

بسم الله الرحمن الرحيم

مولانا:

هر لحظه که تسلیمم در کار که تقدیر
هر لحظه که می کوشم در کار کنم تدبیر

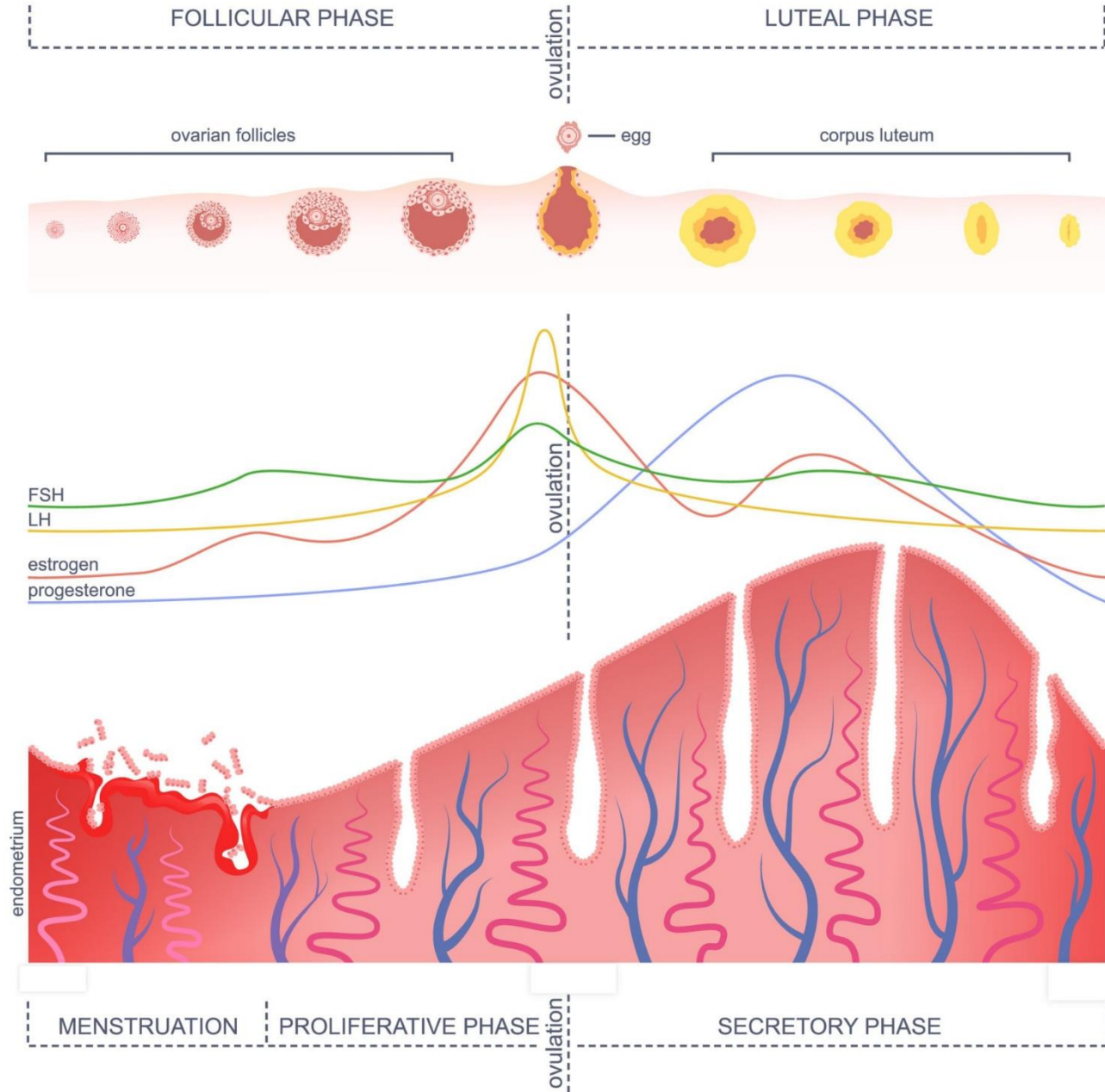
آرام تر از آهو، بی باک تر از شیر
رنج از پی رنج آید زنجیر پی زنجیر

