Honors Biology
Ch.2, 3
Biochemistry

Trans Fat

- Hydrogenation of unsaturated fat (oil) creates trans fat.
- The double bonds in the fatty acid chains of unsaturated fatty acids use cis- bonds across the double bonds.
- Hydrogenation of unsaturated fatty acids forces many of those double bonds to become single bonds, making it a solid at room temperature (shortening).
- The process also converts many of the cis-bonds into trans-bonds.
- These bonds do not cause a kink in the fatty acid chain so they help in solidifying the oil.
- The trans-bond does not metabolize and forms plaques in the arteries.
- It also raises LDL's ("bad" cholesterol) and lowers HDL's ("good" cholesterol).
- This increases coronary heart disease.

History

- 1900's hydrogenation on large scale worked out in Europe.
- 1911 Proctor & Gamble partially hydrogenated cottonseed oil.
- Marketing: Gave away free cookbooks with Crisco® in each recipe.
- U.S. imported soybeans which were processed for the protein
- Post-Dust Bowl: 1930-36, U.S. began growing own soybeans.
- Soybean oil was a waste product could be hydrogenated and sold cheap
- Coincided with Butter shortage
- Refrigeration invented 1927 GE "Monitor Top", helped storage.

"New" Crisco (2010)

- The new formula of Crisco uses less partially hydrogenated cottonseed and soybean oils and more fully hydrogenated cottonseed oil — which contains no trans fat.
- Hydrogenated oils are what gives shortening its semisolid consistency and high performance cooking attributes, according to the company.
- The company placed an emphasis on reducing the trans fat content without increasing saturated fats.