

	Growth Hormone	Thyroid Hormone	Cortisol	Insulin
Glucose	<p>Diabetogenic ↓glucose uptake by tissues ↓rate of glucose utilization throughout the body ↑Gluconeogenesis insulin resistance (↑FFA)</p>	<p>Increase <u>glucose uptake by the cells</u>, Increase glycogenolysis, Increase gluconeogenesis, Increase rate of absorption from the GIT.</p>	<p>Increases blood <u>glucose</u> levels by: (+) gluconeogenesis in the liver. Decreasing utilization of glucose by cells via direct inhibition of glucose transport into cells.</p>	<p>↑ transport of glucose into insulin-sensitive cells Rapidly ↑glycolysis ↑ glycogen synthesis ↓ gluconeogenesis = decrease plasma glucose.</p>
Lipid	<p>↑Mobilization of FFAs from adipose tissue stores, Conversion of FFA acetyl CoA (provide energy) =Catabolic</p>	<p>Increase lipolysis, increase oxidation of FFAs > <u>decrease plasma CHO</u> level by increase loss in feces</p>	<p>Increase <u>lipolysis</u> Mobilizes fatty acids & glycerol from adipose tissue lead to ↑ their blood concentrations. Redistribution of body fat: ↑ formation of fat in trunk areas & face ↓ fat (& <u>muscle</u>) from extremities. = Increases appetite</p>	<p>↓ Lipolysis > increase fatty acid synthesis and TG deposition=increase lipid synthesis.</p>
Protein	<p>↑rate of protein synthesis in all cells through: ↑AA transport into cells , ↑DNA transcription= RNA synthesis , ↑RNA translation= protein synthesis. ↓protein catabolism “protein sparer”=Anabolic</p>	<p>The overall effect is Catabolic</p>	<p>Reduces protein formation in all tissues Except liver. Extrahepatic protein stores ↓ (catabolic). These high blood amino acid levels are transported more rapidly to hepatic cells for <u>gluconeogenesis</u> and protein synthesis in liver.</p>	<p>↑ protein synthesis > reduces protein catabolism = to decrease AA for gluconeogenesis</p>
Other	<p>Increases calcium absorption from GIT, ↑bone mineralization, Retention of Na⁺ and K⁺, stimulate immunity, ↑muscle mass and Contributes to the maintenance and function of pancreatic islets</p>	<p>↑ CVS and respiratory activity ↑ CNS activity Promote bone formation and maturation ↑GI motility = ↑ appetite potentiate catecholamine effect</p>	<p>Anti-inflammatory, Anti-vitamin D effect, ↑ Bone resorption, Increases HCl secretion, Modulates perception & emotion on CNS and immunosuppressive.</p>	<p>↑ Cell growth ↑ ketone uptake by muscles and decrease ketogenesis by liver Glucagon is the antagonist hormone of insulin.</p>

Metabolic effects of some hormones. **“Only for revision”**