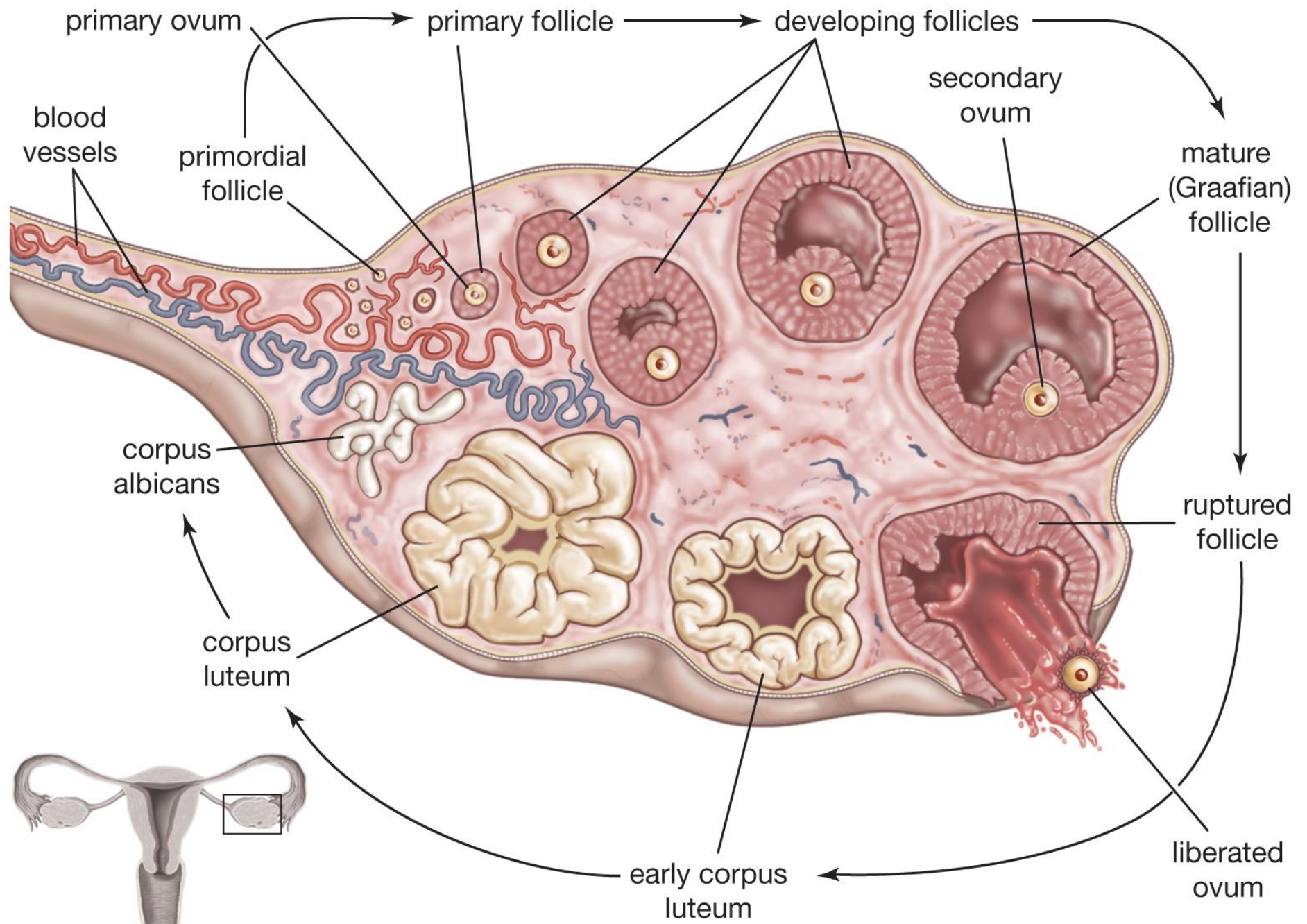
Polycystic Ovarian Syndrome

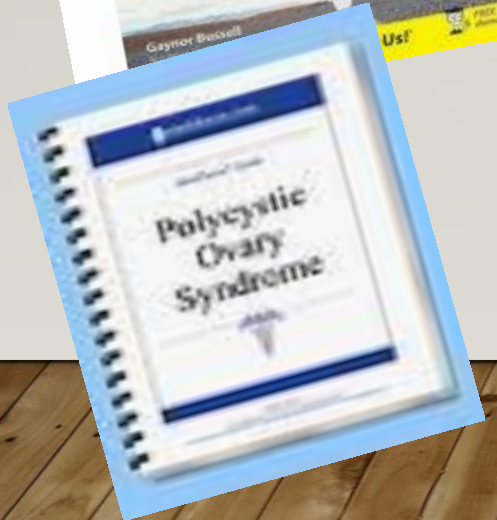
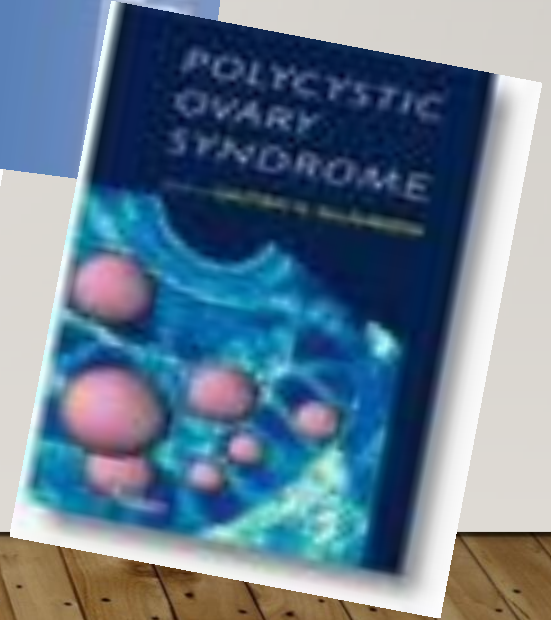
