Fat Absorption Summary

- Sunstances from micelles passively diffuse into mucosal cells – small fatty acids go into portal blood as free fatty acids – large fatty acids reesterified to triglycerides – converted to chylomicrons and enter lymphatics
- Triglycerides formed through acylation of 2-monoglycerides in SER and glycerophosphate
- Chylomicrons exocytosed from basal or lateral aspects of cell
- Most fat absorption in upper small intestine, some in ileum – 5% stool is fat. Infants fail to absorb 10-15% of ingested fat – makes them more susceptible to certain diseases

OTHER MOLECULES

Absorption of Water and Electrolytes

Every day, the intestines are presented with 2000 ml of ingested fluid in addition with 7000 ml of secretions from GI tract mucosa. 98% of this fluid is reabsorbed, and only 200 ml of fluid is lost daily in stools.

Only small amounts of water move across the gastric mucosa, however, water is able to move freely in both directions across the mucosa of both the small and large intestines. Na^+ diffuses into and out of the small intestine depending of the salinity of the intestinal contents, it is also actively transported out of the lumen in the small intestine and colon through pumps on the basilateral walls of the cells. In the ileum and jejunum, Na^+ transport from the intestine to the blood is facilitated by aldosterone.
In the small intestine, active transport of Na^+ is vital in bringing about the absorption of substances such as glucose and amino acids. Per contra, glucose presence in the intestinal lumen facilitates Na^+ reabsorption. This is the reason why Na^+ and water loss in diarrhoea is treated by oral administration of solutions consisting of NaCl and glucose.
Water moves into or out of the stomach until the osmotic pressure of the intestinal contents is equivalent to that of the plasma. The osmolality of the duodenal contents could be either hyper of hypotonic depending on the ingested meal, but by the timet the meal enters the jejunum, the osmolality is almost equivalent to that of the plasma. This osmolality is maintained throughout the rest of the small intestine, the osmotically active particles produced by digestion are removed by absorption, and water passively moves out of the gut along the osmotic gradient which is thus generated. In the colon, Na^+ is pumped out and water moves passively with it, again along the osmotic gradient.

In the ileum and the colon, Cl^- is actively reabsorbed for a 1 for 1 exchange for HCO^-_3, making the intestinal contents more alkaline.