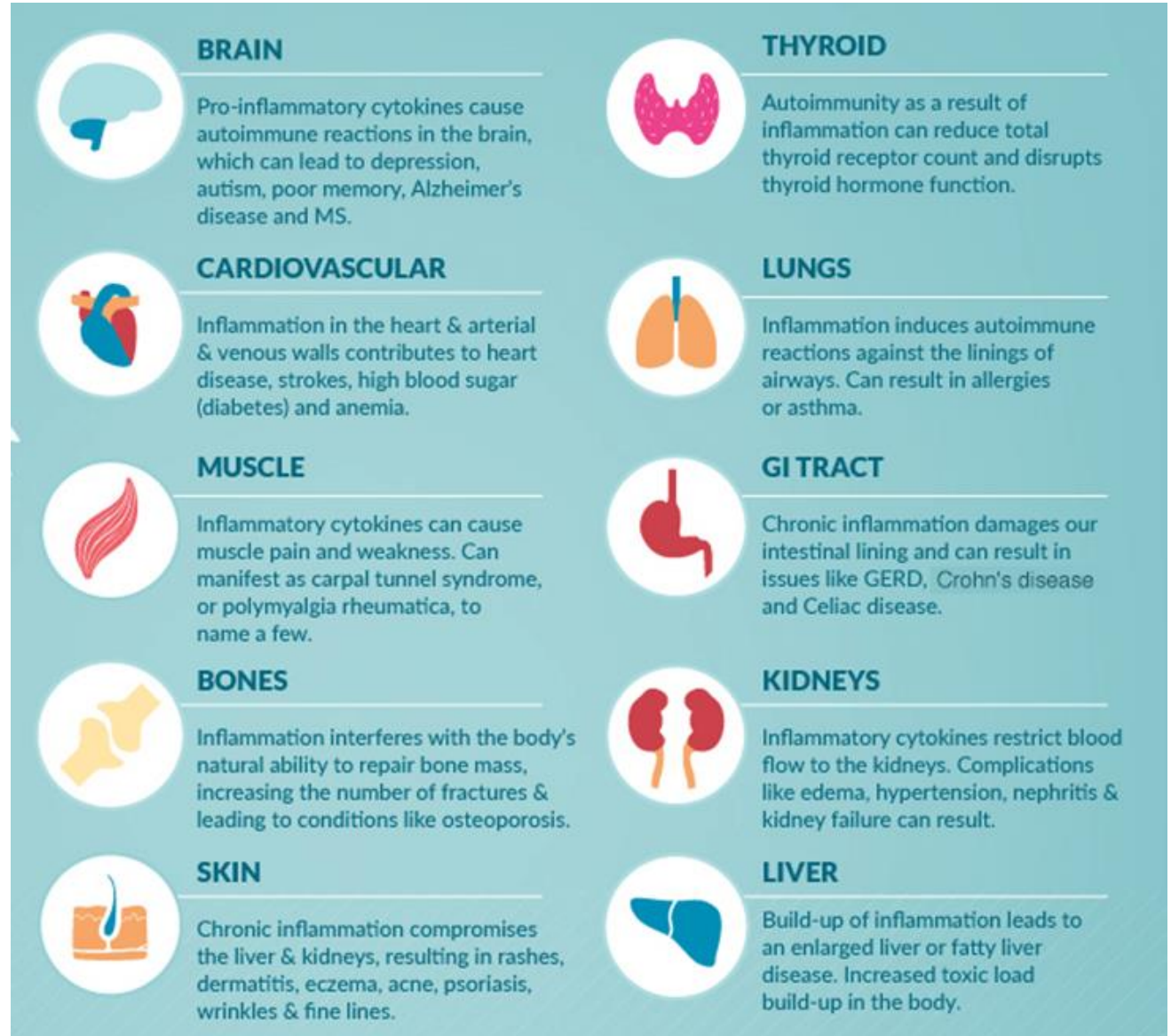
Their conclusion:











Excess body fat, especially in the abdomen, causes continuous (chronic), low levels of abnormal inflammation that alters insulin's action and contributes to the disease.

How does inflammation affect the body?

Inflammation is the body's own way to heal itself by fighting injury and infection.