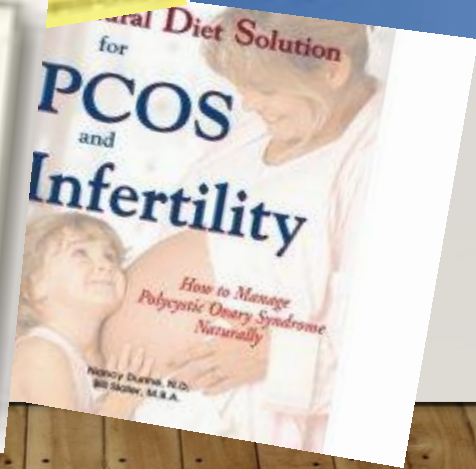
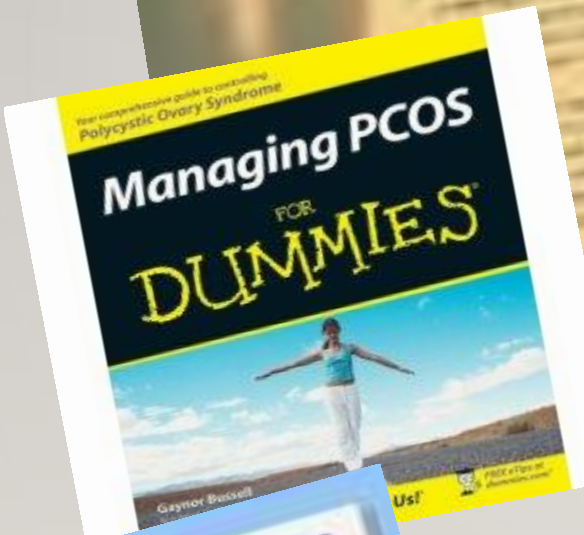
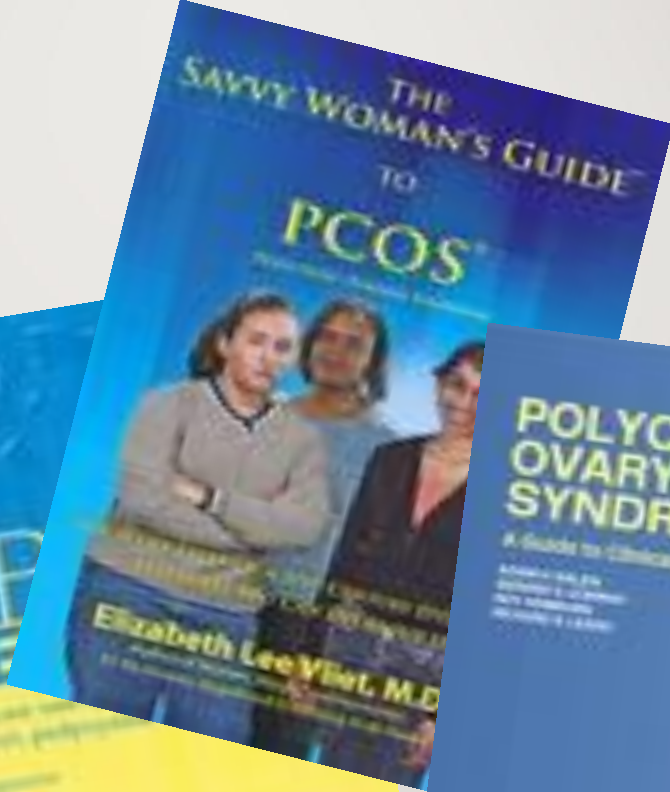
DR. MAHBOUBEHVALIANI

