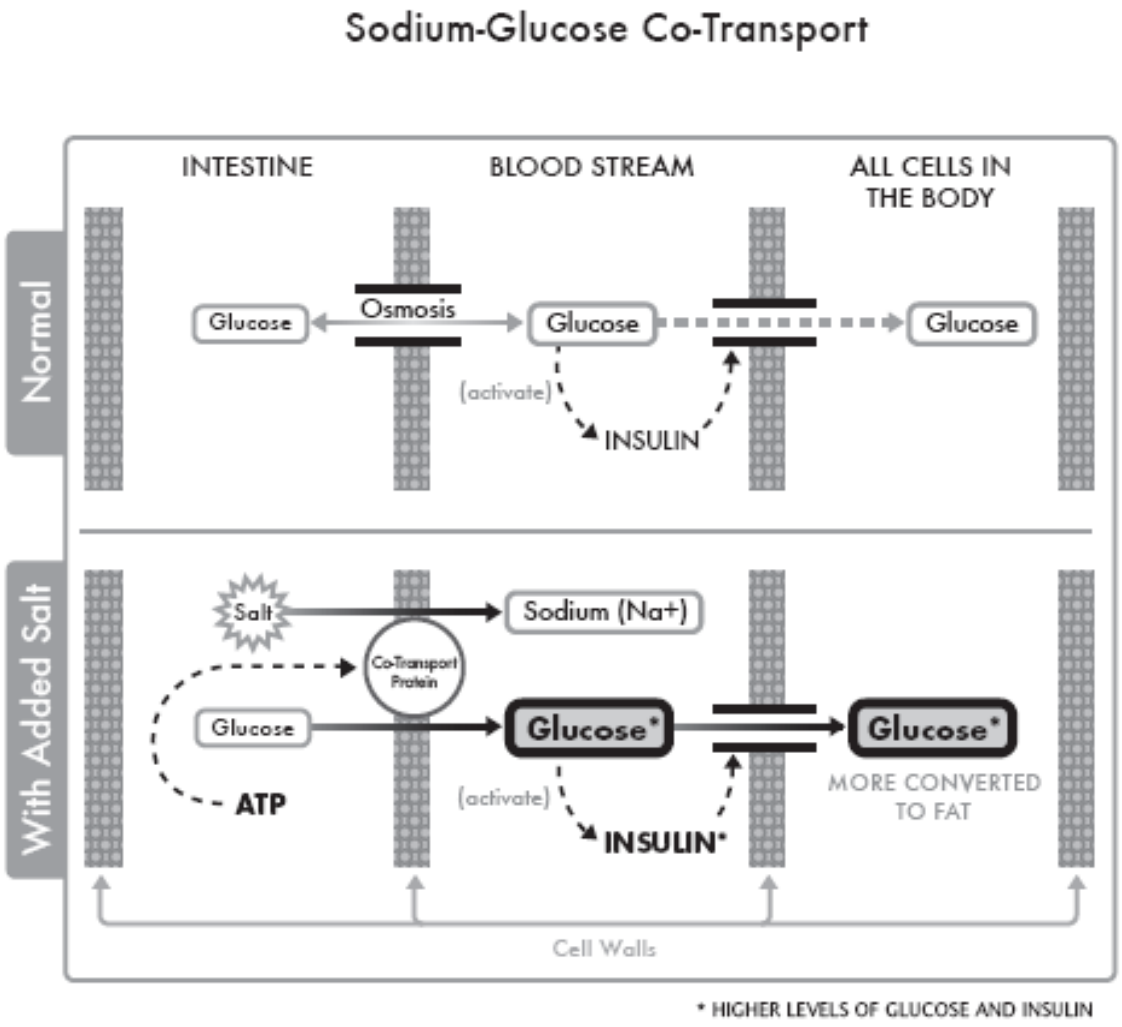
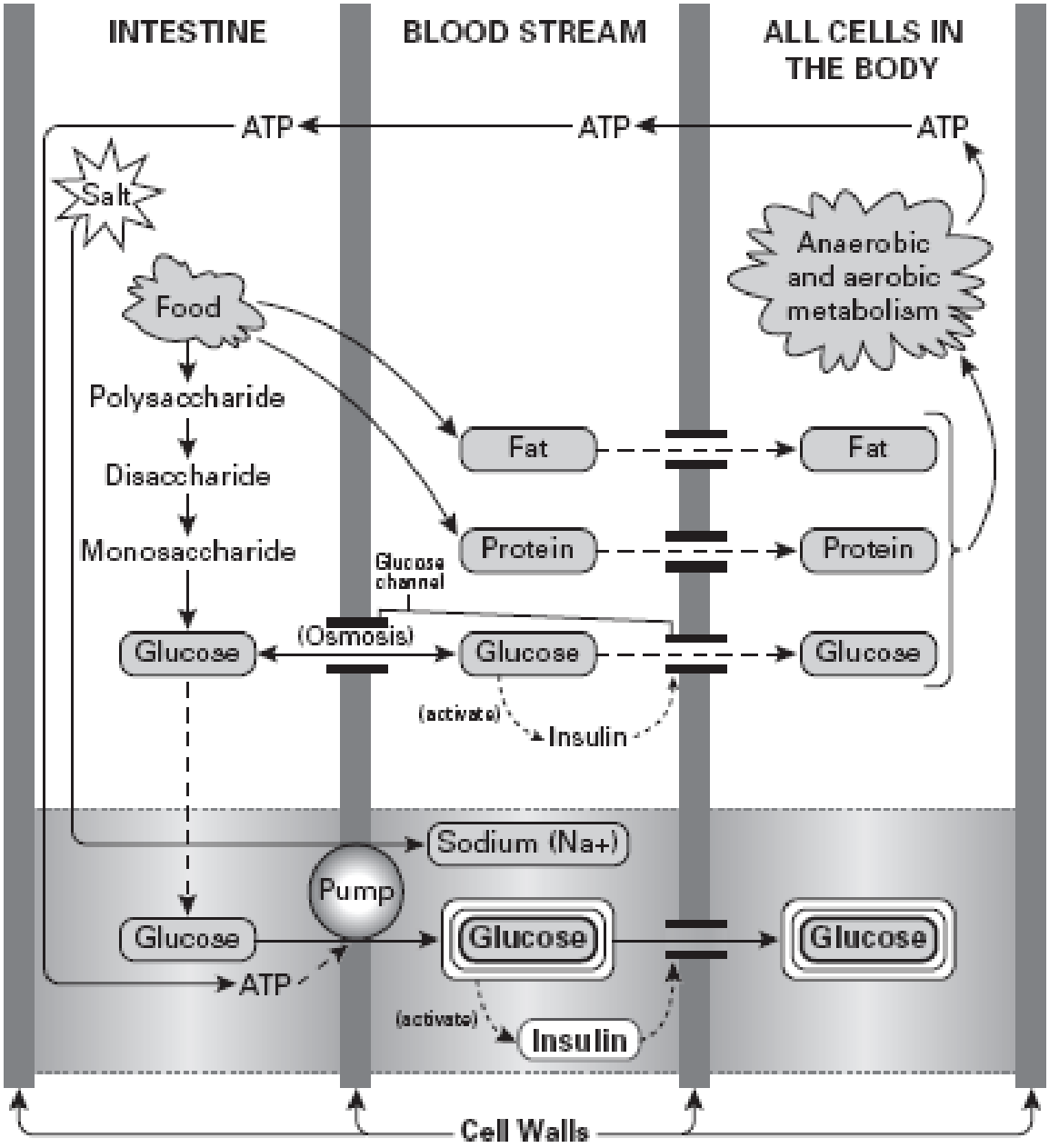
# The Salt and Sugar Pump

Enzymes in our intestines break down carbohydrates into glucose, which can either diffuse through the glucose channel into the blood stream (osmosis) until the concentrations are equal on both sides. Glucose can also be pumped into the blood stream at higher concentrations when glucose combines with sodium to turn on the ATP-driven sodium-glucose co-transport protein. The resultant higher glucose concentration activates more insulin release, which allows more glucose (and fats and protein) entry into cells promoting more fat production and storage.

Below is a quick look at a normal and co-transported glucose. The next page is an expanded view that includes ATP production:




INTESTINE
BLOOD STREAM
ALL CELLS IN THE BODY
ATP
ATP
ATP
Salt
Food
Anaerobic and aerobic metabolism
Polysaccharide
Disaccharide
Monosaccharide
Fat
Fat
Protein
Protein
Glucose channel
(Osmosis)
Glucose
Glucose
Glucose
(activate)
Insulin
Sodium (Na+)
Pump
Glucose
Glucose
Glucose
ATP
(activate)
Insulin
Cell Walls