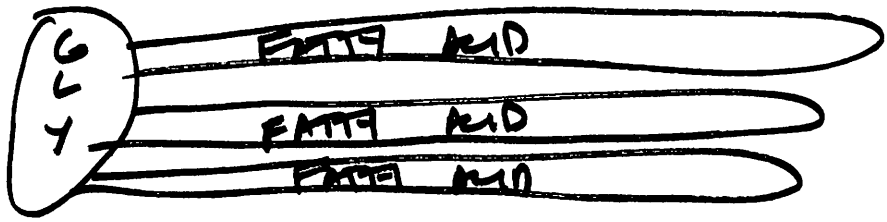
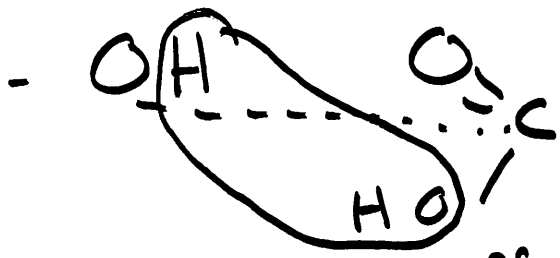
(1) Lipids - hydrophobic, non-polar
- fats
- phospholipids
- steroids

(2) Ester linkage - bonds fatty acid to glycerol

tri-glyceride





(3) SATURATED FATS/ACIDS - NO double bonds
UNSATURATED FATS/ACIDS - one or more double bonds.
-KINKED

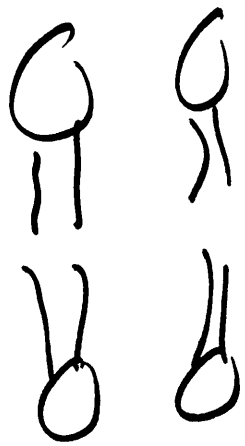
(4) SATURATED (FAT)
- animals
- solid
- pack tightly together

UNSATURATED OIL
- plants, fish
- liquid

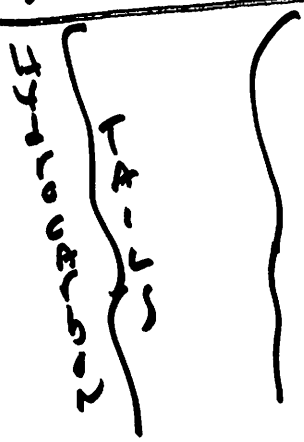
⑤ hydrogenated vegetable oil

⑥ FATS = energy storage
2x as much per gram as polysaccharide

⑦ Phospho-lipid
Hydrophilic head
Hydrophobic tail



Glycerol + Phosphate +



⑧ Cholesterol – A steroid
- precursor of estrogen/testosterone.
- made in Liver
- excess leads to atherosclerosis.

4 rings of C's with variable attachments.

(9) Proteins

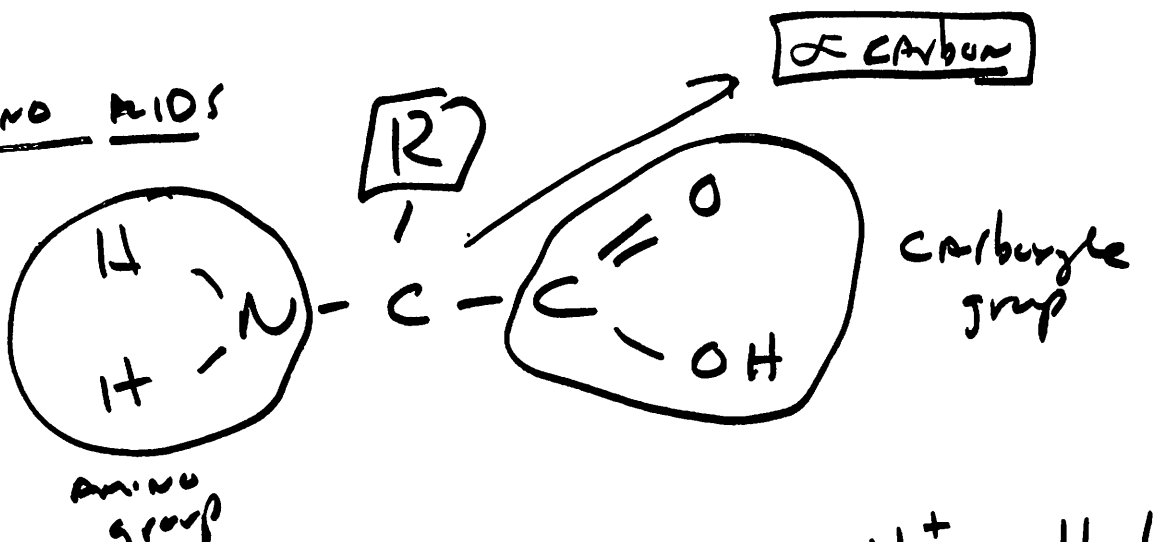
- enzymes are biological catalysts
- re-usable

- 3-D shapes

(10) Types of Proteins / Functions

- ENZYMES
- Defensive - antibodies
- Storage - casein, albumin
- Transport - hemoglobin, membrane proteins
- Hormone - insulin
- Receptor - signaling molecules
- contractile / motor proteins - cilia, flagella, actin, myosin
- structural - keratin
  - collagen

(11) Amino Acids



(12) The physical/chemical properties of the side chains determine the unique characteristics of a particular amino acid — thus affecting its **FUNCTIONAL ROLE** in a polypeptide.

- non-polar R groups (side chains)
- polar
- acidic
- basic

} also hydrophilic.

(13) Polypeptide - polymer of many amino acids linked by peptide bonds.

Peptide Bond

Amino End N-C-C — N-C-C Carboxyle End

N-terminus ↑ C-terminus

peptide bond

Dehydration reaction.