ASSISTANT PROFESSOR IN IUMS

MENSTRUAL CYCLE









DEFINITION OF PCOS:

- ACOG and NIH (1990):
- hyperandrogenism and chronic anovulation excluding other causes
- Stein and Leventhal (1935): association of amenorrhea with polycystic ovaries and variably: hirsutism and/or obesity



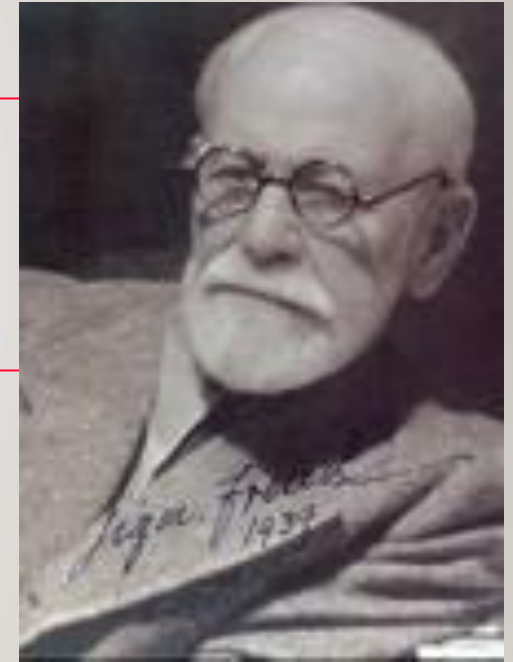
Stein-Leventhal Syndrome 1935

- **Amenorrhea** associated with bilateral polycystic ovaries Stein I.F. and Leventhal M.L. (1935). Am. J. Obstet. Gynecol. 29:181-189.
- **Wedge Resection** restored normal menses





STEIN-LEVENTHAL SYNDROME



- Stein-Leventhal Syndrome: The Triad
 - Amenorrhea
 - Obesity
 - Hirsutism
- Many cases do not conform to the classic description.
- The polycystic ovaries are not the primary cause but one of the manifestation of the underlying endocrine disorder which results in anovulation.

سندرم تخمدان پلی کیستیک

• شایع ترین اختلالات **غدد درون ریز** (آندوکرینوپاتی) در زنان

9

• شایع ترین علت **نازایی** ناشی از عدم تخمک گذاری می باشد.

