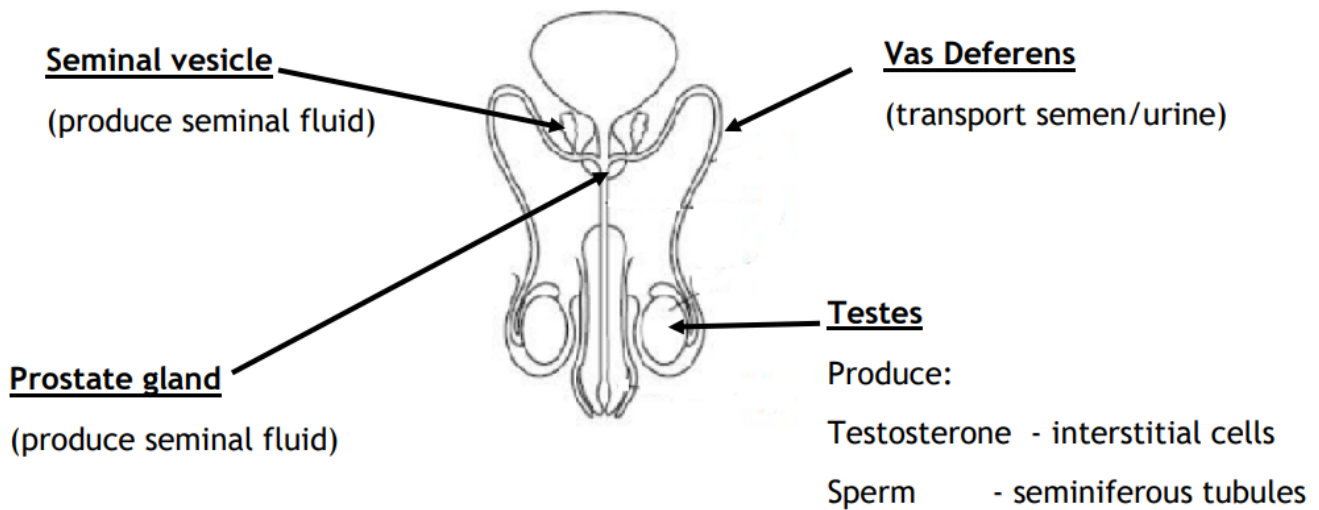
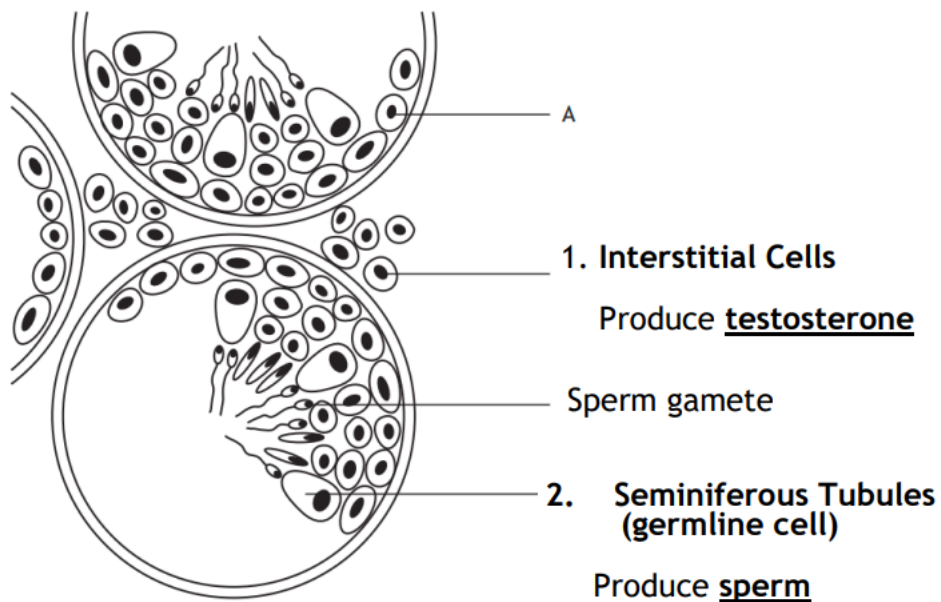