Research has shown that long term inflammation may play a role in the development of diseases like diabetes and heart disease.



 BRAIN <p>Pro-inflammatory cytokines cause autoimmune reactions in the brain, which can lead to depression, autism, poor memory, Alzheimer's disease and MS.</p>	 THYROID <p>Autoimmunity as a result of inflammation can reduce total thyroid receptor count and disrupts thyroid hormone function.</p>
 CARDIOVASCULAR <p>Inflammation in the heart & arterial & venous walls contributes to heart disease, strokes, high blood sugar (diabetes) and anemia.</p>	 LUNGS <p>Inflammation induces autoimmune reactions against the linings of airways. Can result in allergies or asthma.</p>
 MUSCLE <p>Inflammatory cytokines can cause muscle pain and weakness. Can manifest as carpal tunnel syndrome, or polymyalgia rheumatica, to name a few.</p>	 GI TRACT <p>Chronic inflammation damages our intestinal lining and can result in issues like GERD, Crohn's disease and Celiac disease.</p>
 BONES <p>Inflammation interferes with the body's natural ability to repair bone mass, increasing the number of fractures & leading to conditions like osteoporosis.</p>	 KIDNEYS <p>Inflammatory cytokines restrict blood flow to the kidneys. Complications like edema, hypertension, nephritis & kidney failure can result.</p>
 SKIN <p>Chronic inflammation compromises the liver & kidneys, resulting in rashes, dermatitis, eczema, acne, psoriasis, wrinkles & fine lines.</p>	 LIVER <p>Build-up of inflammation leads to an enlarged liver or fatty liver disease. Increased toxic load build-up in the body.</p>

A research team led by Dr. Jared Reis of NIH's National Heart, Lung and Blood Institute (NHLBI) examined the combined influence of several healthy lifestyle factors. 200,000 adults enrolled in the NIH-AARP Diet and Health Study

1. following a healthy diet

2. maintaining an optimal body weight

3. engaging in recommended amounts of physical activity

4. refraining from smoking

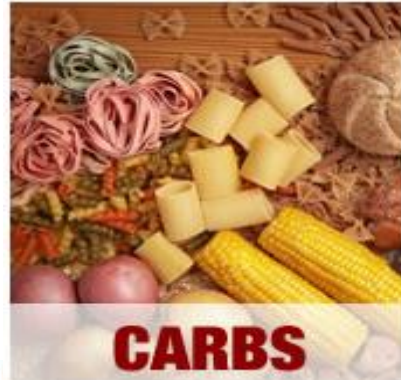
5. keeping alcohol use to no more than 1 drink per day for women and 2 drinks per day for men.

The researchers found that the more healthy lifestyle factors a person adopted, the greater the reduction in diabetes risk. Men with all 5 healthy lifestyle factors had a 72% lower risk for developing diabetes, while women had an 84% lower risk.

