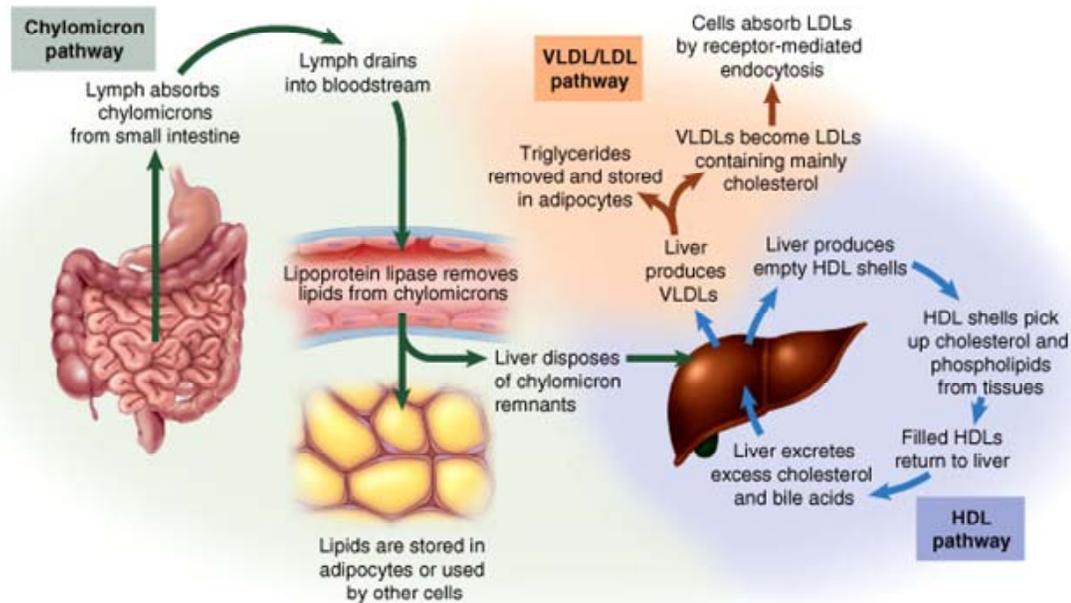


Lipoprotein Processing

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processing pathways

- Three pathways

Key Ideas:

1. This graphic illustrates what happens to a chylomicron after it is transported across the absorptive cell's basal membrane to enter a lacteal. Once in the lacteal, the lymph flow inside the lacteal will deliver the chylomicron to the left subclavian vein where the chylomicron can then enter the blood system.
2. Once the chylomicron is in the blood stream, we need to unload the content (ie the triglycerides) of the chylomicron into the adipocytes. These cells are the storage cells for fat (ie the triglycerides). Note that there is a lipoprotein lipase attached to the lining of the capillaries within the adipose tissue. This enzyme is used to "unload" the triglycerides from the chylomicron and move the glycerol and fatty acids into the adipose cells (ie adipocytes). Please note: there are three "flavors" of lipase – lingual lipase, pancreatic lipase, and now lipoprotein lipase. (There is actually a fourth version called gastric lipase. This is made by the gastric epithelial cells of the stomach during the first months of life to help digest the fat in milk. After the first year of life the stomach no longer produces gastric lipase).
3. After the content of the chylomicron is delivered to the adipocytes, the empty chylomicron will pass through the liver where the chylomicron's structure will be recycled by the liver.

4. The liver produces both VLDL and HDL. These are lipoprotein containers that transport triglycerides and cholesterol, just like a chylomicron. However, they have different transportation routes. VLDL is produced by the liver with a full “load” of triglycerides and some cholesterol. The VLDL delivers the triglycerides to the cells of your body for fuel and to build cellular structures as needed. When the VLDL delivers the triglycerides, it now carries only cholesterol and the transporter’s name changes to LDL. This is often referred to as the “bad cholesterol”. It is bad because if the LDL’s membrane is oxidized by a free radical then it is absorbed into the lining of blood vessels which results in atherosclerosis.
5. HDL is also made by the liver but it is an “empty” lipoprotein. It goes out into the body and picks up cholesterol and transports the cholesterol back to the liver. This is why it is called the “good” lipoprotein.