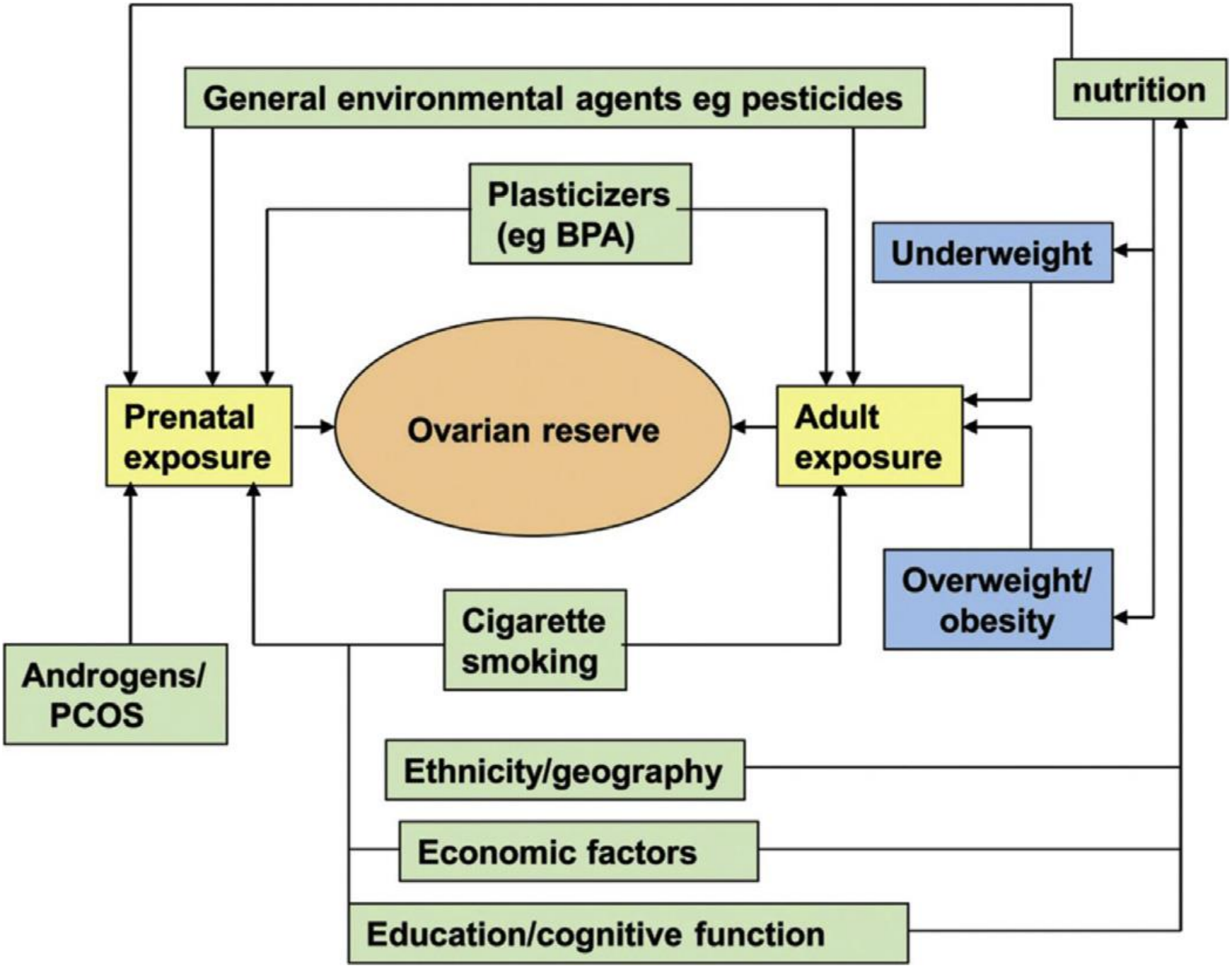
FEMALE REPRODUCTION SYSTEM

OOGENESIS

DEVELOPMENT:		6-8 weeks	GERMINAL EPITH.
hormonally independent		OOGONIA mitotic division	**FOLLICLE** PRIMORDIAL
	24 weeks	OOCYTES I.	7×10^6
		1. meiosis	
	birth	prophase	2×10^6
hormonally dependent (cyclic)	**puberty**	OOCYTES II. haploid 2. meiosis metaphase OVUM	3×10^5 DOMINANT ATRETIC GRAAF **OVULATION**
		2. meiosis – end	
	climacterical		0



