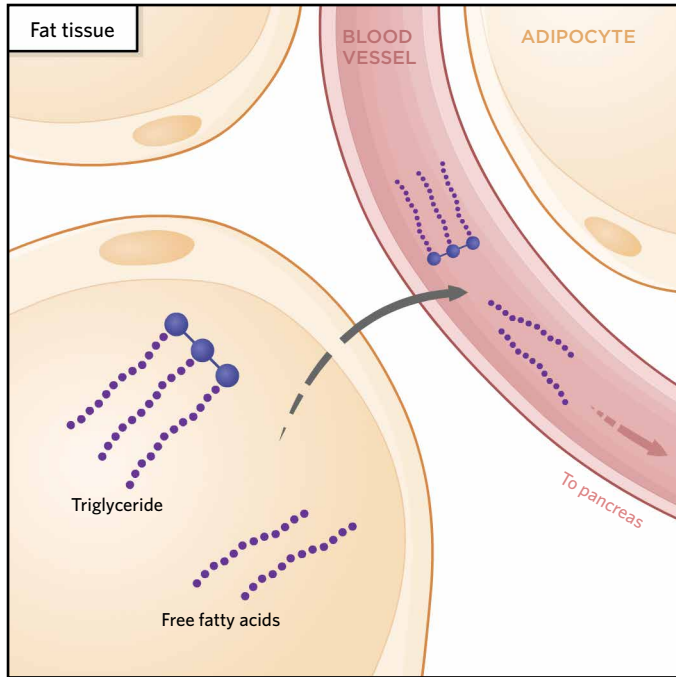
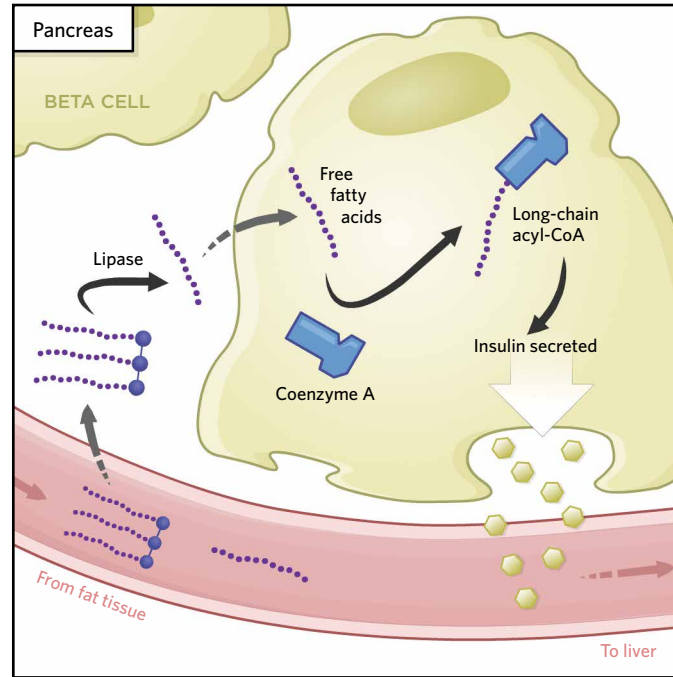


# AN INTRICATE DANCE

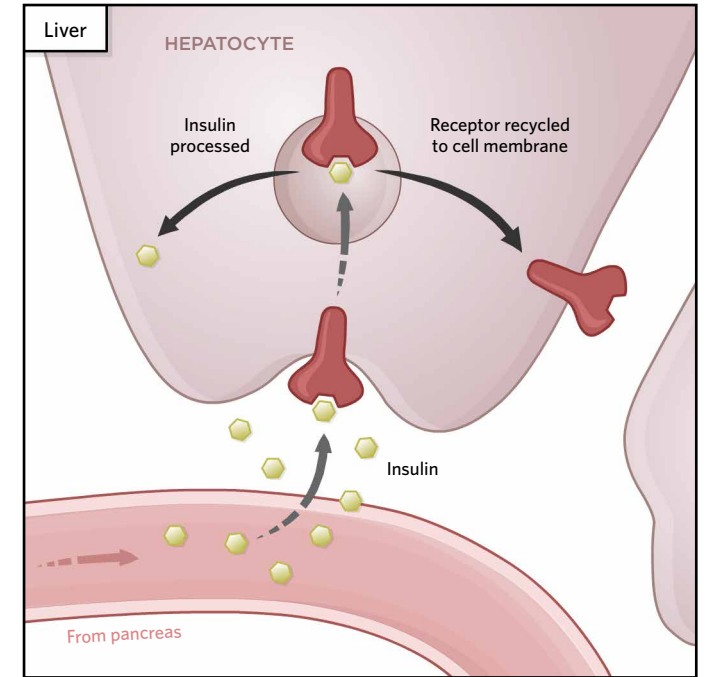
Lipids and insulin play important roles in blood sugar regulation, and altered levels of either could kick start metabolic dysfunction.



Excess fat deposits on the body can release triglycerides and free fatty acids into the blood, causing hyperlipidemia.



As the lipids arrive at the pancreas, they are converted to free fatty acids and taken up by  $\beta$  cells, where they join with coenzyme A to form long-chain acyl-CoA. This can trigger insulin secretion, leading to hyperinsulinemia. As more insulin is secreted,  $\beta$  cells may begin to run low on their insulin reserves and insulin synthesizing capacity, such that they are not able to fully respond to the next surge in glucose.



As insulin from the pancreas binds to receptors in the liver, those receptors get internalized and the insulin generates signals to stop gluconeogenesis. High levels of insulin can exhaust the receptors, such that the cells of the liver (and muscle and fat) become insulin resistant, unable to respond to spikes in insulin and continuing to make glucose even though blood sugar levels are inappropriately high.