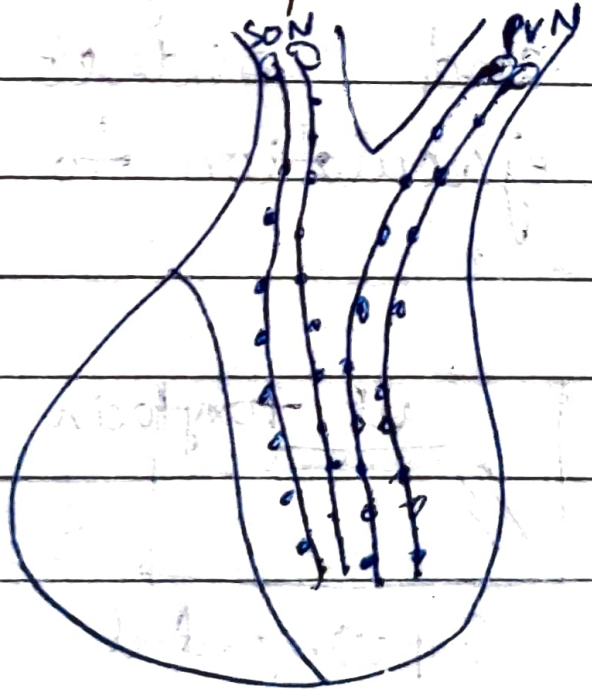
Ant - pituitary

Neurohypophysial octapeptides:

Magnocellular neuron — SON – ADH
PVN – Oxytocin

Oxytocin and Vasopressin = octapeptides.

↑ Ejection of milk.

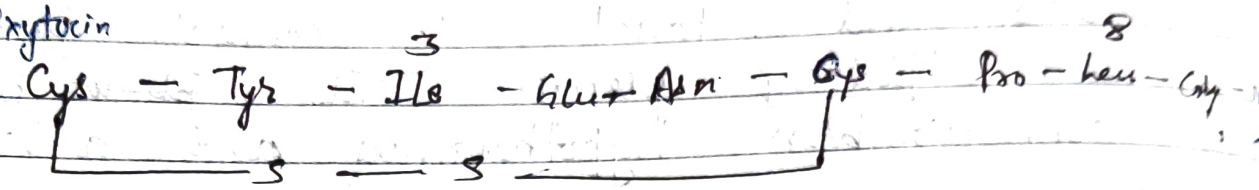


In male
↓ during coupulation
OT act on muscles of vas deferens.

Oxytocin will bind to oxyphysin
Vasopressin " " " pressophysin } collectively called neurophysin

Vasopressin

Oxytocin



— Oxytocin and vasopressin is produced by SON and PVN.

— PVN predominantly involved in prod^n. of oxytocin
SON " " " " " vasopressin.

→ Biological activity of oxytocin-

(I) In male-

① Testis — Epididymis — Vase deference — S. tubule
These are some muscles in epididymis and vas deferens which continuously contract and relax and propels semen (along with sperm) outside. This muscular activity is facilitated by oxytocin.

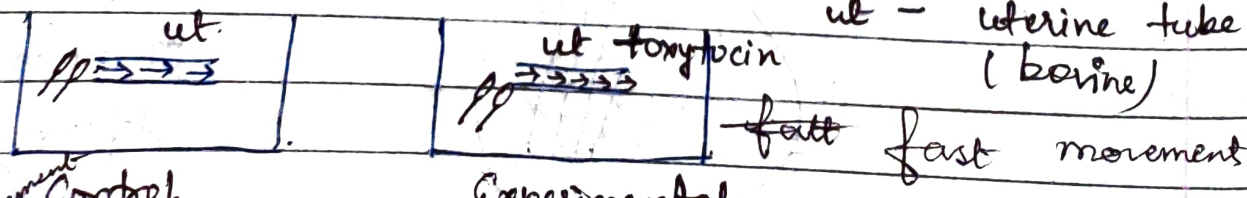
② * It also help in defaecation in both male and female.

③ * For penile erection.