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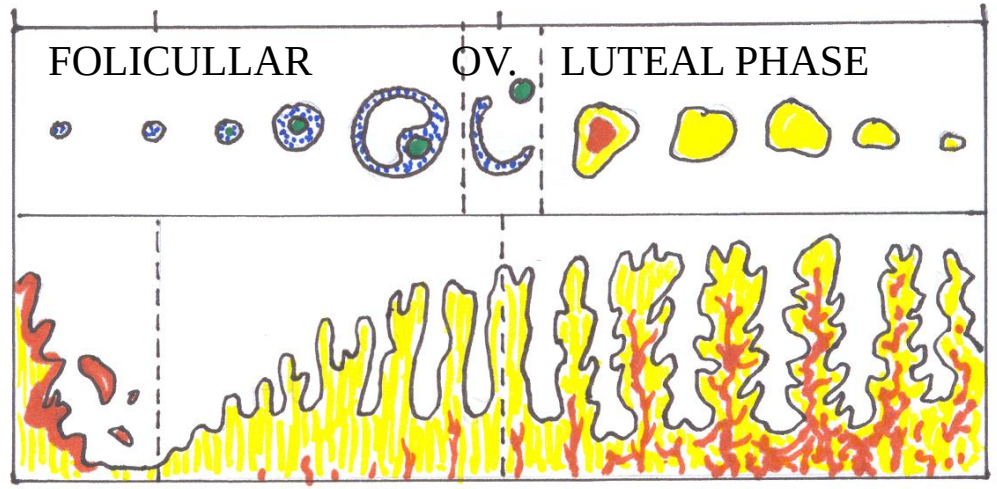
UTERINE CYCLE

ovarian

uterine



0 4 14 28

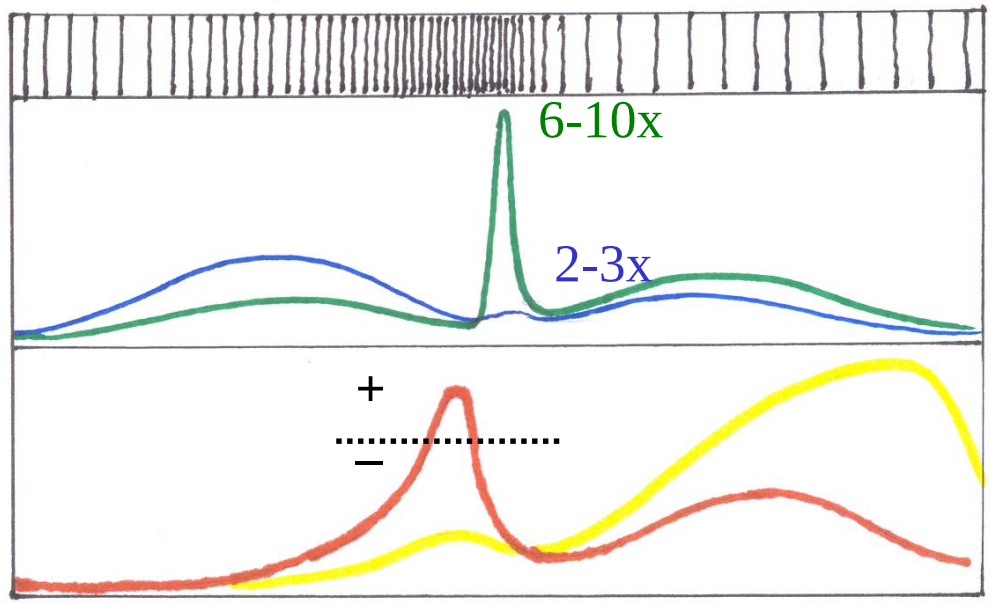
MENS. PROLIPHER. SECRETORY PHASE

gonadoliberin (GnRH)

