

trans fat

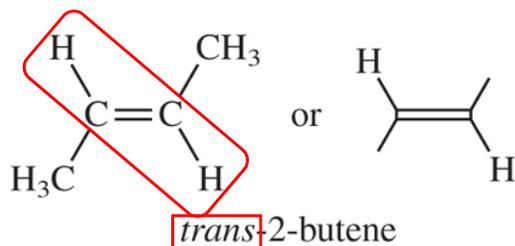
Trans fats now banned by the FDA

Nutrition Facts	
Serving Size 1 Tbsp (14g) Servings Per Container about 32	
Amount Per Serving	
Calories 100	Calories from Fat 100
% Daily Value*	
Total Fat 11g	17%
Saturated Fat 2.5g	12%
Trans Fat 2.5g	
Cholesterol 0mg	0%
Sodium 105mg	4%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	

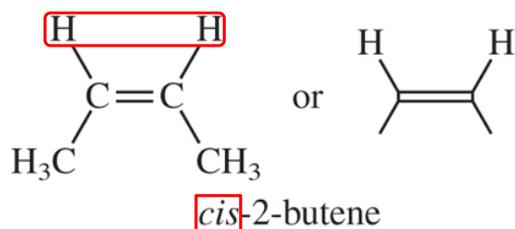


Total Fat 12g
Saturated Fat 3g
Trans Fat 0g
Cholesterol 20mg
Sodium 470mg

“trans” designates the configuration of an organic molecule containing double bond

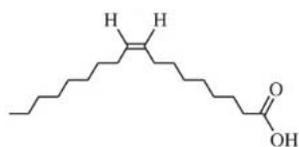


In the *trans* configuration, two H atoms are on the opposite side of the double bond.

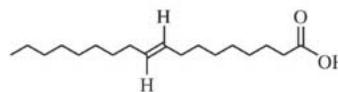


In the *cis* configuration, two H atoms are on the same side of the double bond.

trans fat Vs. *cis* fat



cis fat



trans fat

***trans* fat is a(n)_____.**

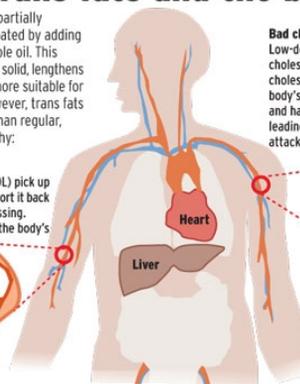
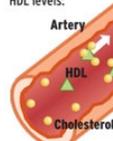
- A. Saturated fat
- B. Unsaturated fat
- C. Not enough information

However, trans fats are BAD for you

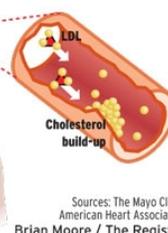
Trans fats and the body

Trans fats (also known as partially hydrogenated oils) are created by adding hydrogen to liquid vegetable oil. This process makes the fat more solid, lengthens its shelf life and makes it more suitable for frying and other uses. However, trans fats are also more unhealthy than regular, unsaturated fats. Here's why:

Good cholesterol
High-density lipoproteins (HDL) pick up excess cholesterol and transport it back to the body's liver for processing. Consuming trans fats lowers the body's HDL levels:



Bad cholesterol
Low-density lipoproteins (LDL) transport cholesterol throughout the body. As cholesterol builds up in the walls of the body's arteries, the arteries become narrow and hardened, reducing blood flow and leading to an increased chance of heart attack and stroke:

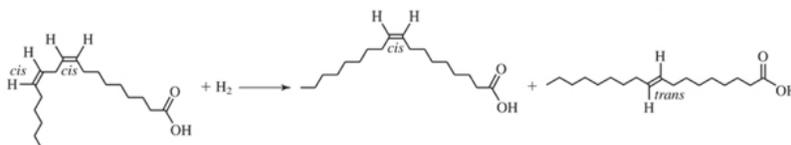
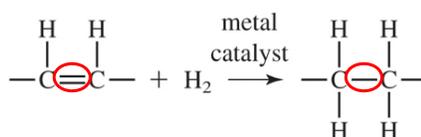


