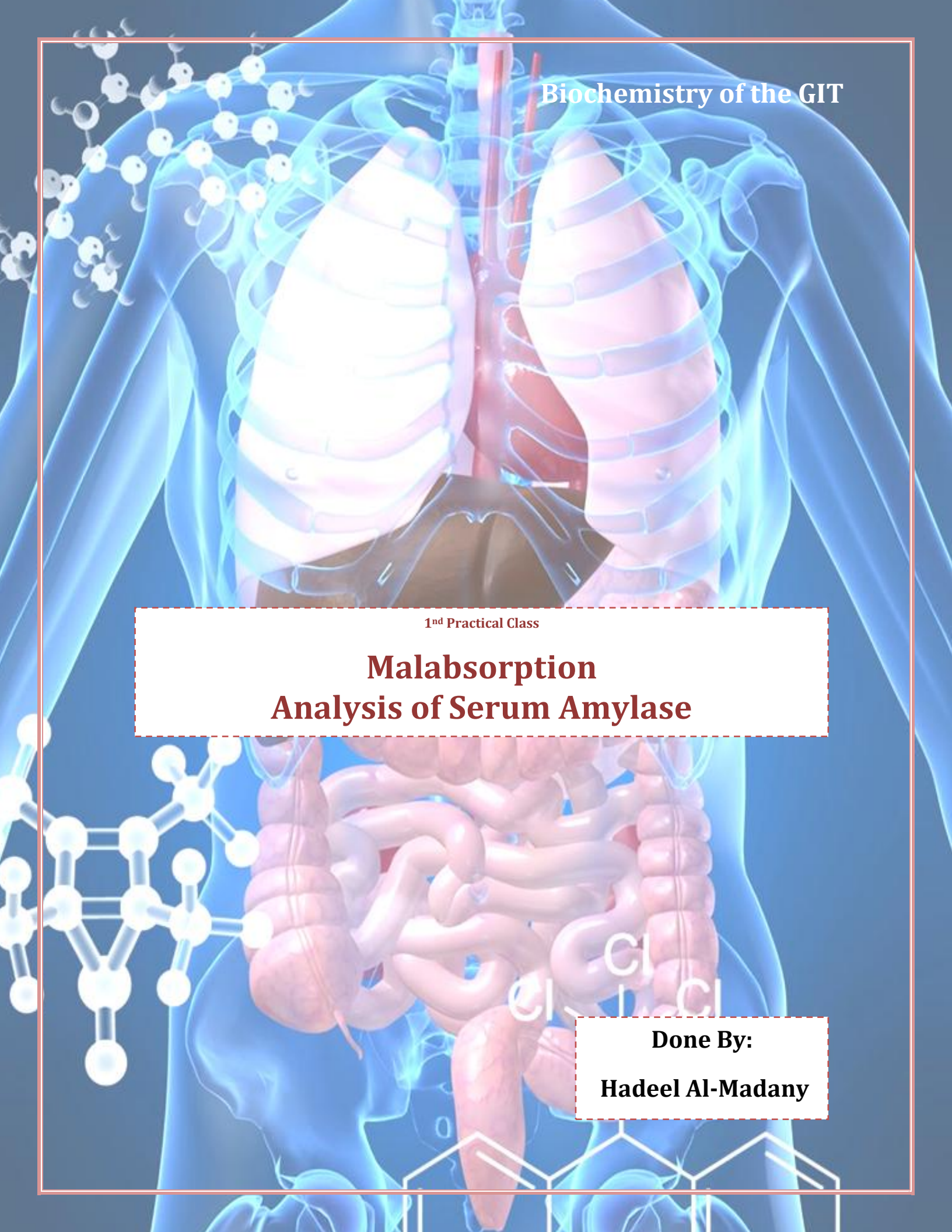


Biochemistry of the GIT

1nd Practical Class

Malabsorption
Analysis of Serum Amylase

Done By:

Hadeel Al-Madany

Q.1 What is amylase, and what are its source in human body?

- Amylase are group of proteins found in saliva, pancreatic juice and parts of plants; help convert starch to sugar

Q. 2 What is the physiological action of amylase?

- Amylase hydrolyzes (breakdown) the dietary starch and glycogen into short, branched di and oligosaccharide (maltose and iso-maltose).