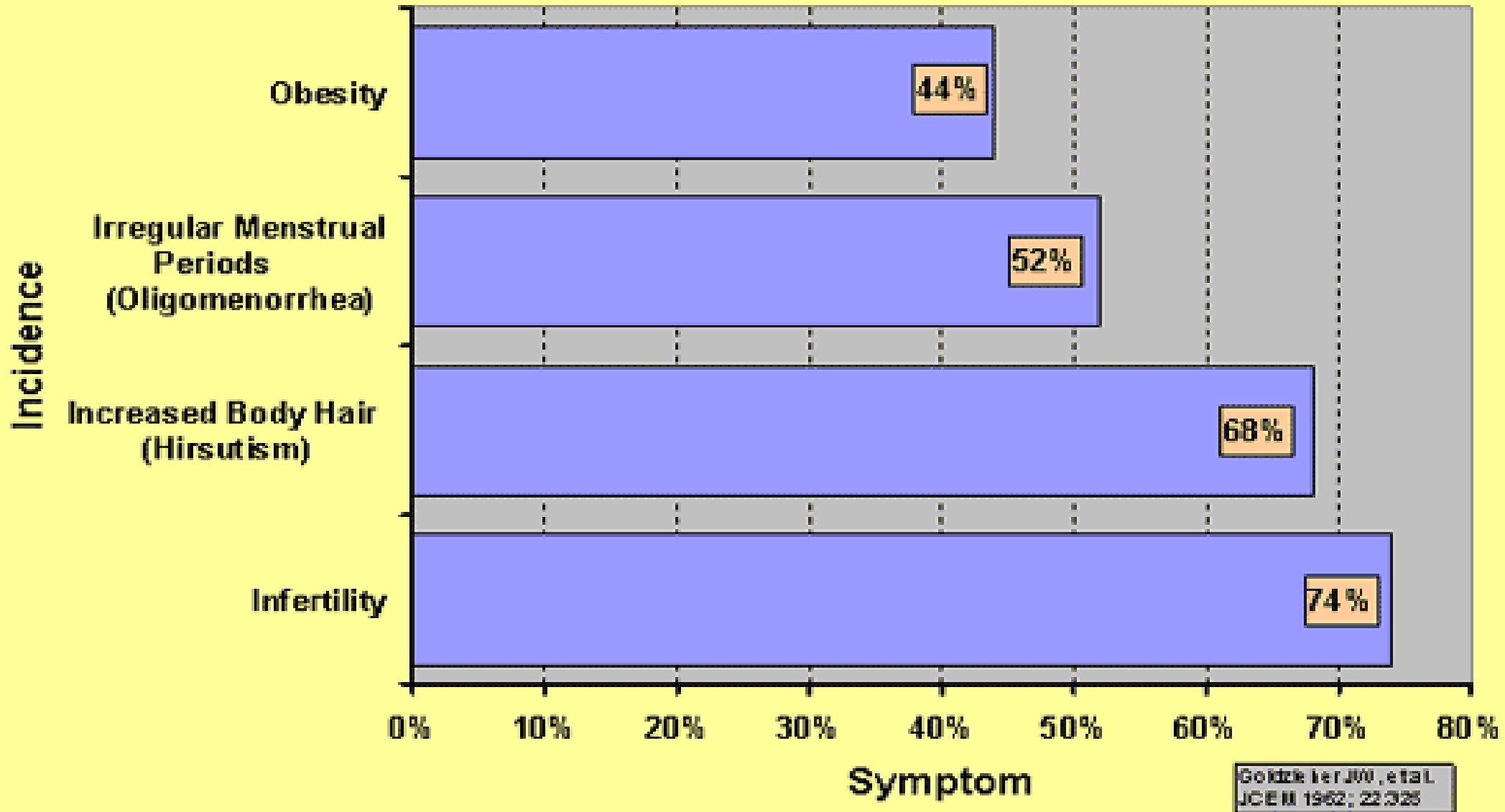
PCOS

- 25% of females with amenorrhoea
- 90% of females with oligomenorrhoea
- 90% of females with idiopathic hirsutism
- 33% of females with infertility

PCO EPIDEMIOLOGY

- Prevalence: 4-6% females (Isfahan more)
 - Probably same world wide
- No difference between blacks and whites
- 75% of women with irregularity or infertility

Incidence of PCOS Symptoms



PCOS: PREVALENCE

- Affects 6%-10% of women in childbearing age (4-5 million women).
- Most common cause of anovulatory infertility (50%-60%).
- Most common endocrine disorder in young women.
- **It is one of the major and unrecognized public health problems in many countries**

PCOS: Signs and Symptoms

SYMPTOMS

- **Menstrual irregularity**
- **Infertility**
- **Hirsutism, acne, etc**
- **Obesity or no**

