20. Small amounts of chyme enter the small intestine at a time
21. The acidic chyme stimulates the small intestine to release secretin
22. Secretin targets pancreas to release bicarbonate to increase pH
23. Digestion of carbs and proteins continues in the small intestine
   . High blood glucose levels target the pancreas to release insulin
   a. Insulin circulates in the blood and promotes the cells to uptake glucose for metabolic activity
   b. Liver stores excess glucose as glycogen
   c. Blood glucose level drops
   d. Pancreas secretes glucagon
   e. Glucagon circulates in blood
   f. Glucagon breaks down glycogen in liver
   g. Glucose is released into blood
   h. Glucose level rises
24. Mucosal epithelial cells produce small peptidases that cleave small peptides into absorbable amino acids
25. Mucosal epithelial cells also produce carbohydrases
26. Epithelium absorbs these nutrients
27. Fat in the duodenum epithelium stimulates the release of CCK
28. Full fat cells stimulate the release of leptin which targets the brain to make you feel full
29. CCK targets the pancreas to release digestive enzymes
   . Secreted through pancreatic duct
   i. Joins common bile duct
   ii. Digestive enzymes enter small intestine
30. CCK targets the gallbladder to contract
31. Gall bladder contraction causes bile to squeeze out through the cystic duct to the common bile duct
32. Sphincter at junction of common bile duct and small intestine relaxes in response to waves of peristalsis
33. Bile squirts into duodenum
34. Bile emulsifies fat → micelle
   . Allows for greater surface area to be exposed to lipases
35. Lipases break down micelles
   . Triglycerides are hydrolyzed into diglycerides, monoglycerides, and fatty acids
a. Lipid soluble = able to pass through plasma membranes into the cells of the small intestine epithelium
36. In the small intestine cells, the broken down fats are resynthesized into triglycerides
   . Triglyceride + cholesterol + phospholipid = chylomicron
   . Water soluble
37. Chylomicrons pass into blind ended lymph vessels called lacteals that are in each villus by exocytosis
38. Chylomicrons flow through the lymphatic system and enter the bloodstream by the thoracic ducts
39. Most absorption of nutrients happens in ileum and jejunum
40. Bile salts from the micelles are absorbed into ileum and returned to the liver through the bloodstream
41. Lipids from chylomicrons are stored as triglycerides or used to make lipoproteins