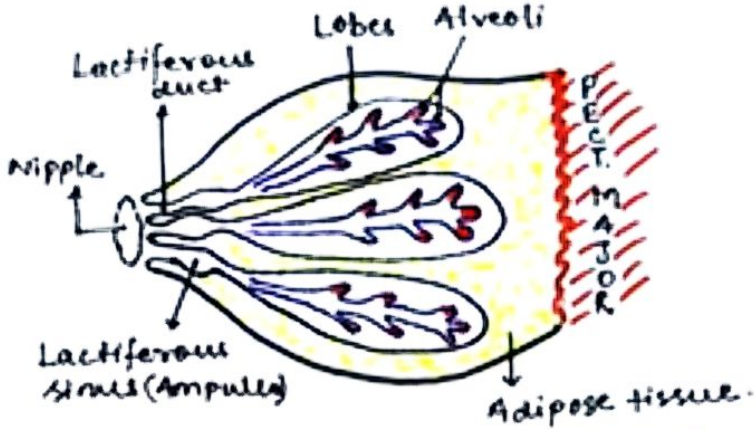
BREAST DEVELOPMENT :-



ESTROGEN

- Stimulates growth & branching of ductal system of breast
- Also helps in growth of
  - stroma of breast
  - fat of breast
- These developments are generally assisted by :- GH
  PRL
  Adrenal corticoids
  Insulin

PROGESTERONE

(P) + (E)

Acts synergistically

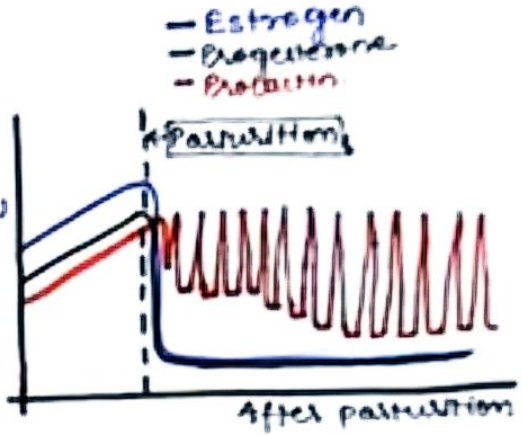
- Growth of lobes & lobules of breast
- Budding & development of alveoli & secretory nature of cells in alveoli.

MILK FORMATION AND SECRETION

(E) & (P) → (+) PHYSICAL DEV. OF BREAST
(E) & (P) → (−) ACTUAL SECRETION OF MILK

PROLACTIN → (+) MILK SECRETION & MILK PRODUCTION (LACTOGENIC EFFECT)

hCS (human Chorionic Somatomammotropin) → (+) MILK SECRETION & MILK PRODUCTION



Before Parturition

⇒ (E)↑ , (P)↑
∴ INHIBITION of actual secretion of milk.
⇒ Only few ml of fluid is secreted each day until baby is born.

After Parturition

⇒ (E)↓ , (P)↓
∴ INHIBITION ceases
⇒ Prolactin shows its lactogenic effect
⇓
Milk secretion occurs

Assisted by:-
- GH
- cortisol
- PTH
- Insulin

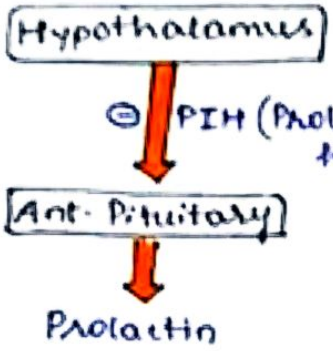
} AA, Glue, FA, Ca^{++} are provided to milk.

Fluid secretion during:-

last few days
first few days
of parturition ⇒ **Colostrum**

- Conc. of Protein, Lactose are same as milk.
- Fat is absent.

#



Hypothalamus

- → Mainly stimulates production of all other hormones
- But
- → Mainly inhibits production of prolactin

Nursing months

↓ secretion of GnRH from hypothalamus → ↓ secretion of LH & FSH from ant. pituitary → Ovarian cycle dont operate.

When nursing stops (After few weeks)

↑ secretion of GnRH from hypothalamus → ↑ secretion of LH & FSH from ant. pituitary → Ovarian cycle continue.

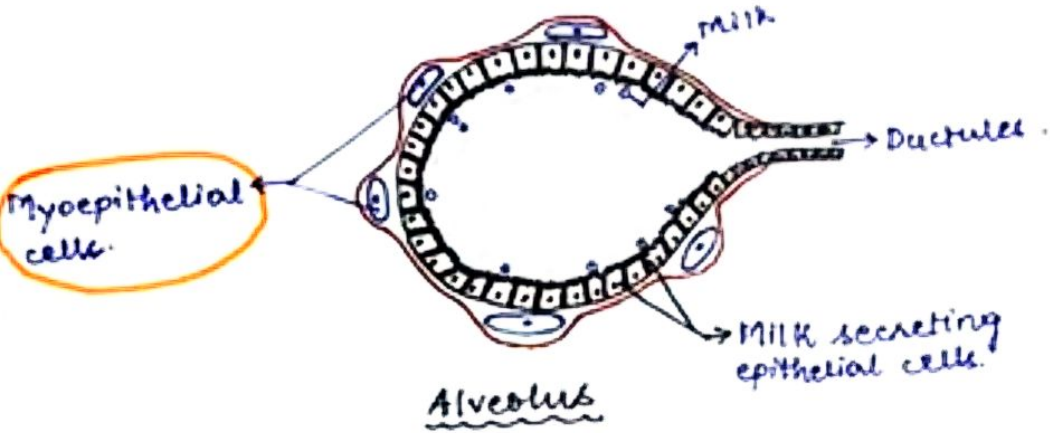
MILK EJECTION/LETDOWN OF MILK

Milk is secreted continuously into alveoli

Ductal system ⇒ Milk doesnot easily flow from alveoli to ductal system.