Gamete Production in the Testes

Male Reproductive System



Parts of the Testes



Other Male reproductive parts

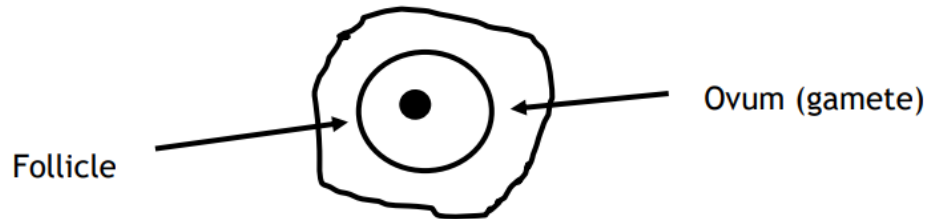
Prostate gland/Seminal vesicles

Secrete Seminal fluid that maintains the mobility & viability of the sperm.

Gamete Production in the Ovaries

Ovaries (germline cell)

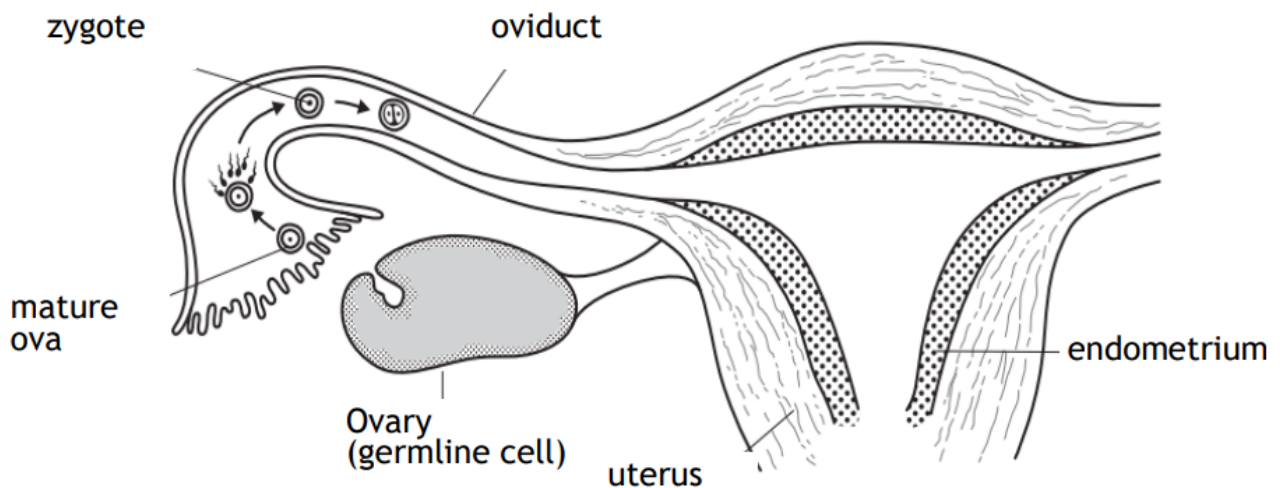
Contain immature ova in various stages of development.



1. Protects the developing ovum
2. secretes hormones (oestrogen)

Fertilisation

Mature ova are released into the oviduct where they may be fertilised by sperm, forming a zygote.