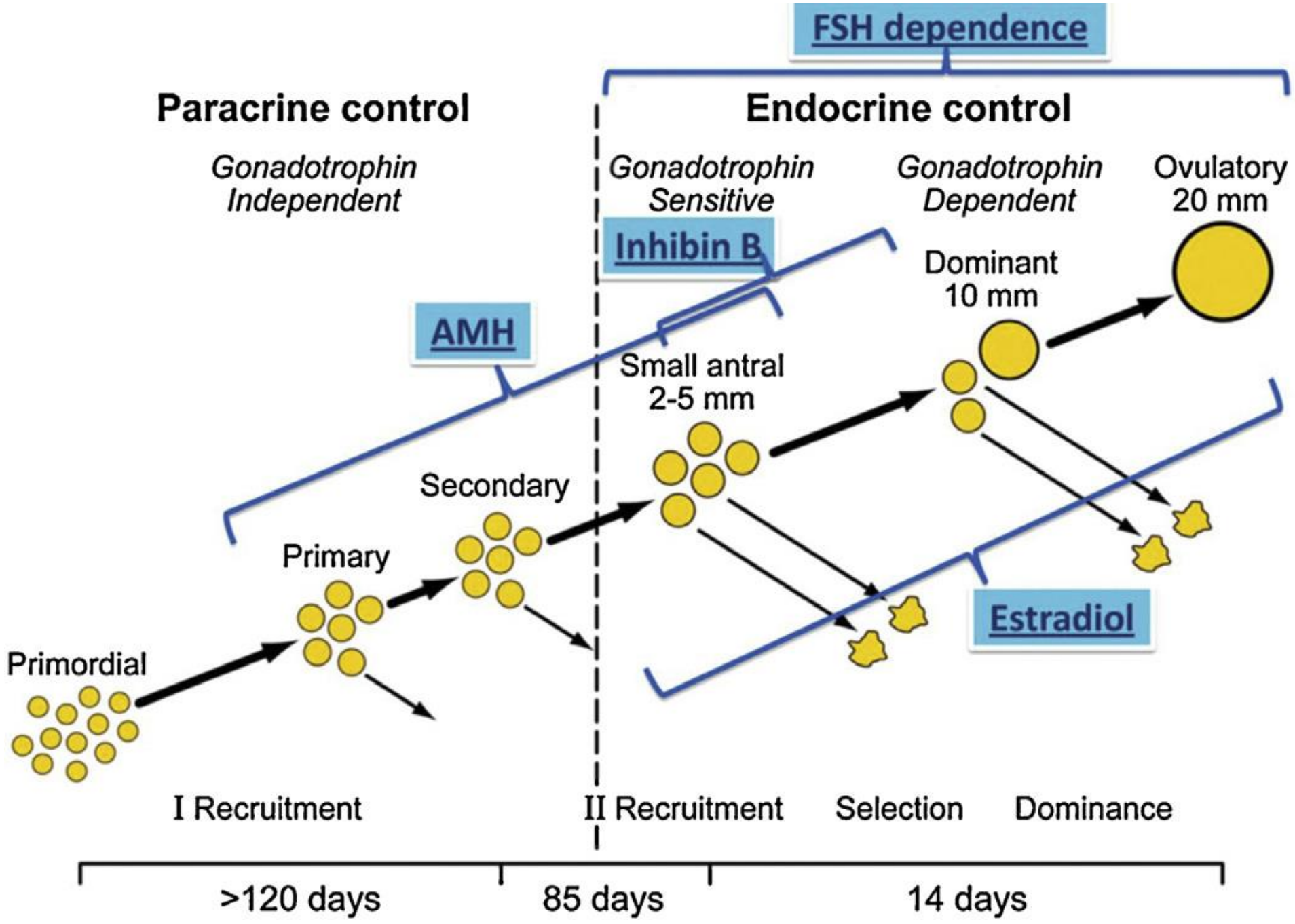
FSH, LH

estradiol

progesteron



basal temper.