Nutrition Basics – traditional diet teaching

Carbohydrates

Foods that RAISE blood sugar & provide fast energy for brain & muscle function



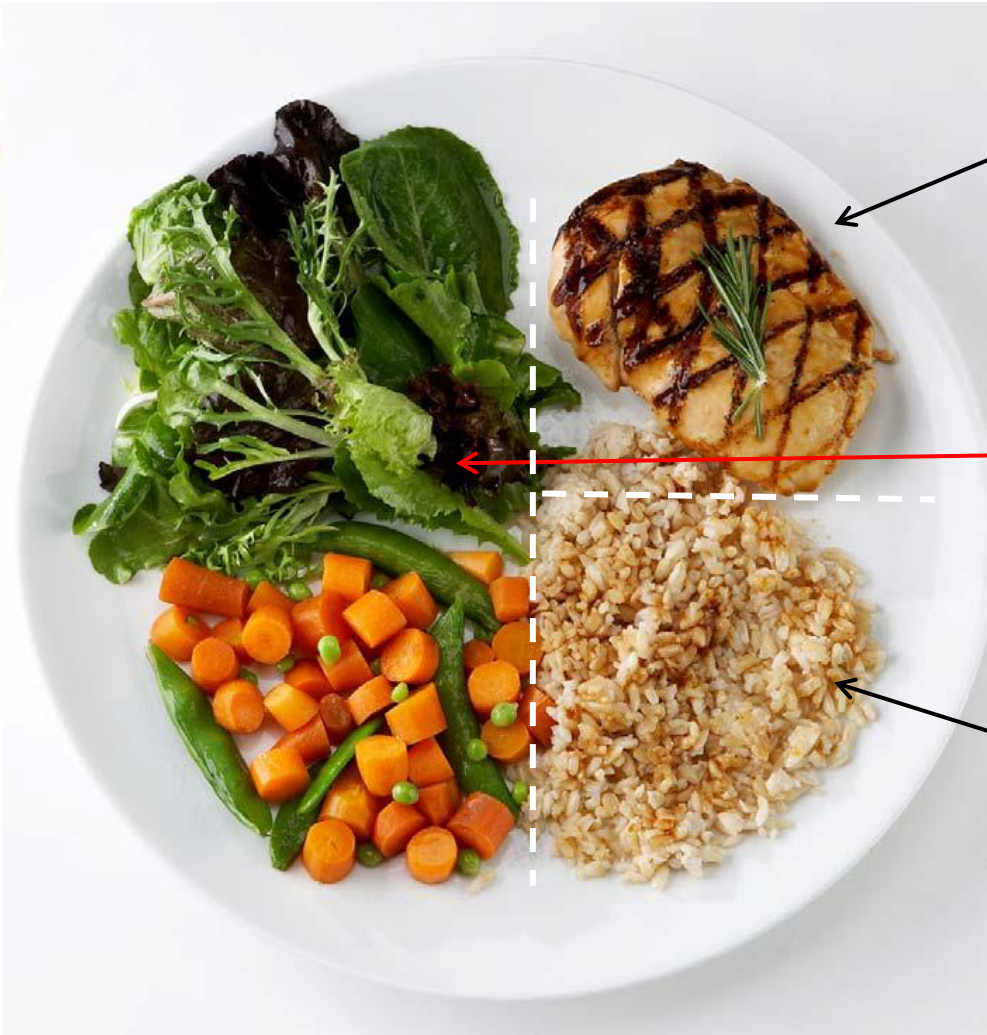
Protein

Foods that do not raise blood sugar & provide essential building blocks for muscles, bones & vital organs



Fats

Foods that do not raise blood sugar & provide long term stored energy (high calorie), organ support & help with vitamin/ mineral absorption



Always include a lean meat or other high protein food

Fill half of your plate with non-starchy vegetables

Choose 1 starch item and limit to 1 cup or less

- ✓ Best source of energy for brain, nervous system and red blood cells
- ✓ Fuel muscles
- ✓ Think about quality-complex carbohydrates

Complex Carbohydrates:

- Whole grains
- Beans
- Peas
- Lentils
- Most fruits
- Starchy vegetables



Simple Carbohydrates

- White bread and pasta
- Foods with added sugar
- Candy
- Potato chips
- Granola bars
- Crackers



Nutrition Facts	
Serving Size 1 cup (4 oz)	
Serving Per Container 3	
Amount Per Serving	
Calories 75 Calories from Fat 27	
	% Daily Value*
Total Fat 3 g	5%
Saturated Fat 0 g	0%
Cholesterol 0 mg	0%
Sodium 300 mg	4%
Total Carbohydrate 10 g	3%
Dietary Fiber 5 g	20%
Sugars 3 g	
Protein 2 g	
Vitamin A 80% - Vitamin C 60% - Calcium 4% - Iron 4%	
* 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 Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

The total carbohydrate tells how many grams of carbohydrate are in 1 serving.

Fiber has to be subtracted from the Total Carbohydrate

Total CHO (10g)
- Fiber CHO (5g)
5g Net CHO

The **NET** Carbohydrate is 5g

Consistency in carbohydrates is the key to balance

Stockpiling Carbs example

Breakfast:

Ham & Cheese Omelet

Snack: Slim Jim

Lunch:

Tuna & Side Salad

Snack: String Cheese

Dinner:

Spaghetti, garlic bread, peas

Dessert: Cake & Ice Cream

Little to no carb

Little to no carb

Excessive carb

Balanced carbs

Balanced carbs

Balanced carbs

Consistent Carbs example

Breakfast:

