

RAS SYSTEM.

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Blood Pressure \rightarrow It is the pressure exerted by blood on the wall of Artery.

[DEPTH OF BIOLOGY]

Normal Blood Pressure $120/80$ mmHg.

Here 120 is Systolic & 80 is Diastolic B.P.

Our Cardiac Output is 5 Litre Per minute.

\Downarrow
1 L blood goes to kidney per minute.

In 1 Litre blood $\left\{ \begin{array}{l} 60\% \text{ Plasma} \\ 40\% \text{ Solid.} \end{array} \right.$

\Downarrow
& 120 ml goes to DCT. [DEPTH OF BIOLOGY]

\rightarrow Our kidney filter ~~the~~ the Blood.

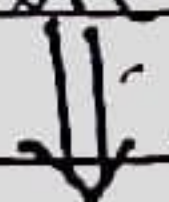
\rightarrow Kidney is made up of 1.2 millions (Each kidney) nephron

If the B.P. is \downarrow due to any reason in body. Then body manage the B.P. by RAS mechanism. It the eg. of Ove Homeostasis.

Each Nephron is capable to ^{measure} maintain our B.P.

\Downarrow
When 120 ml ^{Blood} goes to nephron (per minute). Now 65% Na^+ absorbed in PCT. [DEPTH OF BIOLOGY]

~~When BP is High~~ Now DCT lose their cell size & form dense cell. So DCT cells are called Macula Densa.



Macula Densa measure Na^+ conc. So known as Chemoreceptor

[DEPTH OF BIOLOGY]



In nearby DCT cells the blood vessel have special type of cells known as Palken's cells. This cell lose their size & contain a special type of receptor which measure the blood pressure known as baroreceptor.



Both Palken's cells & Macula Densa are connect with connective tissue.

J-G apparatus (BOP apparatus) is made up of Palken cells + connective tissue + Macula Densa

[DEPTH OF BIOLOGY]



Now this BOP apparatus detect the change in BOP & when BOP is High this apparatus release a hormone called Renin.

[DEPTH OF BIOLOGY]



Renin goes into blood & through blood it goes in liver & in liver Angiotensinogen protein is first so it convert Renin into Angiotensin-I

& this An-I goes into lungs & in lungs ACE is found (Angiotensin converting enzyme) it is first in blood vessel which covers the alveoli

[DEPTH OF BIOLOGY]

Now this Angiotensin converting enzyme convert Angiotensin I into Angiotensin II

↓
& Now this Angiotensin II ~~converts~~ is a powerful vasoconstrictor

↓
It ↑ the Blood Pressure. [DEPTH OF BIOLOGY]

This all mechanism is known as RAS Mechanism / Renin Angiotensinogen mechanism.