Sources: The Mayo Clinic;
American Heart Association
Brian Moore / The Register

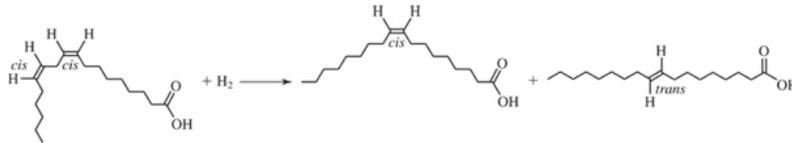
Trans fats raise the level of LDL (bad) cholesterol in the blood. A high LDL increases your risk of developing heart disease, a leading cause of death in both men and women in the US.

Most Trans fats come from artificial sources

Most *trans* fats are created in an industrial process called **hydrogenation** that adds hydrogen to liquid vegetable oils to make them into a solid fat.



Most *Trans* fats come from artificial sources



oil

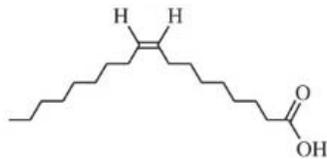
Partially hydrogenated oils

“**Partially hydrogenated oils**” in processed food are the primary dietary source for *trans* fats.

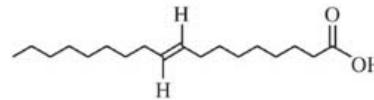
They are used to extending the shelf life of processed food.

The problem is **they shorten our shelf lives**.

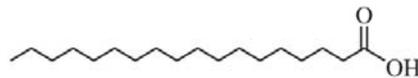
Why *trans* fats are bad for us?



a *cis* fatty acid



a *trans* fatty acid



Saturated fatty acid

Foods High in Trans Fats



French fries



Cheeseburger



Pies



Chicken nuggets



Vanaspati ghee



Donuts

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GOOD FATS

VS.

BAD FATS



Unsaturated fat

**Saturated fat
*trans fat***

What are Carbohydrates?

Carbohydrates are compounds containing carbon (C), hydrogen (H), and oxygen (O).

In carbohydrates, H and O are always present in a 2:1 ratio just like water (H₂O).

General formula of carbohydrate:



