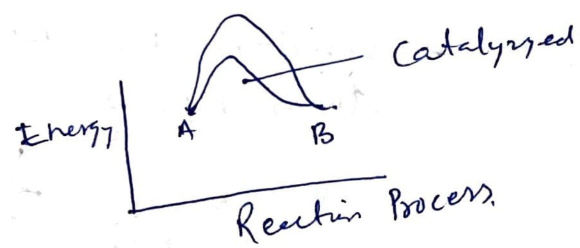
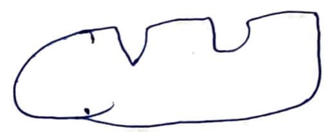
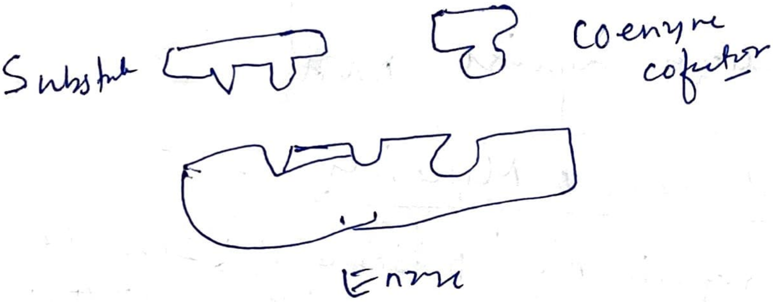
Nutrition & balance diet Vitamins & Minerals.

Many enzyme require the p

Enzyme ~~Mate~~ regulates RKn Rate







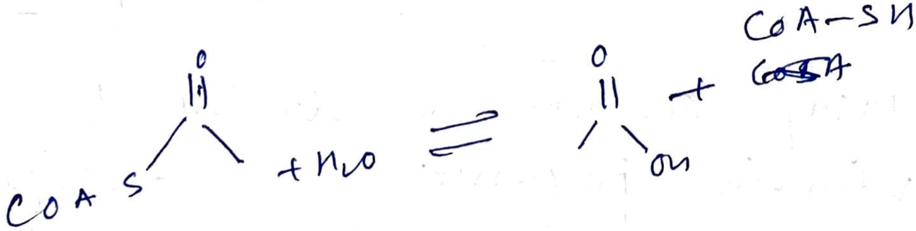
Co enzyme are organic carrier molecules.

NADH ⇌ $NAD^+ + H:^{\ominus}$

Carries electron.

Pyruvate + NADH ⇌ Lactic acid + NAD^+

Lactate dehydrogenase

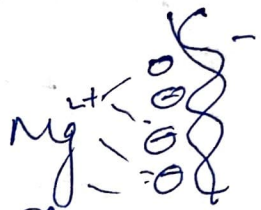


Carrys Acyl group.

What is cofactors

Cofactors participate in catalysis.

DNA Polymerase → Synthesis New DNA during Replication.



Mg^{2+} - Stabalizes against DNA

What are vitamins & Minerals

Many enzyme require the presence of small non protein unit or cofactors to carry out their particular reaction.

Cofactor — Inorganic - Zn^{2+} / Fe^{3+}

Cofactor — Organic — Coenzymes

Holoenzyme → Total with cofactor

Apoenzyme → Protein part of enzyme without its cofactor

Many coenzyme are derived from vitamin precursor which are often essential component of organism diet thus giving rise to deficiency diseases.

Coenzyme A	Pantothenic acid	Dermatitis
FAD / FMN	Riboflavin (vitamin B_2)	Growth Retardation
NAD^+ / $NADP^+$	Niacin (B_3)	Pellegra
Thymine Pyrophosphate	Thiamine Vita B_1	Beri Beri
Tetrahydrofolate	folic acid	Anemia
Cosubstrate in the hydroxylation of Prolin to collagen	vitamin C	Scurvy
Pyridoxal phosphate	Pyridoxine (vitamin B_6)	Dermatitis
Deoxyadenosyl Cobalamin	vitamin B_{12}	Pernicious anemia

$$NAD + H^+ + 2e^- \rightleftharpoons NADH$$

$$FAD + 2H^+ + 2e^- \rightleftharpoons FADH$$

Collagen :- Glycin / Proline after Post translation
4 hydroxy proline 5 hydroxy lysine are formed
post translation by the action of Proline hydroxylase
lysine hydroxylase.

Fe^{3+} cofactor enzyme requires vita C for action.
In vita C deficiency / Collagen is not formed properly

So Scurvy is formed.

Calcium / Phosphorus / Potassium / NaCl / Mg^{2+}
Iron / Zinc / Sulfur / Cobalt Copper
OR Selenium.