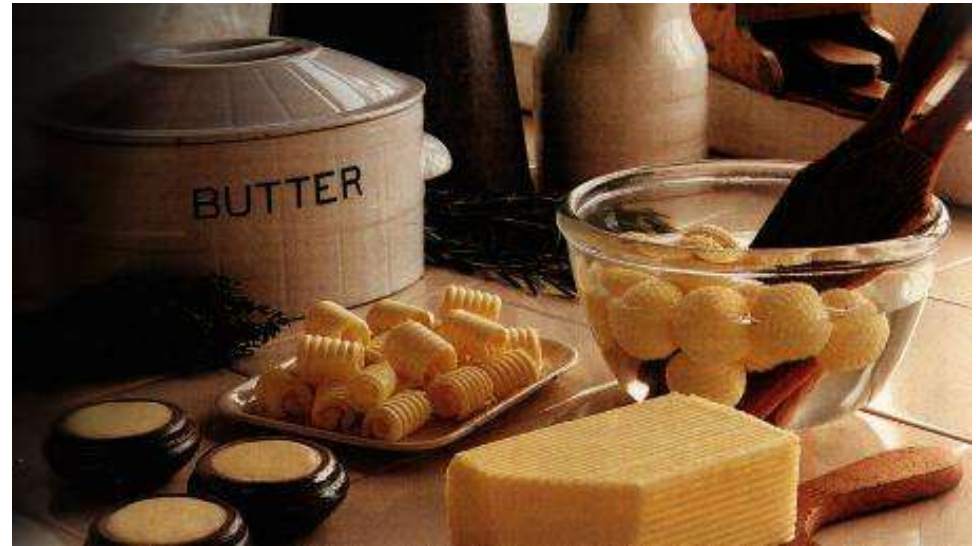


Lipids: Fats & Oils





Lipids

Concentrated energy molecules



Lipids

- **Examples**

- ◆ **fats**

- ◆ **oils**

- ◆ **waxes**

- ◆ **hormones**

- **sex hormones**

- ◆ testosterone (male)

- ◆ estrogen (female)



Lipids

- **Function:**

- ◆ **energy storage** (fat)

- very concentrated
- twice the energy as carbohydrates!

- ◆ **cell membrane** (phospholipids)

- ◆ **cushions organs** (fat)

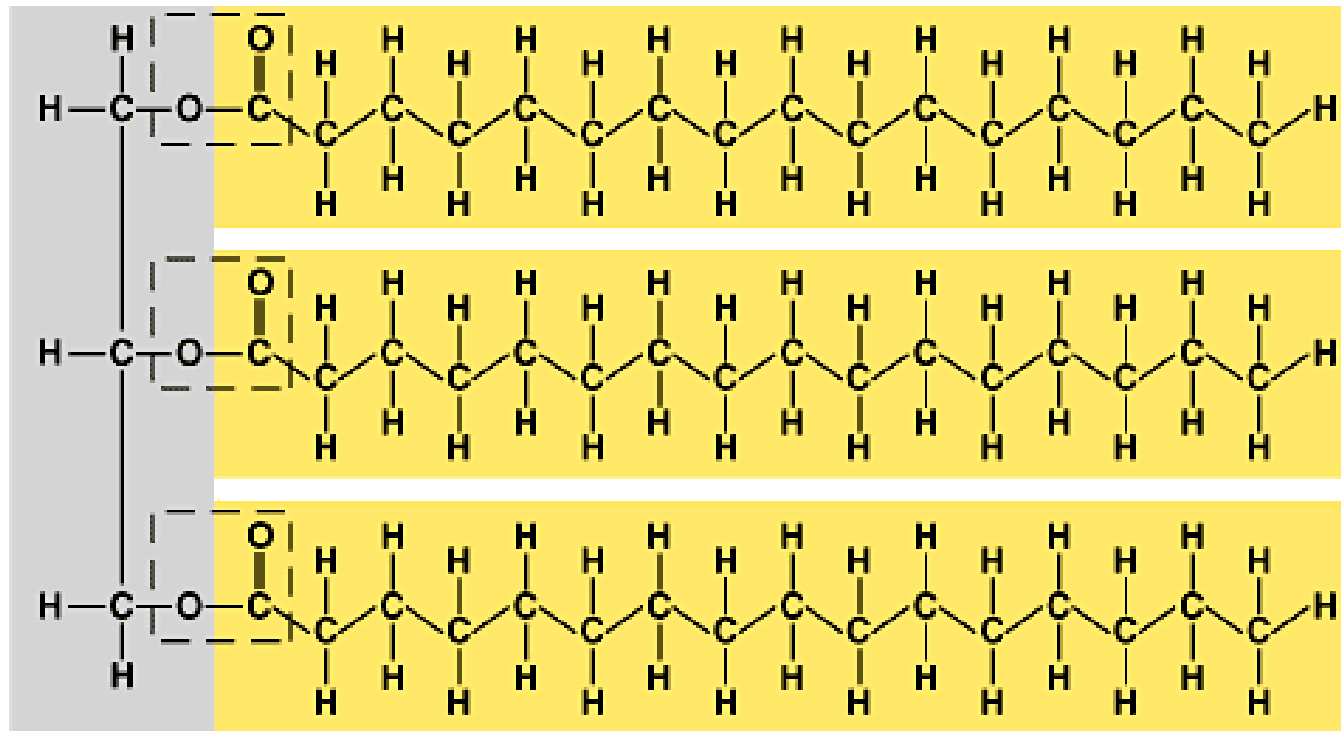
- ◆ **insulates body** (fat)

