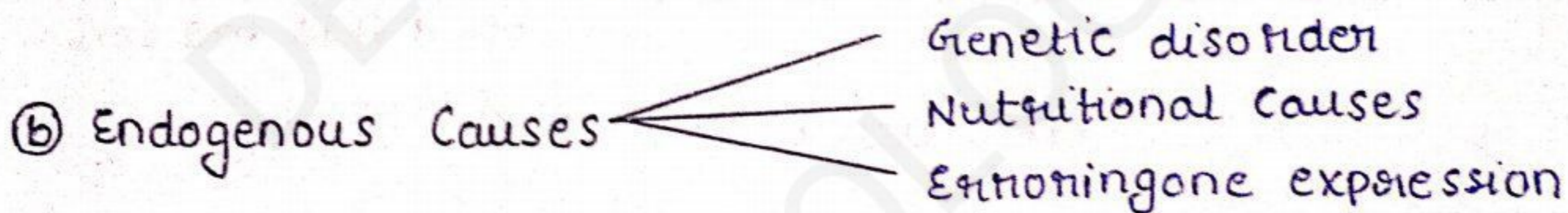
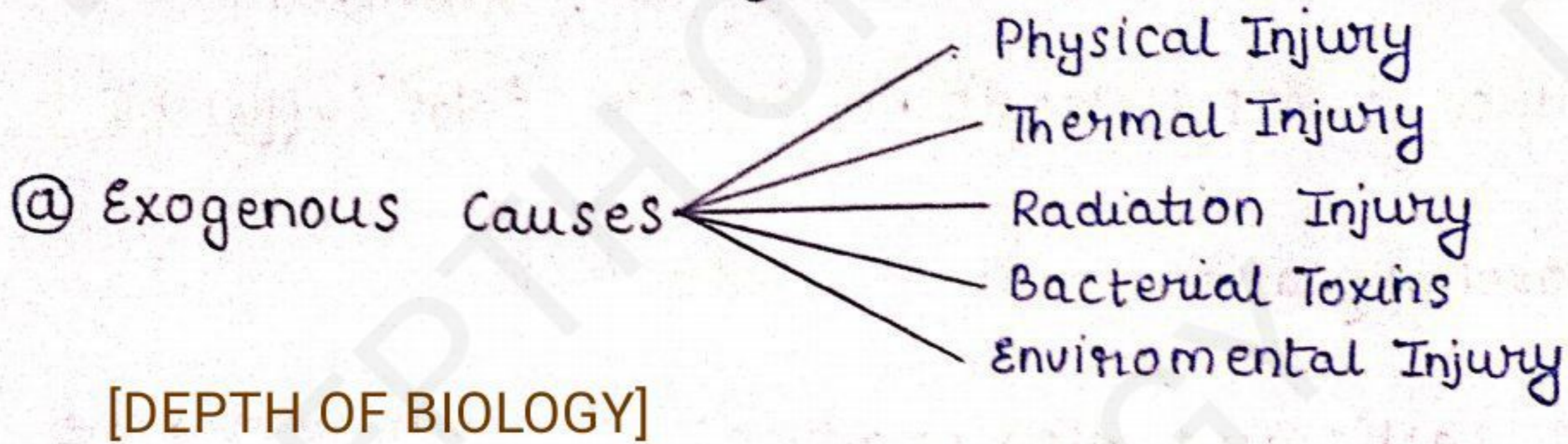


Cell Injury → Cell suffer from stress and variety of changes.
[DEPTH OF BIOLOGY]

* Causes for Cell Injury :-



The most relevant causes of cell injury are Hypoxia.

↓



[DEPTH OF BIOLOGY]

So without ATP, it stops pumping sodium back out and Na diffuses in and keeps defusing.

↓
Now Cell swell up

Now Villi surface area absorbed rate ↓

↘ Cytoskeleton change

[DEPTH OF BIOLOGY]

Finally the ER also swell when the cell swell

↓

Ribosome remove from ER

↓

Protein Synthesis (↓)

[DEPTH OF BIOLOGY]

⇒ Now Anaerobic Glycolysis take place } Backup ATP Generator
(Only produce 2 ATP molecule per Glucose. } Not sufficient

oxidative Phosphorylation → 30 - 36 ATP

* Byproduct lactic acid also produce → which lowers the pH inside the cell

[DEPTH OF BIOLOGY]

This acidic enviro ←

-onment denature or essentially destroy protein & enzyme.

⇓

But It's not all bad because one super important thing about this is reversible process. If we get sudden potentially.

Oxygen again → & start making ATP these changes

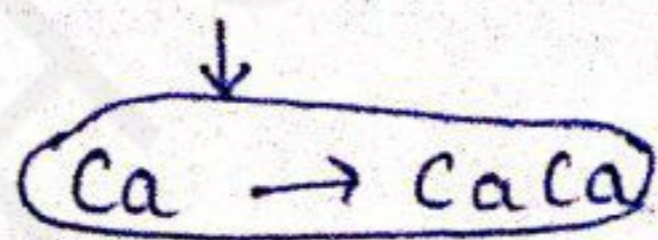
are not.

[DEPTH OF BIOLOGY]

But after long time Irreversible damage can happen in cell.

Inhibit too much

Here Ca pump also which ↑ getting Ca in the cell.



[DEPTH OF BIOLOGY]

and if these channel stop

↓
Ca build up inside the cell which is not a great thing.

↓
Ca can activate certain enzyme that you might not necessarily

want to activate.

[DEPTH OF BIOLOGY]

• Like protease that can slice up proteins and damage the cell's cytoskeleton which make structural frame work of cell.

⇒ Also endonuclease activated which can cut up DNA the cell's genetic material.

[DEPTH OF BIOLOGY]

⇒ More lactic acid build up in the cell. It damage lysosomal membrane.

↳ which usually houses these hydrolytic enzyme.

↓

Now when they release in cell, they basically digest

cell from inside.

⇒ finally the phospholipase enzyme which basically

[DEPTH OF BIOLOGY]

split phospholipids, gets activated. Since the cell membrane made up of phospholipid.

[DEPTH OF BIOLOGY]

Now cell membrane start damaging.



Now all the cell membrane enzyme release into blood.

Ca can get into Mitochondria



Causing a Ca Scale that leads the mitochondrial

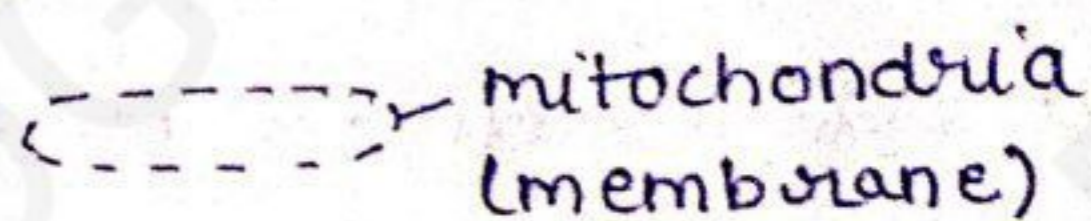
membrane to be more permeable for small molecule.



Now Cytochrome C



To leak out In cytosol



[DEPTH OF BIOLOGY]

↳ Now Activation of Apoptosis



This is a bit like cellular suicide ← Program cell death



This all happen because lack of oxygen / Hypoxia.

[DEPTH OF BIOLOGY]