carbo hydrate

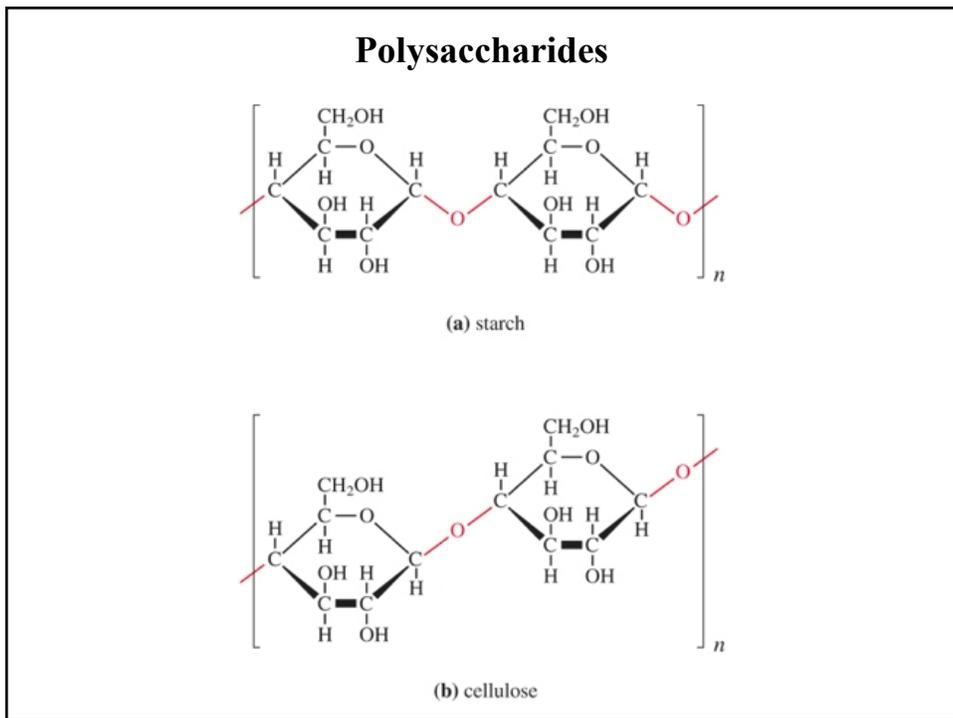
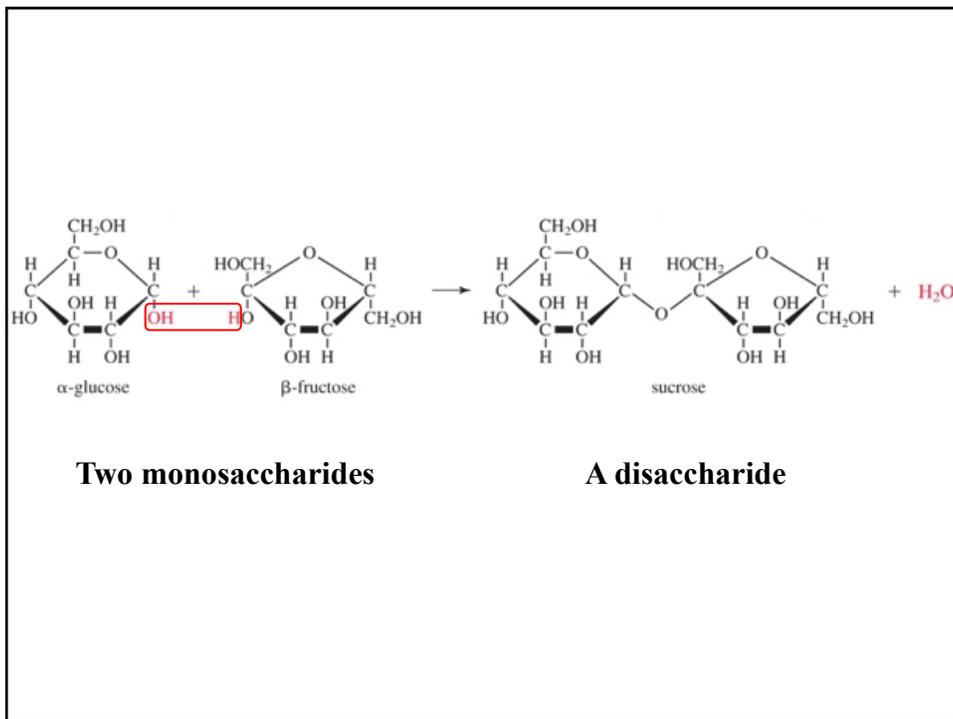
carbon

water

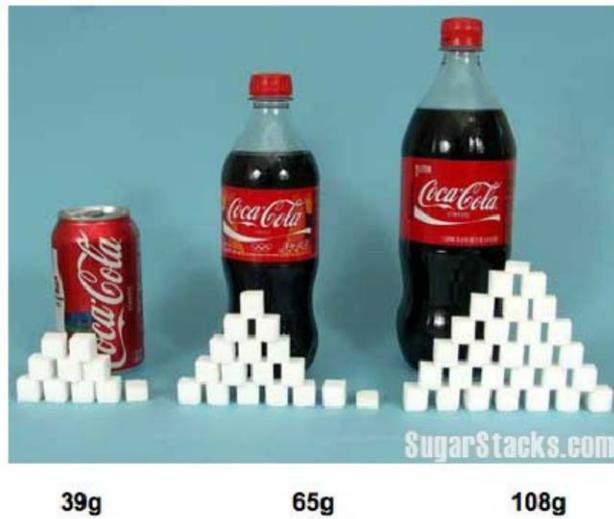
Common dietary carbohydrates



Type of carbohydrate	Formula	Examples
Monosaccharide ("single sugar")	C ₆ H ₁₂ O ₆	glucose, fructose
Disaccharide ("double sugar")	C ₁₂ H ₂₂ O ₁₁	Sucrose (table sugar), lactose
Polysaccharide ("many sugar")	(C ₆ H ₁₂ O ₆) _n	Starch



