2.35 Triglycerides

Triglycerides are the most common lipid in our bodies and in the foods we consume. Fatty acids are not typically found free in nature, instead they are found in triglycerides. Breaking down the name triglyceride tells a lot about their structure. "Tri" refers the three fatty acids, "glyceride" refers to the glycerol backbone that the 3 fatty acids are bonded to. Thus, a monoglyceride contains one fatty acid, a diglyceride contains two fatty acids. Triglycerides perform the following functions in our bodies:

Provide energy
Primary form of energy storage in the body
Insulate and protect
Aid in the absorption and transport of fat-soluble vitamins.

A triglyceride is formed via a dehydration reaction between a glycerol and three fatty acids as shown below.

![Dehydration Reaction (-H₂O)](image)

Figure 2.351 Triglyceride formation

When a fatty acid is added to the glycerol backbone, this process is called esterification. This process is so named, because it forms an ester bond between each fatty acid and glycerol. Three molecules of water are also formed during this process as shown below.
A stereospecific numbering (sn) system is used to number the three fatty acids in a triglyceride sn-1, sn-2, and sn-3 respectively. A triglyceride can also be simply represented as a polar (hydrophilic) head, with 3 nonpolar (hydrophobic) tails as shown below.
Figure 2.354 Structure of a mixed triglyceride

No References