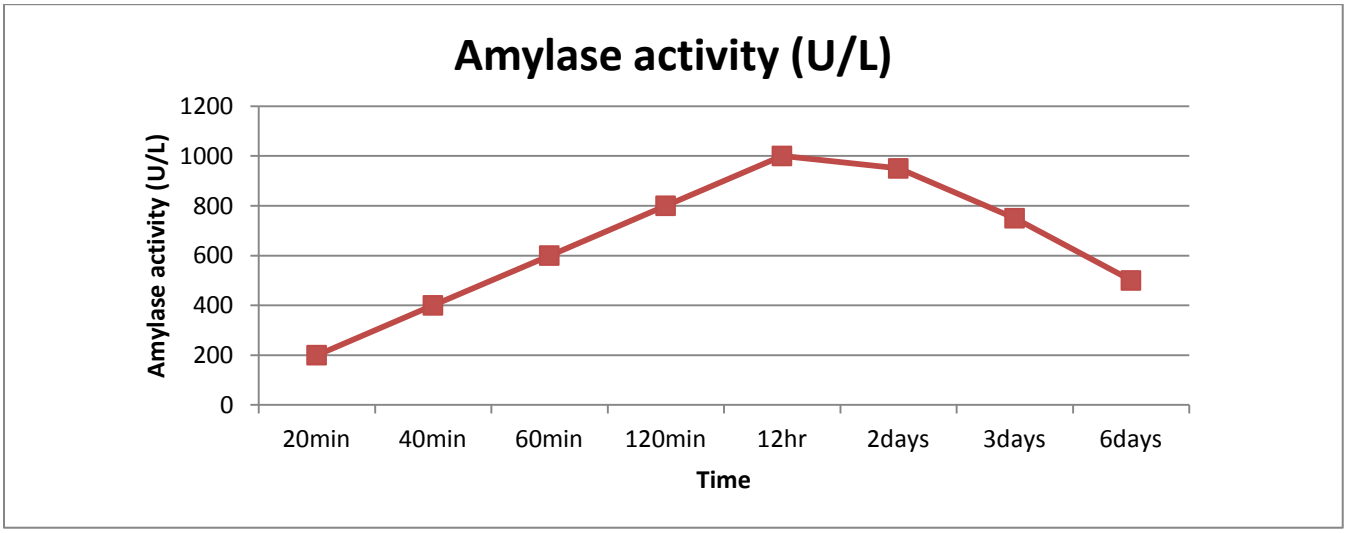
Q. 3 Would you expect a high level of amylase in blood under a normal condition?

- No change

Q. 4 What are the uses of amylase measurement in clinical practice?

- Acute Pancreatitis

Q. 5 Changes in serum amylase activity during course of an injury (time course) ?



Amylase levels will be increasing over time, and will reach a peak within 12-72 hours. It will return to normal in few days.

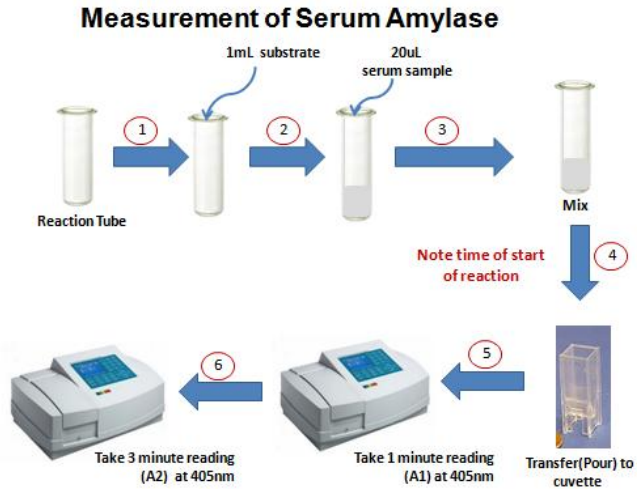
Q5-A. What are the possible factors responsible for these changes in the curve?

- Acute pancreatitis will result in damage of the exocrine part of the pancreas; this will release the pancreatic enzymes into the circulation.
- α-Amylase is one of the pancreatic enzymes released.

Q5-B. With knowledge about amylase activity overtime, what is the clinical application?

Three points can be derived from such a curve:

1. Measurement of α-amylase in the serum is limited by the time elapsed since the initiation of acute inflammation of the pancreas. If the patient presented late, and the condition was self limited, the diagnosis of acute pancreatitis based on the enzyme level at time of presentation could be missed.
2. The measurement of α-amylase in serum should not be interpreted on its own; it has to be evaluated in association with the clinical picture (e.g. the nature of the abdominal pain).
3. The rising trend of the levels of serum α-amylase as the acute inflammation is taking place is more clinically significant than one single high reading.



Calculation & Interpretation

$$\Delta A = \frac{A2 - A1}{3}$$

Serum Amylase (U/L) = 5544 × Δ A

- **Normal reference values:**

  Serum: up to125U/L (at room temperature)