Sugar in Soda



Sweetness Value of Natural and Synthetic Sweeteners

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Table 11.3		Approximate Relative Sweetness Values			
NATURAL SWEETENERS					
lactose	maltose	glucose	honey	sucrose	fructose
16	32.5	74.3	97	100	173

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Table 11.4		Approximate Relative Sweetness Values		
SYNTHETIC SWEETENERS				
acesulfame potassium	aspartame	neotame	saccharin	sucralose
200	200	7,000–13,000	300	600

Now, Can you offer an explanation for this observation?



Which of the following is made of protein?

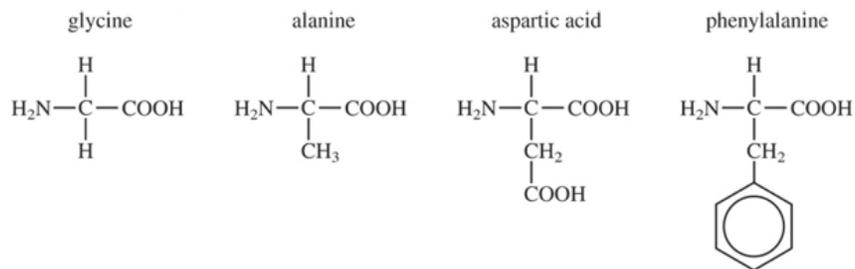
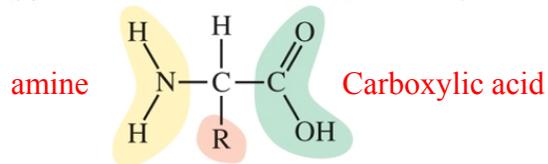
- A. hair
- B. skin
- C. muscle
- D. A and C
- E. A, B & C