Hormonal influence on Puberty

1. Hormonal Influence on Puberty

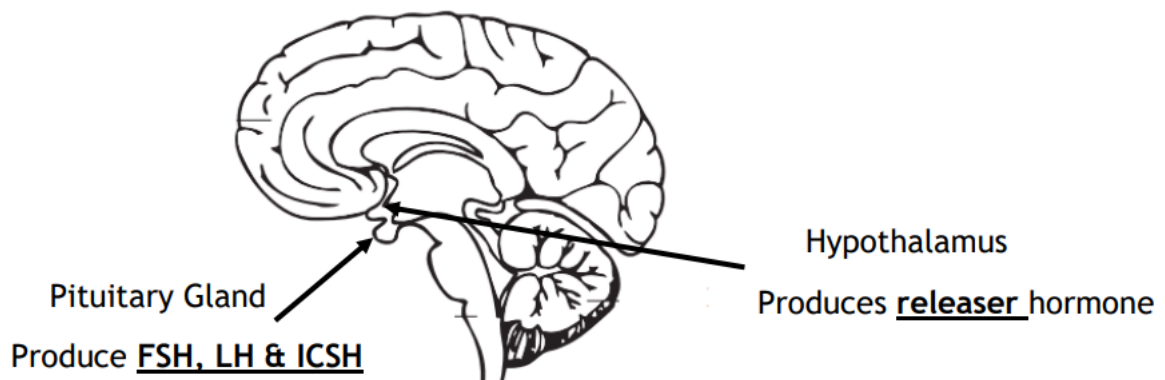
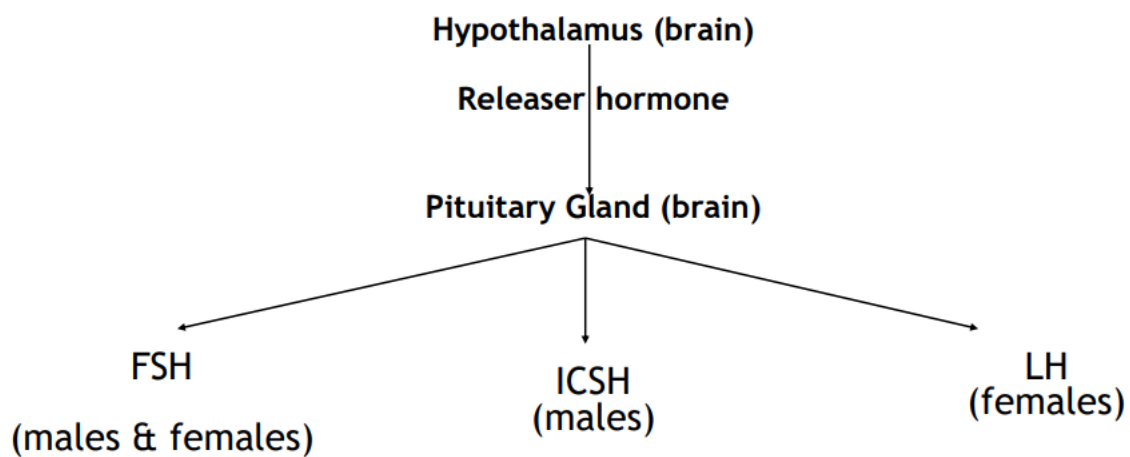
Hypothalamus (brain)

Produces a releaser hormone that acts on the pituitary gland.

Pituitary gland (brain)

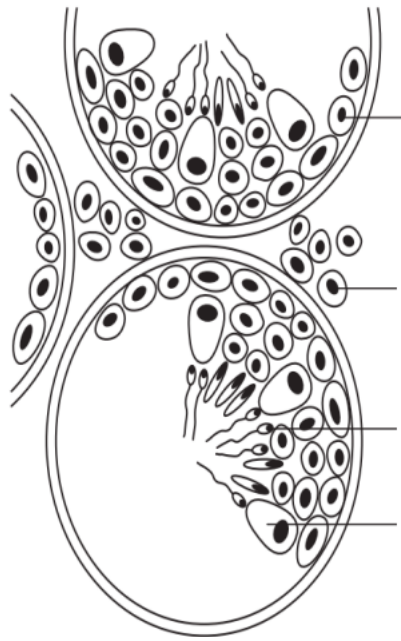
Releases FSH, LH & ICSH in response to the releaser hormone.

This triggers the onset of puberty.



Hormonal influence on Sperm production

Parts of the Testes



1. Seminiferous Tubules (germline cell)

FSH stimulates sperm production.