Egg & veggie scramble,
1 pc toast, 1c low fat milk & ½ orange

Snack: pea pods & carrots

Lunch:

Tuna over spinach salad, 1cup mixed
berries & 1 serving Triscuits

Snack: 10 almonds & 1/4cup Cheerios

Dinner:

Pork tenderloin, steamed broccoli, side
salad & small sweet potato

Dessert: Apple & string cheese



Nutrition Facts	
Serving Size	1 burger (230 g)
Amount Per Serving	
Calories	660
% Daily Values*	
Total Fat 39.00g	50%
Saturated Fat 18.000g	90%
Trans Fat 2.000g	
Cholesterol 115mg	38%
Sodium 1730mg	75%
Total Carbohydrate 39.00g	14%
Dietary Fiber 2.0g	7%
Sugars 9.00g	
Protein 38.00g	

Rally's Famous Seasoned Fries (Mec)

Nutrition Facts	
Serving Size	1 serving (110 g)
Amount Per Serving	
Calories	420
% Daily Values*	
Total Fat 27.00g	35%
Saturated Fat 14.000g	70%
Trans Fat 1.500g	
Cholesterol 25mg	8%
Sodium 990mg	43%
Total Carbohydrate 40.00g	15%
Dietary Fiber 4.0g	14%
Sugars 1.00g	
Protein 5.00g	

Nutrition Facts

Serving Size	21 fl oz
Calories	220
Calories From Fat	0
Amount Per Serving	
Total Fat	0g
Saturated Fat	0.0g
Trans Fat	0.0g
Cholesterol	0mg
Sodium	55mg
Total Carbohydrates	59g
Dietary Fiber	0g
Sugars	59g
Protein	0g

Calories: 660 + 420 + 220 = **1300**

Carbs: 39 + 40 + 59 = **138 grams**

Fat: 39 + 27 + 0 = **66 grams**

Hatch IT'S BACK! FROM WHATABURGER GREEN CHILE BACON Burger

[ORDER NOW](#)

AVAILABLE FOR A LIMITED TIME



Hatch Green Chile Bacon Burger

Whatameal®

What's On It: Large Bun (5"), Large Beef Patty (5") (2), American Cheese (1 Slice), Monterey Jack Cheese (1 Slice), Green Chiles (1), Bacon Slices (3), Mayonnaise (Regular)

Your Whatameal® includes: Comes with Medium Fries and a Medium Drink.

[Choose Meal Option](#) ▾

[Choose Side & Drink](#)

\$8.99 | 1970 Cal

[Show Nutrition](#)



Hatch Green Chile Bacon Burger

Whatameal® with Lower Calorie Sides

What's On It: Large Bun (5"), Large Beef Patty (5") (2), American Cheese (1 Slice), Monterey Jack Cheese (1 Slice), Green Chiles (1), Bacon Slices (3), Mayonnaise (Regular)

Your Whatameal® includes: Comes with Apple Slices and a Unsweetened Iced Tea.

[Choose Meal Option](#) ▾

[Choose Side & Drink](#)

\$8.99 | 1200 Cal

[Show Nutrition](#)

Meal

Nutrition & Allergen Information

Total Calories
1970

Total Fat (g)
92

Total Carbs (g)
225

Nutrition

Weight (g)
1466

Dietary Fiber (g)
8

Calories
1970

Protein (g)
65

Calories from Fat
830

Sugars (g)
123

Saturated Fat (g)
28

Trans Fat (g)
2

Cholesterol (g)
145

Sodium (mg)
3120

Burger only

Nutrition & Allergen Information

Total Calories
1160

Total Fat (g)
71

Total Carbs (g)
66

Nutrition

Weight (g)
431

Dietary Fiber (g)
3

Calories
1160

Protein (g)
61

Calories from Fat
630

Sugars (g)
15

Saturated Fat (g)
25

Trans Fat (g)
2

Cholesterol (g)
145

Sodium (mg)
2750

Recommendations and remarks

Recommendations

- WHO recommends a reduced intake of free sugars throughout the lifecourse (*strong recommendation*¹).
- In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake² (*strong recommendation*).
- WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake (*conditional recommendation*³).