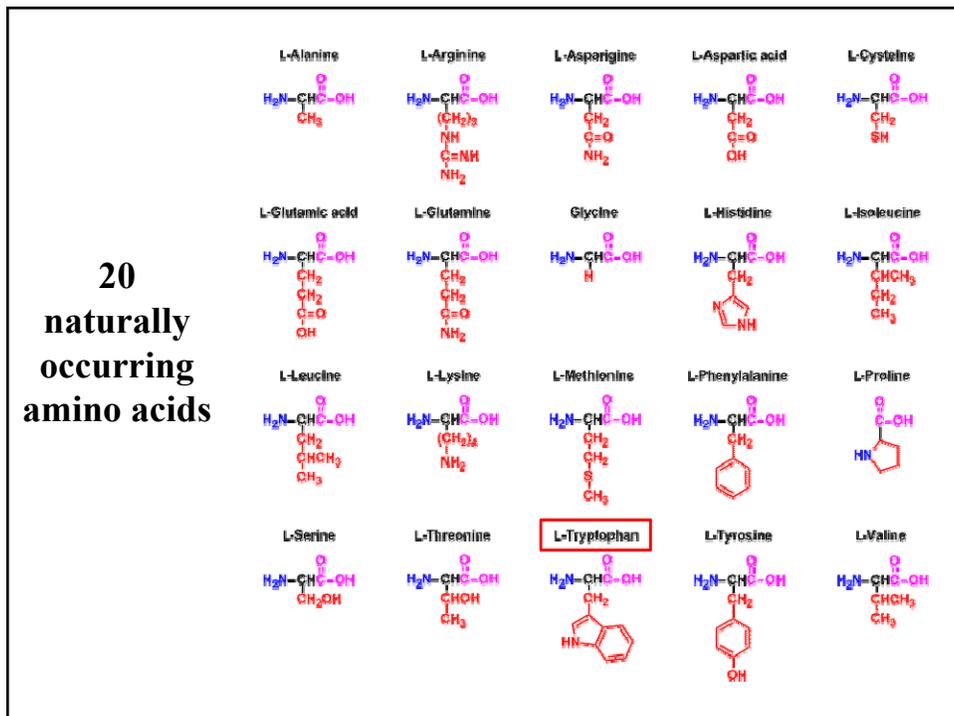
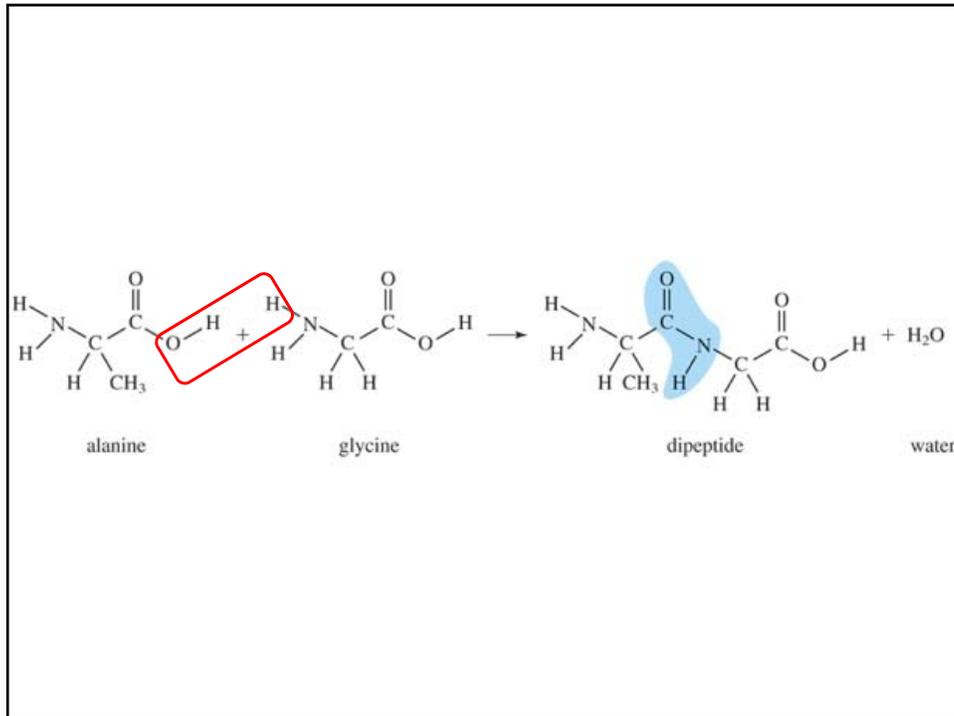
**Protein is a biological polymer.
The monomer in protein is ____.**

- A. glucose
- B. amino acid
- C. nucleotide
- D. hydrocarbon

Generic structure of an Amino Acid

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the Essential Amino Acids: amino acids our body cannot make

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Table 11.5 The Essential Amino Acids

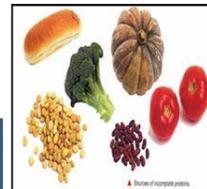
histidine	lysine	threonine
isoleucine	methionine	tryptophan
leucine	phenylalanine	valine

Two Types of Proteins

- **Complete proteins:**
- Come from **animal sources**
- Contains all the 9 essential amino acids
- Sources:
- **Meat, fish, poultry, milk, yogurt, eggs**



- **Incomplete proteins:**
- Come from **plant sources**
- Does not contain all the essential amino acids
- Sources: grains, pastas, peas, beans, nuts and seeds



Vegan Protein Sources

By  VEGANS OF INSTAGRAM



Tempeh 41g (1 cup)

Wheat Germ 33g (1 cup)

Seitan 31g (3 oz)

Soy Beans 29g (1 cup)