- think whale blubber!



Structure of Fat

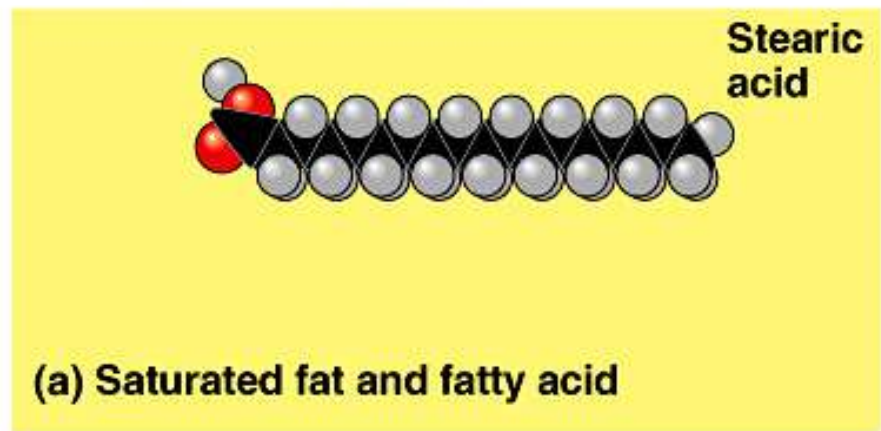
not a chain (polymer) = just a “big fat molecule”



(b) Fat molecule

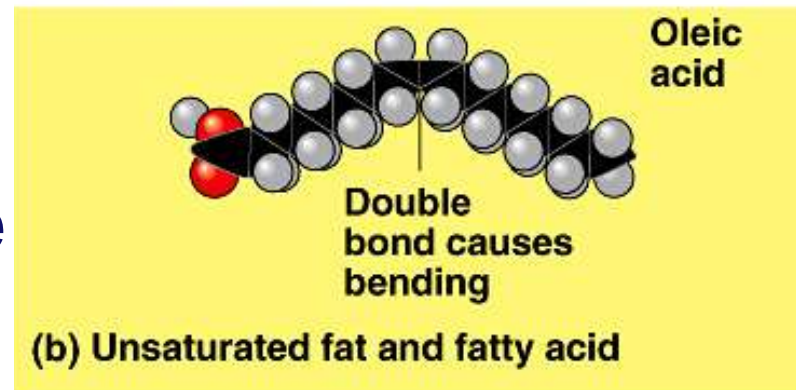
Saturated fats

- Most animal fats
 - ◆ solid at room temperature
 - ◆ Limit the amount in your diet
- contributes to heart disease
 - ◆ deposits in arteries
 - ◆ Has the most H atoms possible