2. Interstitial Cells

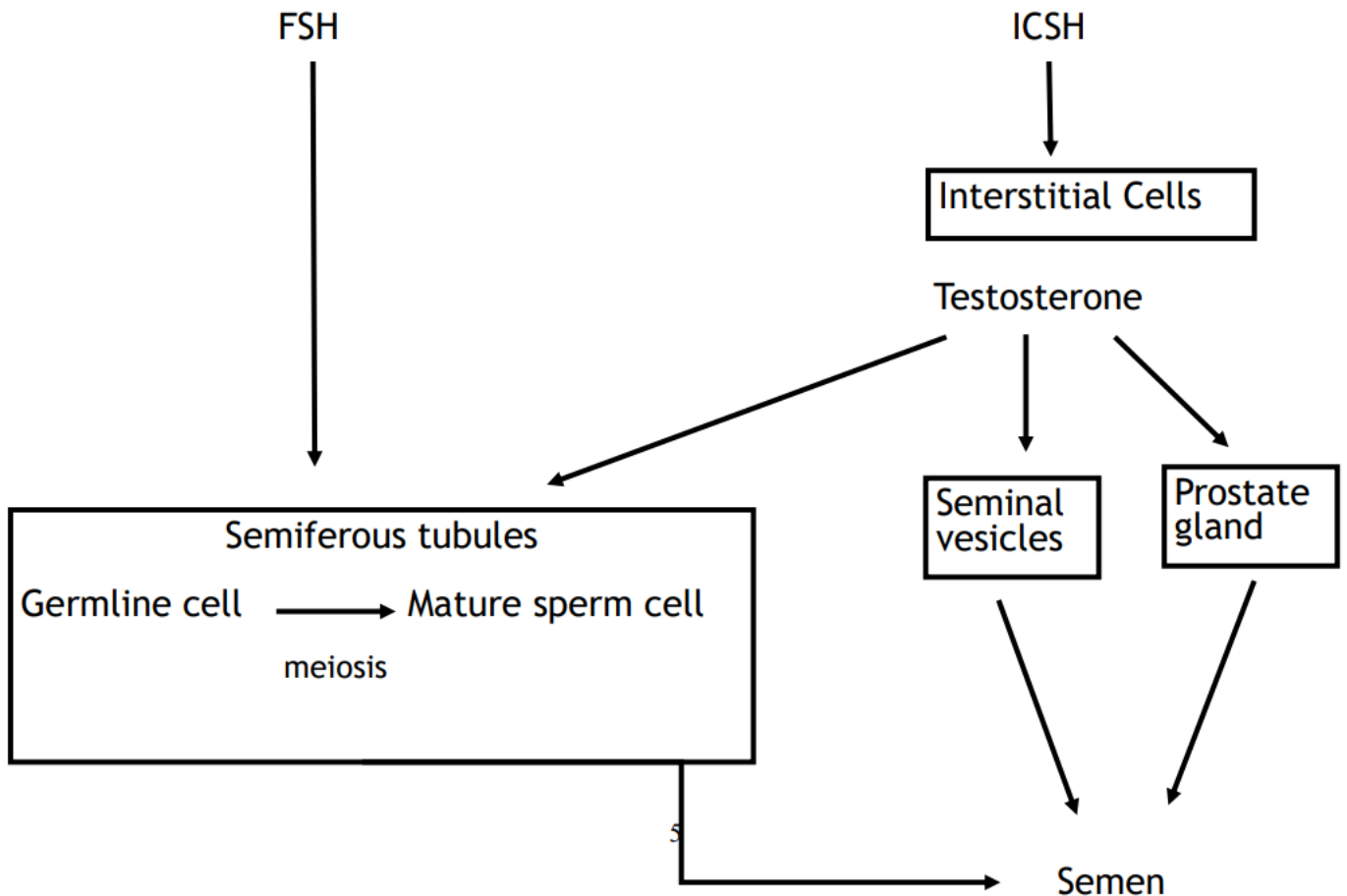
ICSH stimulates testosterone production

Testosterone

1. Stimulates sperm production

2. Activates prostate gland & seminal vesicles

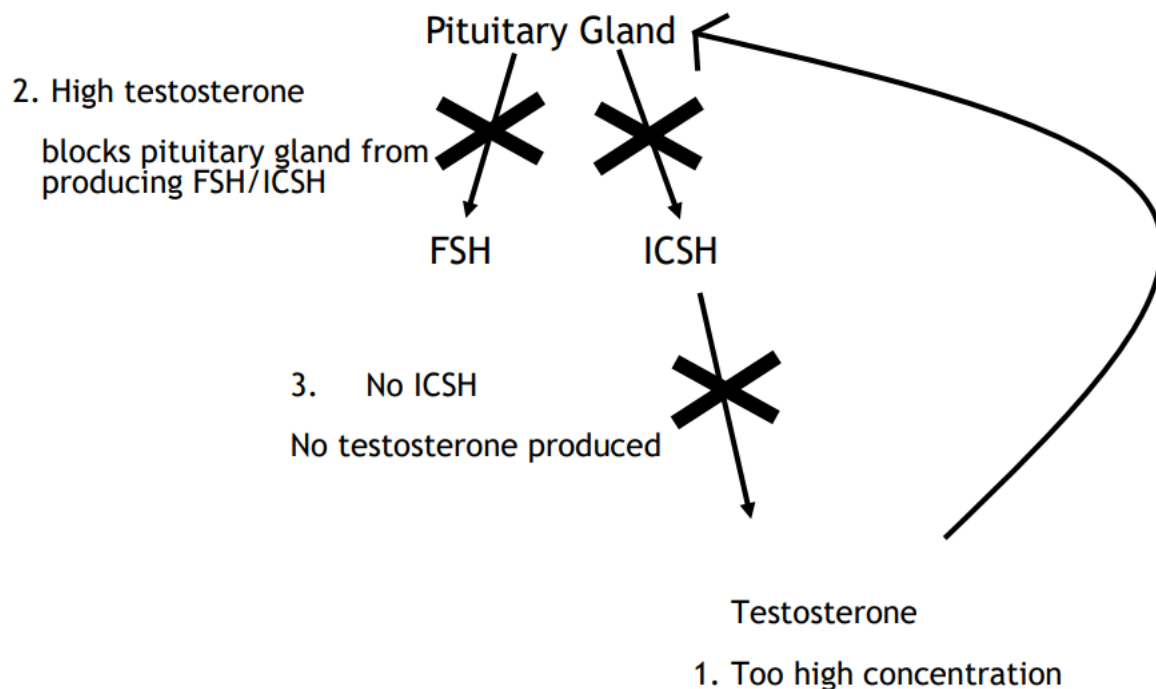
Summary Diagram of male hormones



Hormonal influence on Sperm production

Negative Feedback by Testosterone