Beans
Black 15g (1 cup)
Kidney 13g (1 cup)
Pinto 12g (1 cup)
Garbanzo 12g (1 cup)

Lentils 18g (1 cup)

Quinoa 9g (1 cup)

Buckwheat 24g (1 cup)

Tofu 11g (1 cup)

Seeds
Pumpkin 8g (1 oz)
Sunflower 5g (1 oz)

Peas 9g (1 cup)

Wild Rice 7g (1 cup)

Raisins 5g (1 cup)

Avocado 4g (1 med)

Nuts
Peanuts 7g (1 oz)
Almonds 6g (1 oz)
Pistachios 6g (1 oz)
Cashew 5g (1 oz)
Brazilian 4g (1 oz)
Walnuts 4g (1 oz)

Spinach 5g (1 cup)

Artichoke 4g (1 cup)

Brussels Sprouts 4g (1 cup)

*Peanuts are technically a legume

Macronutrients: fat, carbohydrate and protein

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Nutrition Facts	
Serving Size 1 oz (28 grams or about 30 whole nuts)	
Amount Per Serving	
Calories 170	Calories from Fat 140
% Daily Value*	
Total Fat 15g	23%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Polyunsaturated Fat 5g	
Monounsaturated Fat 8g	
Cholesterol 0mg	0%
Sodium 50mg	2%
Potassium 200mg	6%
Total Carbohydrate 5g	2%
Dietary Fiber 3g	12%
Sugars 1g	
Protein 6g	
Vitamin A	0%
Vitamin C	0%
Calcium	4%
Iron	6%

*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	30mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrates		300g	375g
Dietary Fiber		25g	30g

Micronutrients: Vitamin and Minerals

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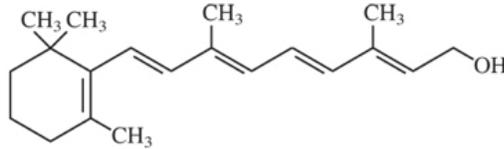
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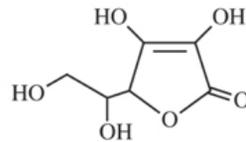
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Cholesterol	Less than	30mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrates		300g	375g
Dietary Fiber		25g	30g

Nutrients that are needed in miniscule amounts but essential.

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vitamin A, a lipid-soluble vitamin



vitamin C, a water-soluble vitamin

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Macrominerals
 Microminerals
 Trace minerals

Minerals are present in the body as ions and ionic compounds.

Metal minerals exist in the body as cations: Na^+ , K^+ , Ca^{2+} , Mg^{2+}

Nonmetal minerals are present in the body as anions: Cl^- , PO_4^{3-}

MOUNTAIN BERRY BLAST®
 MIXED BERRY FLAVORED + OTHER NATURAL FLAVORS

Nutrition Facts	Amount/Serving	%DV*	Amount/Serving	%DV*
	Total Fat 0g	0%	Total Carb 21g	7%
Sodium 150mg	6%	Sugars 21g		
Potassium 35mg	1%	Protein 0g		
Niacin	15%	Vitamin B6	15%	
Vitamin B12	15%	Magnesium	†	

12 fl oz (360 mL)
 Servings Per Container about 2.5

Calories
 80

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

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

WATER, HIGH FRUCTOSE CORN SYRUP, LESS THAN 0.5% OF: CITRIC ACID, SALT AND MAGNESIUM CHLORIDE AND CALCIUM CHLORIDE AND MONO-POTASSIUM PHOSPHATE (ELECTROLYTE SOURCES), NATURAL FLAVORS, MODIFIED FOOD STARCH, CALCIUM DISODIUM EDTA (TO PROTECT COLOR), MEDIUM CHAIN TRIGLYCERIDES, SUCROSE ACETATE ISOBUTYRATE, VITAMIN B3 (NIACINAMIDE), VITAMIN B6 (PYRIDOXINE HYDROCHLORIDE), VITAMIN B12, BLUE 1.