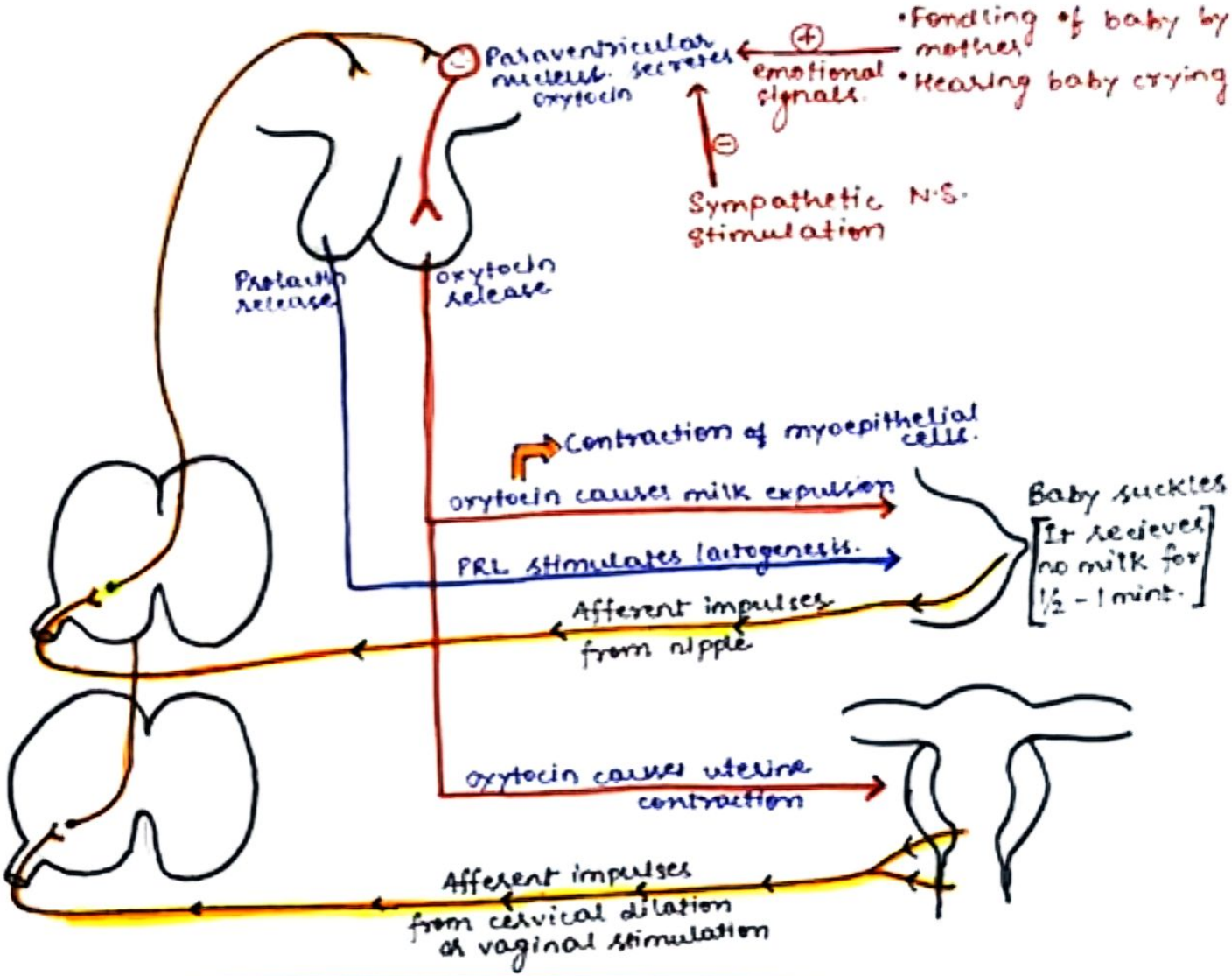
⇓

To prevent continuous leakage.



Alveolus

Contraction of myoepithelial cells causes milk to enter ducts from alveoli


Paraventricular nucleus secretes oxytocin
+
emotional signals
• Fondling of baby by mother
• Hearing baby crying
−
Sympathetic N.S. stimulation
Prolactin release
oxytocin release
Contraction of myoepithelial cells.
oxytocin causes milk expulsion
PRL stimulates lactogenesis.
Afferent impulses from nipple
Baby suckles
[It recieves no milk for ½ - 1 mint.]
oxytocin causes uterine contraction
Afferent impulses from cervical dilation or vaginal stimulation