Remarks

- Free sugars include monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.
- For countries with a low intake of free sugars, levels should not be increased. Higher intakes of free sugars threaten the nutrient quality of diets by providing significant energy without specific nutrients (3).
- These recommendations were based on the totality of evidence reviewed regarding the relationship between free sugars intake and body weight (low and moderate quality evidence) and dental caries (very low and moderate quality evidence).
- Increasing or decreasing free sugars is associated with parallel changes in body weight, and the relationship is present regardless of the level of intake of free sugars. The excess body weight associated with free sugars intake results from excess energy intake.
- The recommendation to limit free sugars intake to less than 10% of total energy intake is based on moderate quality evidence from observational studies of dental caries.
- The recommendation to further limit free sugars intake to less than 5% of total energy intake is based on very low quality evidence from ecological studies in which a positive dose–response relationship between free sugars intake and dental caries was observed at free sugars intake of less than 5% of total energy intake.

- Added sugar is removed from its natural source and added to foods to increase shelf life and palatability
- Eating only 5-10% of intake from added sugar can have added benefits
- This means eating 100-200 calories of added sugar in a 2,000-calorie diet
- 24-36 grams per day
- Natural sugar is not linked to inflammation (fructose, lactose)



Nutrition Facts

Serving Size:	
1 grande (526g)	Starbucks Frappuccino
Amount Per Serving	
Calories	408
	% Daily Value*
Total Fat 14g	22%
Saturated Fat 8.7g	43%
Trans Fat 0g	
Polyunsaturated Fat 0.6g	
Monounsaturated Fat 4g	
Cholesterol 47mg	16%
Sodium 66mg	3%
Total Carbohydrates 66g	22%
Dietary Fiber 0g	0%
Sugars 64g	
Protein 5.9g	
Vitamin D 2mcg	9%
Calcium 195mg	15%
Iron 0mg	1%
Potassium 385mg	8%
Caffeine 118.5mg	

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2000 calories a day is used for general nutrition advice.

Glycemic Index

Low GI (<55), Medium GI (56-69) and High GI (70>)

Grains / Starches	Vegetables	Fruits	Dairy	Proteins
Rice Bran 27	Asparagus 15	Grapefruit 25	Low-Fat Yogurt 14	Peanuts 21
Bran Cereal 42	Broccoli 15	Apple 38	Plain Yogurt 14	Beans, Dried 40
Spaghetti 42	Celery 15	Peach 42	Whole Milk 27	Lentils 41
Corn, sweet 54	Cucumber 15	Orange 44	Soy Milk 30	Kidney Beans 41
Wild Rice 57	Lettuce 15	Grape 46	Fat-Free Milk 32	Split Peas 45
Sweet Potatoes 61	Peppers 15	Banana 54	Skim Milk 32	Lima Beans 46
White Rice 64	Spinach 15	Mango 56	Chocolate Milk 35	Chickpeas 47
Cous Cous 65	Tomatoes 15	Pineapple 66	Fruit Yogurt 36	Pinto Beans 55
Whole Wheat Bread 71	Chickpeas 33	Watermelon 72	Ice Cream 61	Black-Eyed Beans 59
Muesli 80	Cooked Carrots 39			
Baked Potatoes 85				
Oatmeal 87				
Taco Shells 97				
White Bread 100				

McDonald's
McCafe Mocha (Large)

Nutrition Facts

Serving Size 1 serving (20 oz)

Amount Per Serving
Calories 500

% Daily Values*

Total Fat 17.00g	22%
Saturated Fat 10.000g	50%
Trans Fat 0.500g	
Cholesterol 50mg	17%
Sodium 240mg	10%
Total Carbohydrate 72.00g	26%
Dietary Fiber 2.0g	7%
Sugars 63.00g	
Protein 16.00g	

\$1.50
ea.