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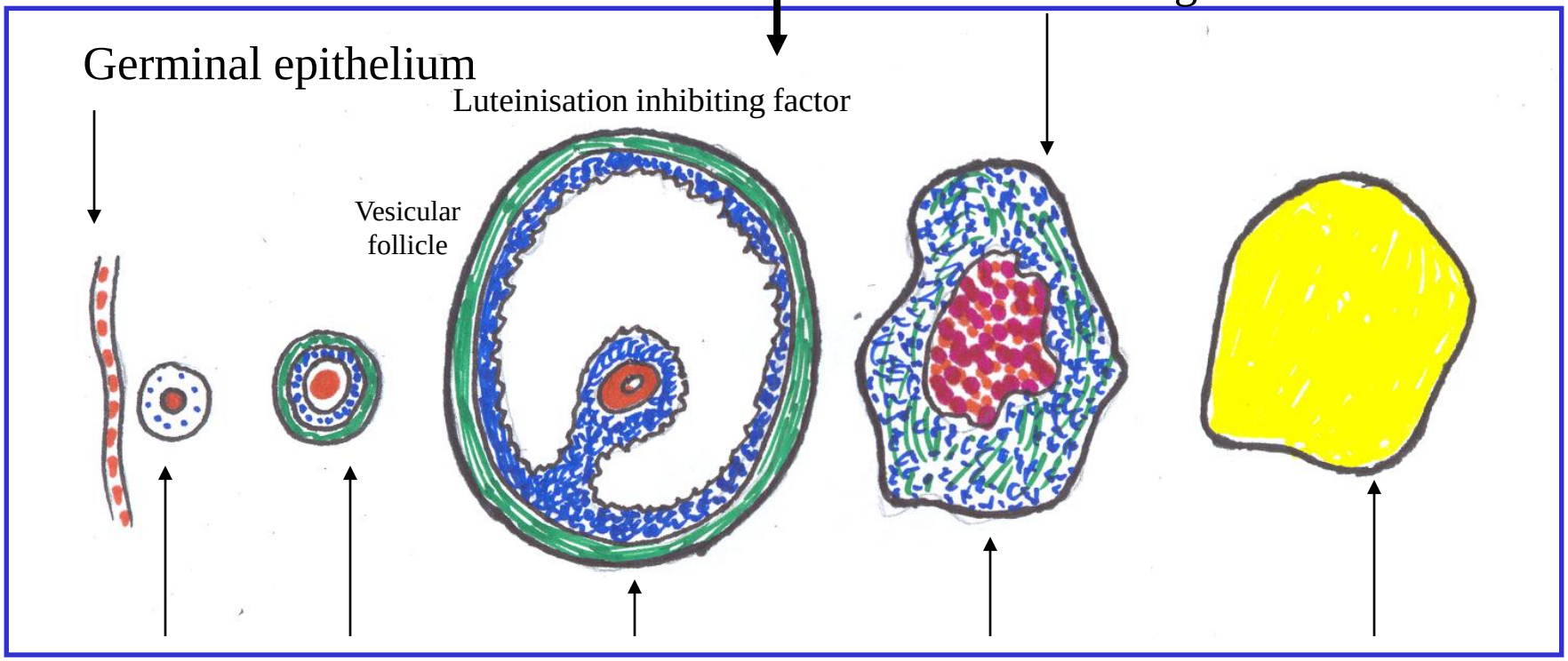
OVARIAL CYCLE

OVULATION

Oocyte-maturation inhibiting factor

methrorhagia



Primordial | Primary follicle | Graaf | Corpus haemorrhagicum | C. luteum

25µ | 150µ | up to 2 cm

estradiol (estrogens)

progesteron (progestins)

VESICULAR FOLLICLE

PRIMARY FOLLICLE - FSH

Growth acceleration of primary follicle – change into vesicular follicle:

1) estrogens released into follicle stimulate granul. cells

↓

increased number of receptors for **FSH – POSITIVE FEEDBACK**
(higher sensitivity for FSH!!!)