1. Testosterone reaches a critically high concentration
2. It feeds back to the pituitary gland and inhibits the secretion of FSH & ICSH
3. Preventing further testosterone being producing, decreasing testosterone concentration



Hormonal influence

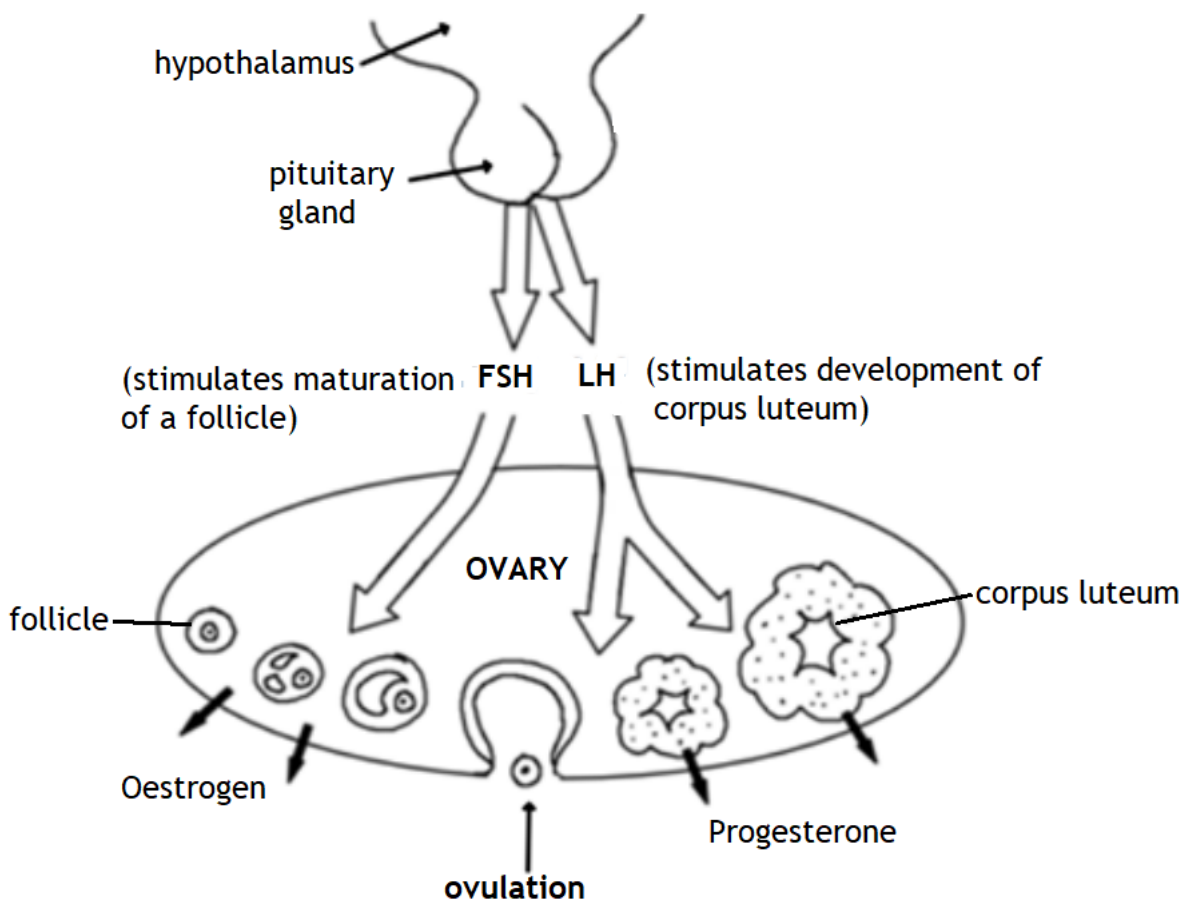
Four hormones control the menstrual cycle