Medium
Drink Deal



Minute Maid Fruit Punch Slushie

Amount Per 1 (slushie (Large))

Calories 300

%Daily Value*

Total Fat 0 g	0%
Saturated fat 0 g	0%
Cholesterol 0 mg	0%
Sodium 40 mg	2%
Total Carbohydrate 80 g	27%
Dietary fiber 0 g	0%
Sugar 79 g	
Protein 0 g	0%

Phytochemicals give foods their color/smell and function as part of the immune system

Can be found in:

Fruits

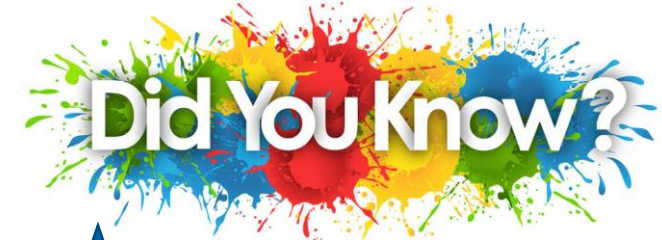
Vegetables

Spices

Edible Flowers

Function as antioxidants and help reduce inflammation in the body

Eat the rainbow!



- ★ Some phytochemicals have demonstrated anti-aging effects, including resveratrol, epicatechin, quercetin, curcumin, and allicin
- ★ There are over 4,000 phytochemicals discovered and possibly many more
- ★ Carotenoids (found in many orange/red plants) have been scientifically proven to help prevent diabetes



Antioxidants to reduce inflammation

Omega 3 fatty acids

Reduce the production of some substances

Sources: salmon, tuna, mackerel, walnuts, flaxseeds

Curcumin

May decrease blood glucose and improve insulin resistance

Sources: turmeric-add to chicken salad, curries or make a turmeric latte

Vitamin C

Decreases free radicals that cause inflammation. Aids the immune system

Sources: red, orange, and green fruits and vegetables

Garlic

Has allicin in it, which helps strengthen the immune system

Sources: garlic 😊

Ginger

Ginger root has been used for years in homeopathic medicine to reduce inflammation and help with nausea. Can lower inflammatory markers, such as CRP

Sources: ginger, ginger root, ginger supplements

Green tea

Decreases inflammation from epigallocatechin-3-gallate (EGCG), which acts as an antioxidant

Sources: green tea, green tea extract (*note: green tea contains caffeine)



What impact does diet choice/foods purchased have?

Ultra-processed foods provide 58% of total energy in the average American diet, and tend to be high in sugar, fat and sodium.


- Higher consumption of ultra-processed foods is → increased risk of cardiovascular disease incidence and mortality.

What is Ultra-processed?


In terms of what foods were included, researchers defined “ultra-processed” as:

- Ready to eat
- Highly affordable
- Hyper-palatable
- Energy dense

This included items like instant noodles, pastries, non-whole-grain breads, ice cream, fried foods, margarine, candy, breakfast cereals, and soft drinks, among other options.



\$3.07 each (\$0.38/oz)
H-E-B Select Ingredients
Roasted Garlic Hummus, 8 oz




H-E-B Select Ingredient Carrot Sticks
12 oz
\$2.04 (\$0.17/oz)
[Icon details](#)

Roll over image to zoom in


\$5.11

Vs.



H-E-B Ridged Barbeque Potato Chips
11 oz
\$1.98 (\$0.18/oz)

Save big with a coupon!



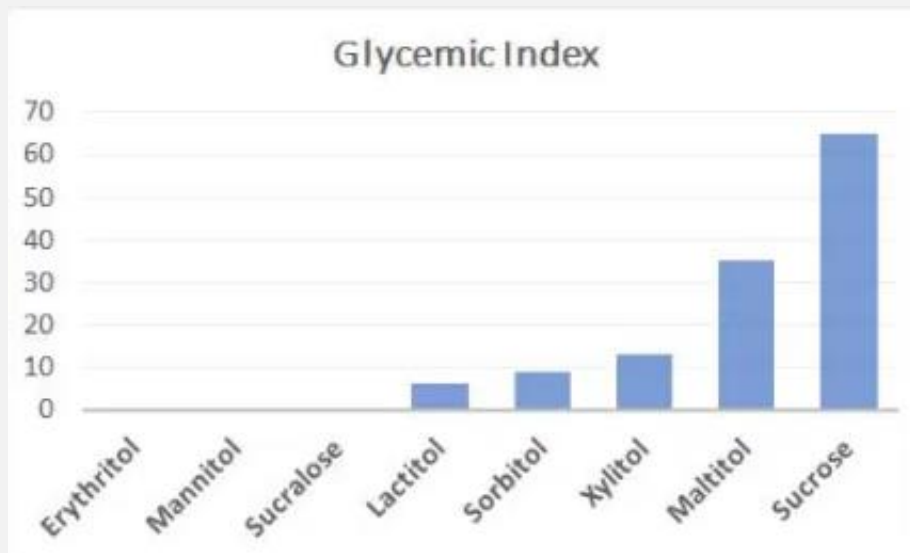
FREE
Buy two (2) H-E-B Ridged Potato Chips, 11 oz., assorted varieties (Excludes Thin & Wavy) get FREE!
H-E-B Select Ingredients Dip, 8 oz., assorted varieties (Located in Dairy)
1 day left
Expires 11/02, Unlimited Use