2) Increased number of receptors for LH (estrogens and FSH) – another acceleration of growth due to „higher sensitivity“ to LH

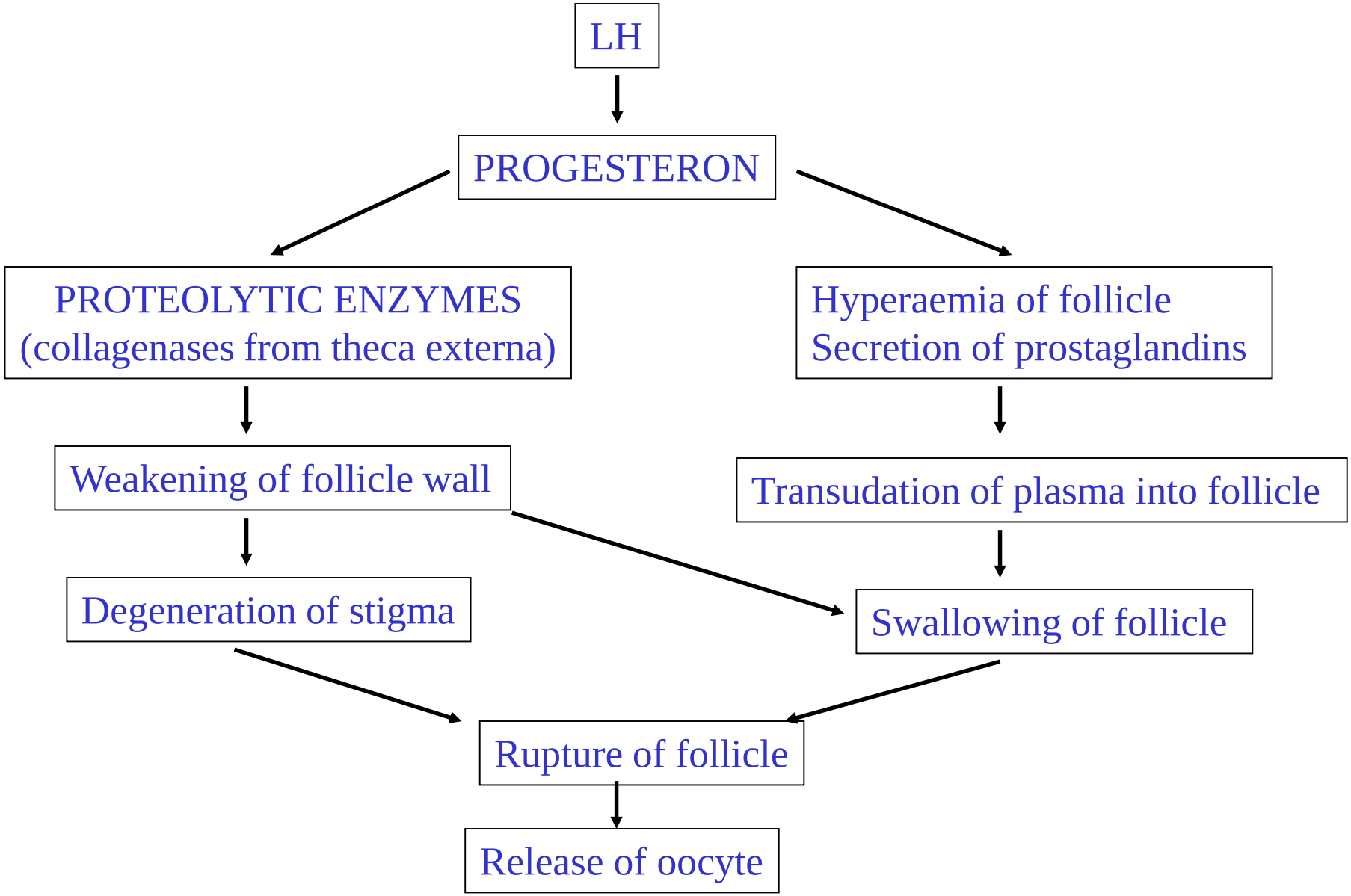
3) Increased estrogens and LH secretion accelerates growth of theca cells, secretion is increased