Two Pituitary Gland hormones

1. FSH Stimulates development of follicle around ova in ovaries
2. LH Causes ovulation in ovaries
Stimulates development of corpus luteum.

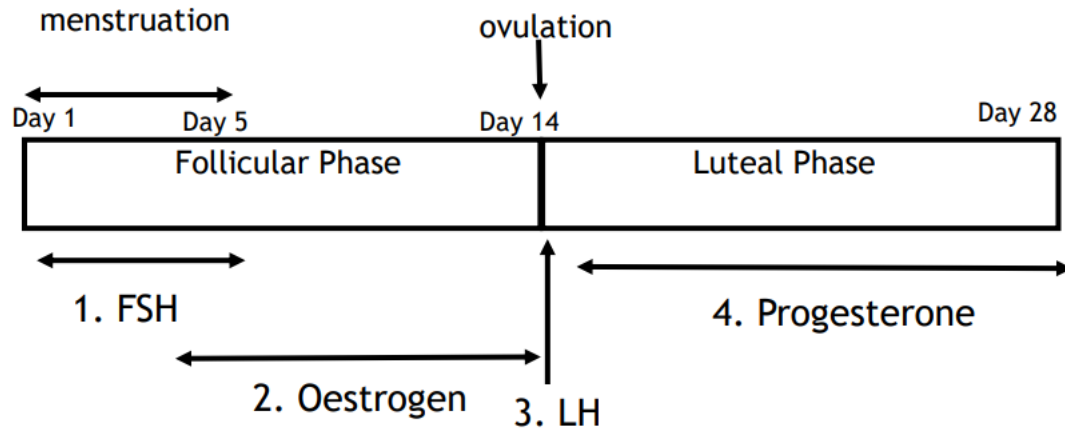
Two Ovarian Hormones

1. Oestrogen Proliferation of endometrium
Thins cervical mucus
Causes LH surge
2. Progesterone Further development/vascularisation of endometrium



Hormonal influence

Hormones in the menstrual cycle (~28 days)



Follicular Phase

1. FSH

Stimulate the development of a follicle. Causes oestrogen to be produced from follicle.

2. Oestrogen

1. Stimulates proliferation of the endometrium in preparation for implantation of fertilised egg.
2. Affects the consistency of cervical mucus making it more easily penetrated by sperm.
3. Peak oestrogen levels stimulate surge in LH secretion by pituitary.

3. LH

Triggers ovulation; the release of an egg (ovum) from a follicle in the ovary.

Causes corpus luteum to start producing progesterone.

