

**BIOCHEMISTRY**  
**2ND YEAR MBBS**

**Weekly study schedule** (23-03-2020 to 28-03-2020)

**Topic:** Carbohydrate Metabolism

**Sub Topic** Glycogen metabolism

**Learning objectives/out come:**

1. Synthesis and Breakdown of glycogen.
2. How glycogenesis & glycogenolysis are regulated in response to hormone action.
3. Name, Enzyme deficiency and clinical features of glycogen storage disease.

**Sources:**

1. **Lecture Power Point.**
2. **Harper's illustrated Biochemistry 31<sup>st</sup> Edition.**  
Metabolism of Glycogen (Chapter 18) **Page 164-171**
3. **Lippincott illustrated Reviews 7<sup>th</sup> Edition.**  
Glycogen Metabolism (Chapter 11) **Page 125-136**

**Assignment (Must be Pen written on assignment sheet)**

- a) Diagrammatic representation of glycogenesis & glycogenolysis and role of cAMP?
- b) What is role of debranching enzyme in glycogenolysis? How cAMP is formed & degraded?
- c) How cAMP regulate glycogenolysis?
- d) Enumerate principal enzymes controlling glycogen metabolism & how they are regulated in opposite direction?
- e) What is the role of cAMP in regulation of glycogen metabolism?
- f) What is the role of glycogen in liver & muscle?
- g) How  $Ca^{2+}$  synchronizes the activation of glycogen phosphorylase with muscle contraction?
- h) How glycogen phosphorylase is regulated in muscle?

- i) Give control of glycogen synthase in muscle?
- j) What is role of protein phosphatase-1 in glycogen phosphorylation?
- k) Give enzymatic deficiency & clinical features in glycogen storage diseases?



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Copy forwarded to :

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