

Hydrogenation

- In heavily processed foods, polyunsaturated fat are often *hydrogenated* or partially hydrogenated
 - The double bonds are eliminated or partially eliminated by adding hydrogen atoms
 - This straightens out the natural bent shape of the unsaturated fatty acids
- The naturally curved fatty acids are called *cis*
- The hydrogenated ones are called *trans lipids*
 - Result of chemical transformation
 - Still have one or more double bonds
- Cis fats have bendings on the same side of the molecule and trans have on different
- One category of cis fatty acids is called *omega-3*
 - The name comes from the fact that the first carbon double bond is found in the molecule at the third carbon atom counting backwards from the omega end
 - Fish are good source of omega-3 fats

Triglyceride lipids

- Made up of glycerol and 3 fatty acids
- They vary greatly from each other, including their relative healthiness
- The identity/characteristics of the 3 fatty acids in each triglyceride will determine the overall characteristics of the fat or oil
 - Fat = animals
 - Oil = plants
- When triglycerides are needed, they are hydrolysed into 2 carbon segments that enter into cell respiration at a moment which is efficient for the production of ATP
 - Triglycerides → hydrolysis → 2C → cell respiration → ATP
- They are insoluble in water, so they do not disturb the osmotic balance of the solutions
 - Insoluble in the cytoplasm, blood plasma and extracellular fluid
 - If they were soluble in water, glucose would attract water and the cell would swell extremely
 - This would happen, due to hypotonic fluids