Luteal Phase

4. Progesterone

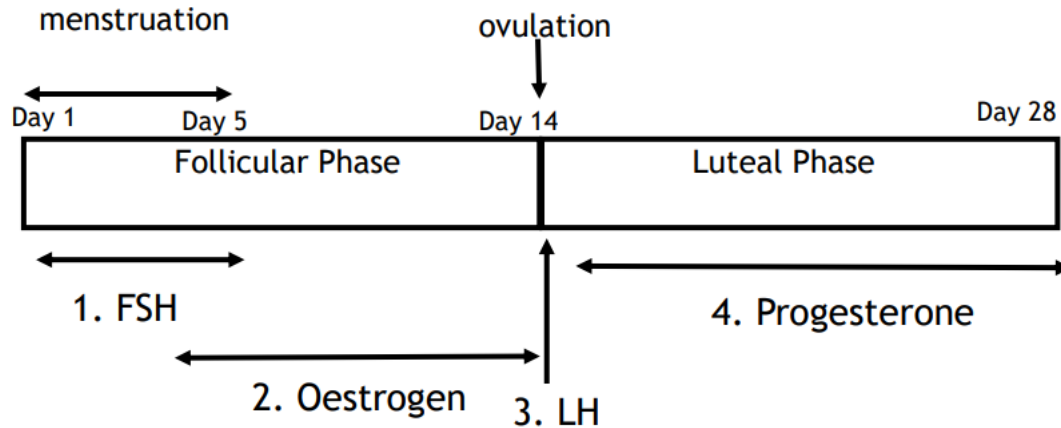
Further development/vascularisation of the endometrium in preparation for implantation of fertilised egg.

High levels of oestrogen/progesterone in luteal phase inhibit the pituitary gland from producing FSH and LH by negative feedback.

This prevent further follicles from developing

Hormonal influence

Hormones in the menstrual cycle (~28 days)



Day 1-5:

The menstrual period of the follicular phase where part of the endometrium is shed from the uterus.

Primary follicles begin to develop by release of FSH from pituitary

Day 5-13:

Follicular stage—where the follicle matures.

Increase in oestrogen causes proliferation of endometrium and thinning of cervical mucus leading to an LH surge.

Day 14: Ovulation; release of an egg (ovum) from a follicle in the ovary.

Day 15-28:

Luteal phase.

The follicle develops into a corpus luteum which secretes progesterone.

Increase in progesterone results in further vascularisation of the endometrium. ready for implantation.

No fertilisation

Corpus luteum degenerates and progesterone levels fall.

Fertilisation

The corpus luteum does not degenerate & progesterone levels remain high.

Female Hormone summary

Following ovulation and release on an egg by LH the follicle is now a corpus luteum releasing progesterone

No pregnancy

At the end of the luteal phase, the corpus luteum breaks down and progesterone levels

Fall triggering menstruation and the start of a new cycle.

Pregnancy

At the end of the luteal phase, the corpus luteum DOES NOT break down and progesterone levels remain high and menstruation DOES NOT occur.

Hormone	Phase of Menstruation	Produced	Target
FSH	Follicular	Pituitary gland	Ovaries
Oestrogen	Follicular	Follicle of ovum in ovaries	Endometrium Cervix Pituitary gland
LH	Ovulation	Pituitary gland	Ovaries
Progesterone	Luteal	Corpus luteum	Endometrium

Hormone Summary

Female Hormone Summary

Hormone	Production Gland	Target Gland	Effect
Releaser	Hypothalamus	Pituitary	Releases FSH & ICSH (triggers puberty)
FSH	Pituitary	Ovaries	Promotes development & maturation of follicle. Stimulates ovary to release oestrogen
LH	Pituitary	Ovaries	Triggers ovulation Stimulates development of corpus luteum & release of progesterone
Oestrogen	Ovary (follicle)	Uterus & Pituitary	Stimulates cell division of endometrium Regulates cervical mucus viscosity Stimulates LH secretion by pituitary
Progesterone	Ovary (corpus luteum)	Uterus & Pituitary	Promotes development of endometrium (preparing it for blastocyst implantation) Inhibits secretion of FSH & LH.

Male Hormone Summary

Hormone	Production Gland	Target Gland	Effect
Releaser	Hypothalamus	Pituitary	Releases FSH & ICSH (triggers puberty)
FSH	Pituitary	Testicle	Promotes sperm production in seminiferous tubules
ICSH	Pituitary	Testicle	Promotes testosterone production in interstitial cells
Testosterone	Interstitial Cells	Testicle & Pituitary	Promotes sperm production in seminiferous tubules. Activates prostate gland & seminal vesicles to produce secretions. Has inhibitory effect in release of FSH & ICSH from the pituitary gland.