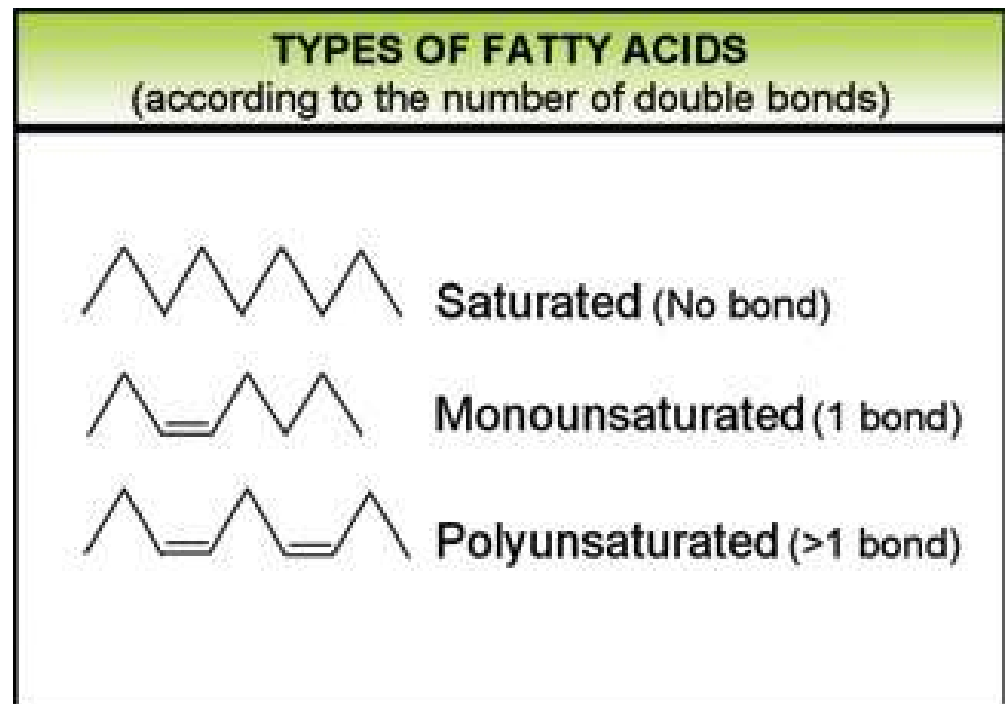
Unsaturated fats

- Plant, vegetable & fish fats
 - ◆ liquid at room temperature
 - ◆ the fat molecules don't stack tightly together
 - Better choice in your diet
- Has at least one double bond
- bond