(II) In female -

I. Facilitate ascent of spermatozoans in ♀ genital tract (uterus and oviduct). Oxytocin act on muscles of uterus and oviduct and transport sperm from site of ejaculation to site of fertilisation

effect.



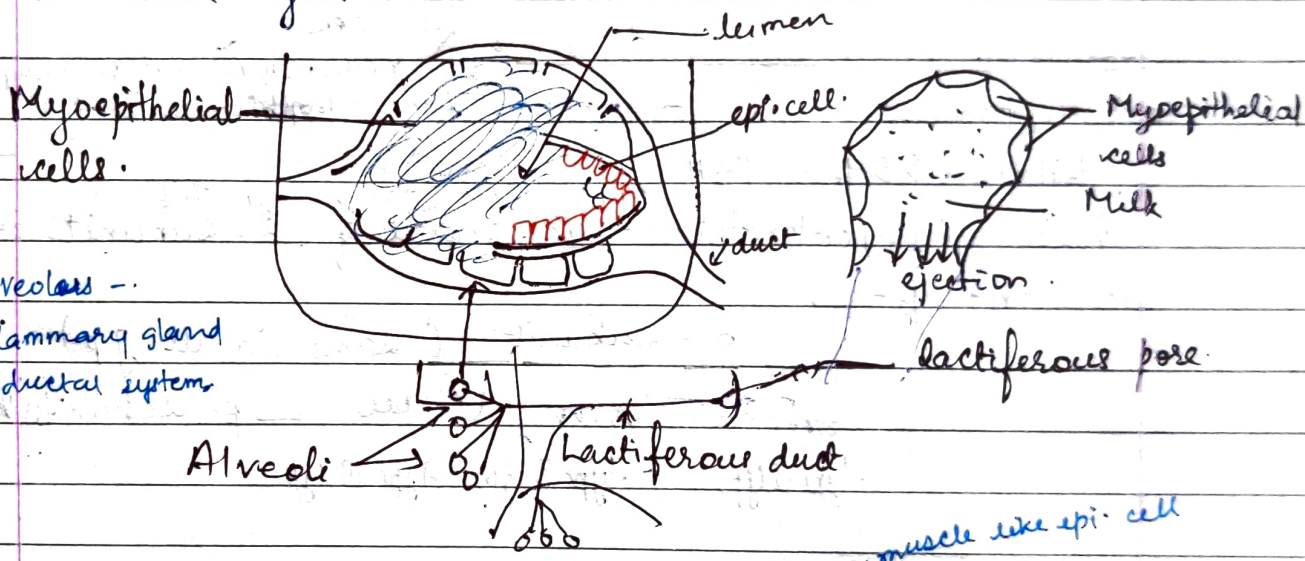
movement will be faster in med. containing oxytocin.

II Role of oxytocin in parturition -
Uterus is double layered i.e. myometrium and endometrium.

(Estrogen conc. ↑es and it will ↑ the OT receptor on uterine wall.)

Sensitivity of uterus ~~is~~ ↑es towards oxytocin at the time of parturition. It becomes possible as no. of receptors for oxytocin will ↑se. It lead to uterine contraction and cervix dilation. Also control post partum bleeding.

III In milk ejection -



B' Alveolus - Mammary gland ductal system

- Oxytocin will act on myoepithelial cells (muscle like epi. cell) in mammalian alveoli of mammary gland. It created intra mammary pressure which lead to ejection of milk.

* Prolactin (hypothalamus → ant. pituitary) is one which responsible for synthesis of milk but not ejection, ejection comes from oxytocin (post. pituitary)

→ Biological activity of vasopressin (ADH) -

- Main function - Regulation of water balance.

Mechanism of action -

ADH act on distal portion of tubule & collecting duct and renal tubule.

Once ADH act on epithelial cells, their permeability ↑es. More of water will be absorbed.

There are the proteins called aquaporins help in antidiuresis which are synthesized as result of ADH action.

- In cat / dog / monkey, ADH come from hypothalamic nuclei, if these nuclei are destroyed, then there will be shortage of ADH and it will cause the disease diabetes insipidus (excretion of large volume and dilute urine).

Polydipsia - Tendency to drink more water.