→ explosive growth of follicle

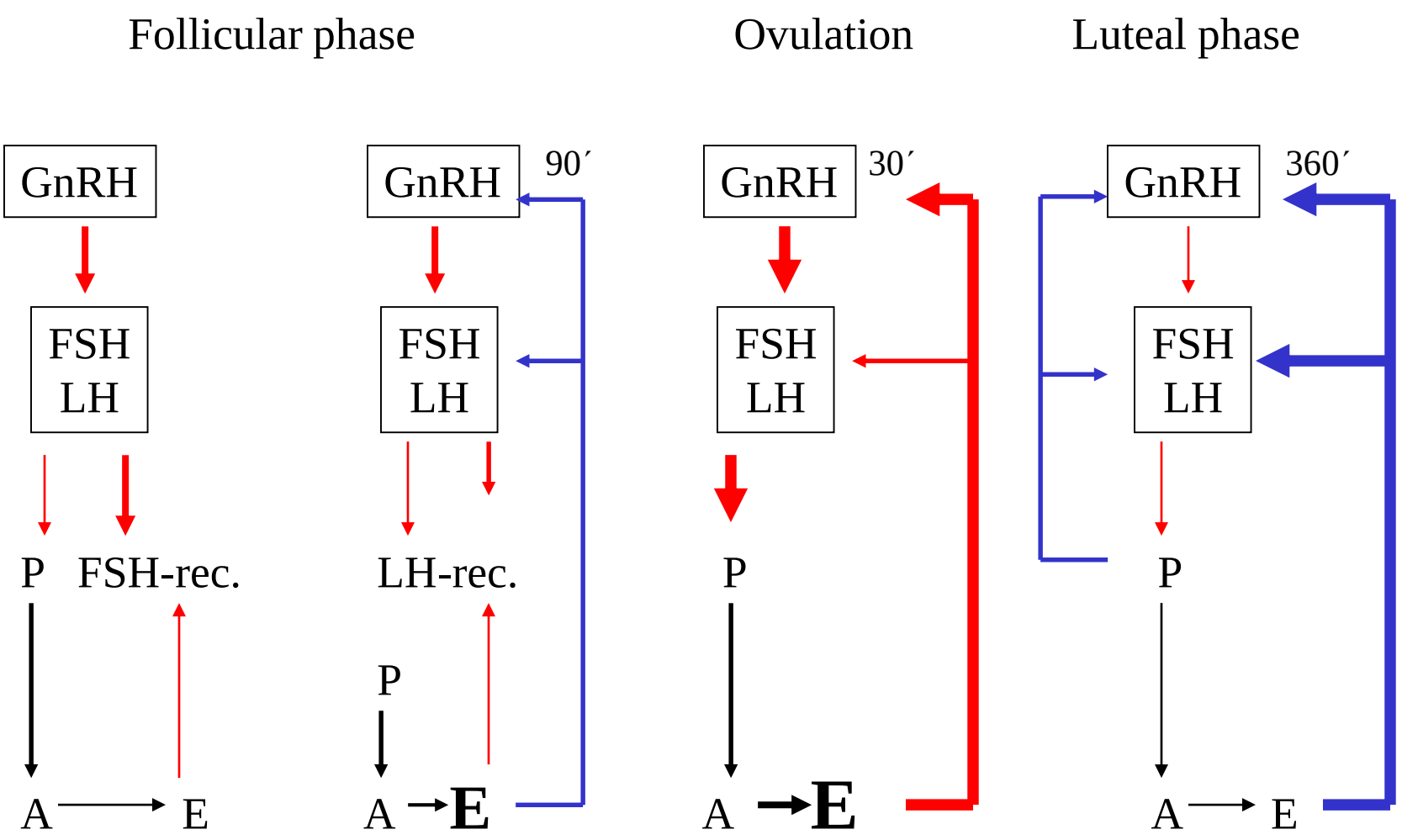
DOMINANT FOLLICLE

1. High level of estrogens from the fastest-growing follicle
2. Negative feedback on FSH production from adenohypophysis
3. Drop in FSH secretion
4. „Dominant follicle“ continues in growing due to intrinsic positive feedback
5. Other follicles grow slowly and subsequently become atretic