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\$1.98

- Sugar alcohols-mostly negligible effect on blood glucose (see image below), but can cause digestive upset and inflammation
- Artificial sweeteners can alter gut bacteria, resulting in inflammation
- Takeaway: Can be used in small amounts, but don't overdo it!



KNOW YOUR SUGAR SUBSTITUTES



	Brand Name	Carb Grams Per Packet	Calories Per Packet	Number of Packets = to ADI
Acesulfame K (Ace -K) Is often combined with Other sweeteners. It's about 200 times sweeter than sugar.	Sweet One	0	0	23
Advantame is 20,000 times sweeter than table sugar.	N/A	0	0	4,920
Aspartame , which is 200 times sweeter than sugar, shouldn't be used by people with the rare disease phenylketonuria (PKU)	Equal Nutra Sweet Sugar Twin	<1	0	75
Monk fruit, or Swingle fruit (Luo Han Guo), extract is GRAS**, but it's not regulated by the FDA as a food additive. It's about 150 to 200 times Sweeter than sugar.	Monk Fruit in the Raw Nectresse PureFruit PureLo	<1	0	N/A
Neotame is 7,000 to 13,000 times sweeter than table sugar.	Newtame	0	0	23
Saccharin was first discovered and used in 1879. It has 200 to 700 times the sweetness of sugar.	Necta Sweet Sweet'N Low Sweet Twin	0.9	<4	45
Steviol glycosides (from the leaves of the setevia plant) include rebaudioside A, also known as reb A or Rebiana. They are GRAS** but are not regulated by the FDA as food additives. They're between 200 and 400 times sweeter than sugar.	Sweet Leaf PureVia Stevia in the Raw Truvia	0-1	<1-3	9
Sucralose , which has 600 times the sweetness of sugar, works well in baked goods because it's heat stable.	Splenda	<1	0	23

*The number of packets a 132-pound person would need to consume to reach acceptable daily intake (ADI).
**Generally recognized as safe. See the glossary on page 66 for more details.



Adequate hydration is key for feeling good and warding off inflammation

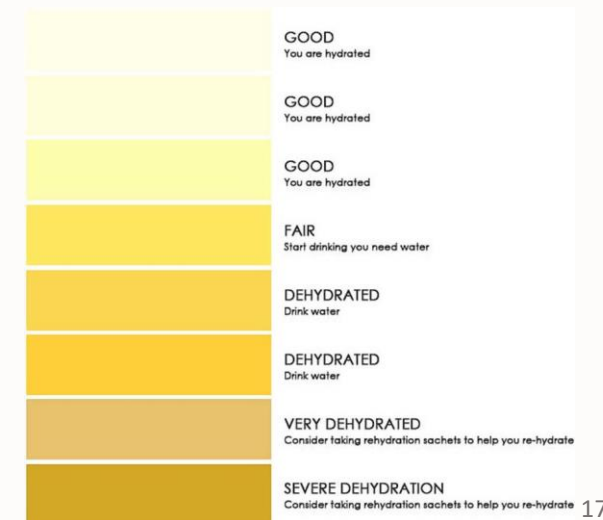
- Drinking adequate water promotes elimination
- Dehydration can lead to fluid imbalance, leading to inflammation

So, how much water do you need?

- At least half your body weight in ounces**
- Number depends on activity level, age, body composition, weather, diet

How can you tell if you're hydrated?