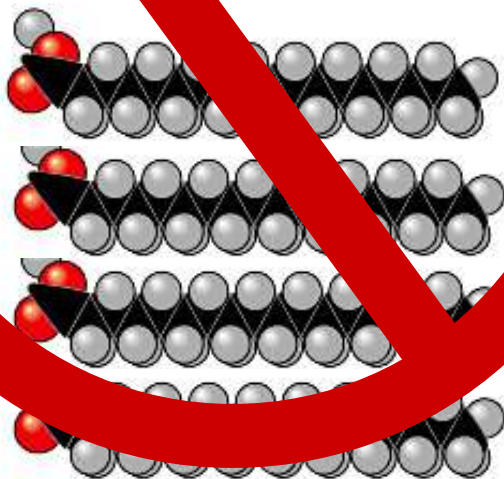
Polyunsaturated fats

- Have 2 or more double or triple bonds
- Healthiest of the fats

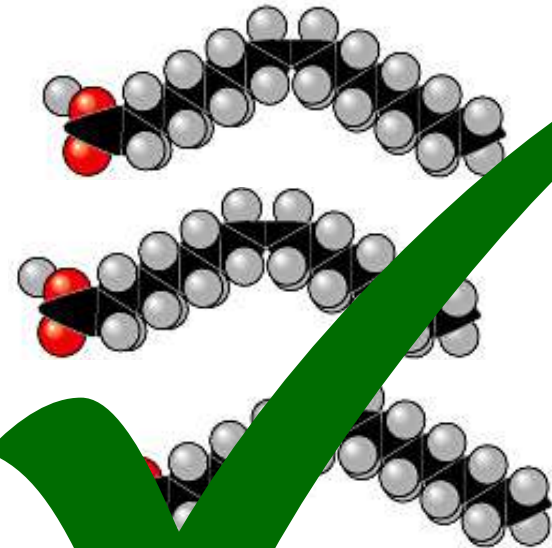


Saturated vs. unsaturated

saturated



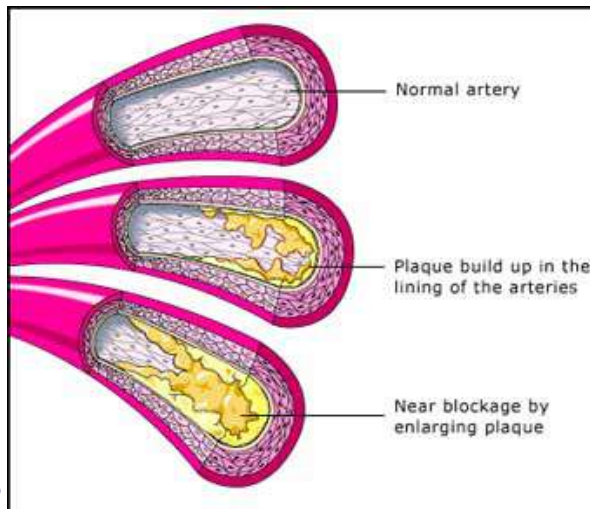
unsaturated



Other lipids in biology

■ Cholesterol

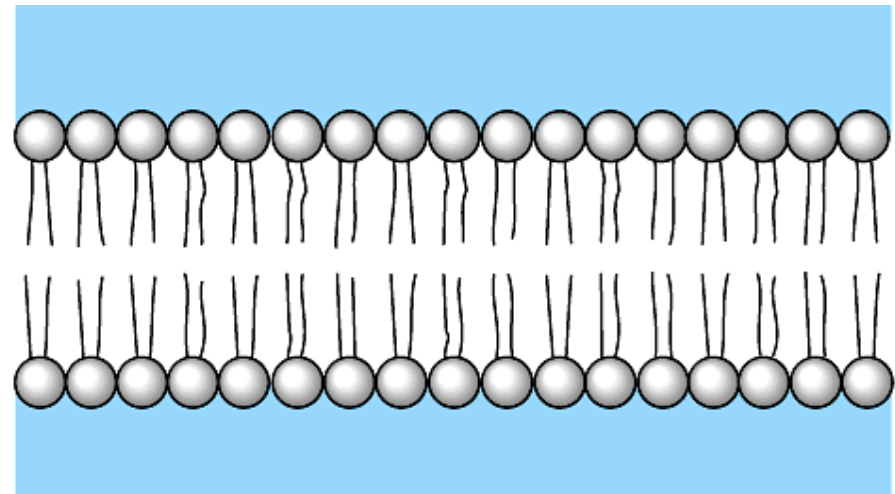
- ◆ good molecule in cell membranes
- ◆ make hormones from it
 - including sex hormones
- ◆ but too much cholesterol in blood may lead to heart disease



Other lipids in biology

- Cell membranes are made out of lipids
 - ◆ phospholipids
 - ◆ heads are on the outside touching water
 - “like” water
 - ◆ tails are on inside away from water
 - “scared” of water
 - ◆ forms a barrier between the cell & the outside

Phospholipid



Let's build some Lipids!