MECHANISM OF OVULATION



HUMOURAL REGULATION OF CYCLE



Artesia of follicle (except of one)

Feedback -/+

Involution of corpus luteum

EFFECTS OF OVARIAL HORMONES

	E	P
Ovaries:	**maturation of follicles**	
Hysterosalpinx:	motility	motility
Uterus:	proteosynthesis	proteosynthesis
	vascularisation and proliferation of endom.	**secretion of endom. glands**
	motility	glycogen
		motility
Cervix:	**colliquation of „plug“**	**creation of „plug“**
Vagina:	cornification of epithelium	proliferation of epithelium
Mamma:	growth of terminals	growth of acines

Secondary sexual signs	+	-
Adipose tissue:	store (predilection), (critical amount)	-
Bone tissue:	absorption	-
	closure of fissures	-
	development of pelvis	-
Total water retention:	+	+
Sexual behaviour:	+	-

ASSISTED REPRODUCTION TECHNIQUES

1. STIMULATION OF OOGENESIS (maturation of more follicles)
2. STIMULATION OF SPERMIOGENESIS (vit. E)
3. INSEMINATION (treated sperm, applied deeply into uterus)
4. IVF (in vitro fertilisation)

IVF PROCEDURES

1. STIMULATION OF OVARIES
2. TIMING OF TAKING THE OOCYTES
3. EXTRACORPOREAL FERTILISATION OF OOCYTES
4. EMBRYOTRANSFER AND MAINTAINANCE THERAPY

Ad 1) PROTOCOLS OF OVARIAL STIMULATION (short of long stimulation protocols)
Stimulation of ovaries –FSH and LH, 3. - 12. day of cycle, SOMETIMES combined with GnRH agonists or antagonists

Ad 2) TIMING OF TAKING THE OOCYTES
Between 12. and 17. days of cycle, US controlled, after stimulation of oocyte maturation by hCG, aspiration from follicular liquid in analgesia or anaesthesia

Ad 3) EXTRACORPOREAL FERTILISATION OF OOCYTES (cultivation of sperm and oocytes in vitro for 48 hrs; test of sperm surviving – min.40%; micromanipulation techniques – ICSI a AH = gentle rupture of zona pellucida; prolonged cultivation – up to 120 hrs)

Ad) EMBRYOTRANSFER (transfer of max. 3 embryos in stage of morula or blastula; genetic examinations) and MAINTENANCE THERAPY (progesterone)

CONTRACEPTION (BIRTH CONTROL)

- RHYTHM METHOD
- SPERMICIDE SUBSTANCES
- COITUS INTERRUPTUS
- CONDOM, PESSARY
- IUD
- HORMONAL CONTRACEPTIVES – risk of failure less than 1%
- VASECTOMY AND LIGATION OF HYSTEROSALPINX

Hormonal curettage (excochleation). Substitution therapy in climacterium.

HORMONAL CONTRACEPTION

- block of ovulation by suppression of hypothalamic releasing hormones (block of preovulatory surge of LH)
- changes of character of cervical plug (progestin thickens mucus)
- changes of endometrium (suppression of its growth)
- changes of hysterosalpinx motility

Combined hormonal contraceptives:

- **monophasic** (amount of oestrogen and gestagen is stabile)
- **biphasic** and **triphasic**
- c**ombiphasic** contraceptives (after 7 days gestagen content increases and oestrogen content decreases)

15μg estrogenu
60μg progestinu