- Urine color
- How often you go: every 2-3 hours
- Afternoon fatigue



Plant –predominant diet but not plant exclusive

- * Reducing exposure to certain food and nutrients that we know when consumed in excess are harmful/disease causing
- * Reducing exposure to ultra-processed foods- current American diet consists of approx. 60% of intake of food choices

The main tenets of a diet designed to lessen inflammation include:


- Eliminate sugar
- Eat Your Greens
- Check for Food Sensitivities
- Eat Whole Foods
- Choose Cooking Oils Wisely
- Eat Less Red Meat
- Eat More Fish and Nuts
- Drink plenty of water
- Supplements & Herbs to Consider:
 - Ginger, garlic, turmeric, cinnamon, green tea

	Low-carbohydrate	Low-fat/ vegetarian/vegan	Low-glycemic	Mediterranean	Mixed/balanced	Paleolithic
Health benefits relate to:	Emphasis on restriction of refined starches and added sugars in particular.	Emphasis on plant foods direct from nature; avoidance of harmful fats.	Restriction of starches, added sugars; high fiber intake.	Foods direct from nature; mostly plants; emphasis on healthful oils, notably monounsaturates.	Minimization of highly processed, energy-dense foods; emphasis on wholesome foods in moderate quantities.	Minimization of processed foods. Emphasis on natural plant foods and lean meats.
Compatible elements:	Limited refined starches, added sugars, processed foods; limited intake of certain fats; emphasis on whole plant foods, with or without lean meats, fish, poultry, seafood.					
And all potentially consistent with:	Food, not too much, mostly plants^{a,b,c}.					

^aFrom Reference 135.

^bPortion control may be facilitated by choosing better-quality foods which have the tendency to promote satiety with fewer calories.

^cWhile neither the low-carbohydrate nor Paleolithic diet need be "mostly plants," both can be.

 Katz DL, Meller S. 2014. Annu. Rev. Public Health. 35:83–103

The weight of evidence strongly supports a theme of healthful eating while allowing for variations on that theme. A diet of minimally processed foods close to nature, predominantly plants, is decisively associated with health promotion and disease prevention and is consistent with the salient components of seemingly distinct dietary approaches.

Optimal Diet

Plant –predominant diet but not plant exclusive

- Reducing exposure to certain food and nutrients that we know when consumed in excess
- Reducing exposure to ultra-processed foods
- Go heavy on Herbs & spices, reduced sodium

"It's less jelly beans and more black beans" - Simon Hill

Balance of hunger hormones and cues

"There's something to be said for hunger: at least it lets you know you're still alive" -- Margaret Atwood

Recognize and reduce Stress

*"I'm an old man now, and I have known a great many problems in my life... ..most of which never happened."
— Mark Twain*

"Stress is what arises when something we care about is at stake" -Kelly McGonigal, PhD

Sleep

"Sleep is not an optional lifestyle luxury, it is a non-negotiable biological necessity. It is your life support system." – Dr. Matthew Walker

Exercise

"The reason I exercise is for the quality of life I enjoy." Kenneth H. Cooper



DO YOU BELIEVE YOU CAN AFFECT YOUR INFLAMMATION?

[Five Lifestyle Factors Lower Diabetes Risk | National Institutes of Health \(NIH\)](#)

[A plant-based diet for the prevention and treatment of type 2 diabetes \(nih.gov\)](#)

[The Role of Inflammation in Diabetes: Current Concepts and Future Perspectives \(nih.gov\)](#)

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<https://www.verywellfit.com/bha-and-bht-keep-foods-fresh-but-are-they-safe-2506579>

[Who sugar recommendations.pdf](#)

[The science of fatty acids and inflammation - PubMed \(nih.gov\)](#)

[Saturated fat does not clog the arteries: coronary heart disease is a chronic inflammatory condition, the risk of which can be effectively reduced from healthy lifestyle interventions | British Journal of Sports Medicine \(bmj.com\)](#)

<https://defeatdiabetes.org/resources/healthful-eating/nutrients/phytonutrients/>

<https://pubmed.ncbi.nlm.nih.gov/29859661/>

<https://foodadditives.net/antioxidant/butylated-hydroxytoluene-bht/>

[Key inflammatory markers identified in COVID-19 – Regenerative Medical Group \(regenerativemedgroup.com\)](#)

[Butyrate and Dietary Soluble Fiber Improve Neuroinflammation Associated With Aging in Mice \(nih.gov\)](#)