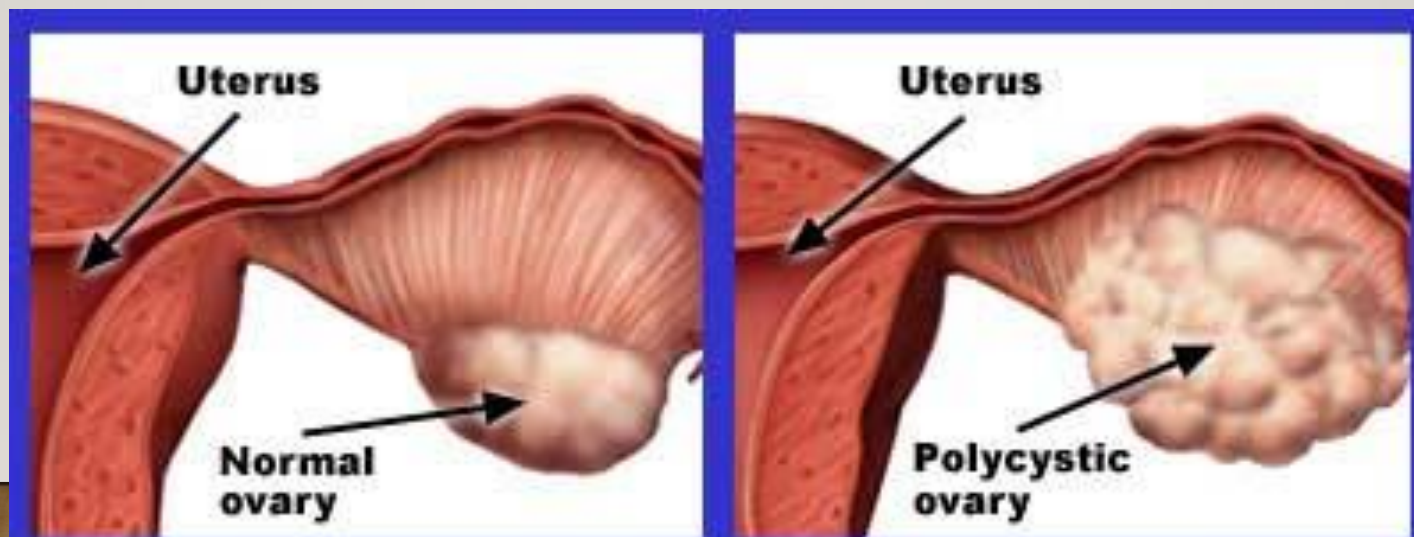
SIGNS

- **Hirsutism, acne**
- **Obesity**
- **Ovarian enlargement**
- **Acanthosis nigricans**

شواهد سونوگرافی تخمدان پلی کیستیک شامل:

افزایش حجم تخمدان به بیش از ۹ میلی لیتر، وجود کیستهای ۲ تا ۸ میلی متری به تعداد ۱۰ یا بیشتر در هر تخمدان و افزایش دانسیته استرومای رحم یا هیپرپلازی آندومتر می باشد.

اختلالات متابولیکی از جمله افزایش سطح سرمی هورمون های تستوسترون، پرولاکتین، LH، انسولین و مقاومت به انسولین در این بیماری شایع است.



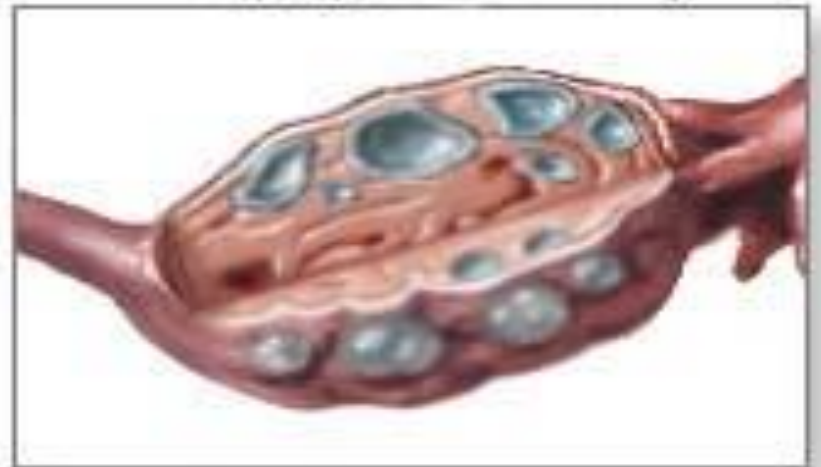
PCOS



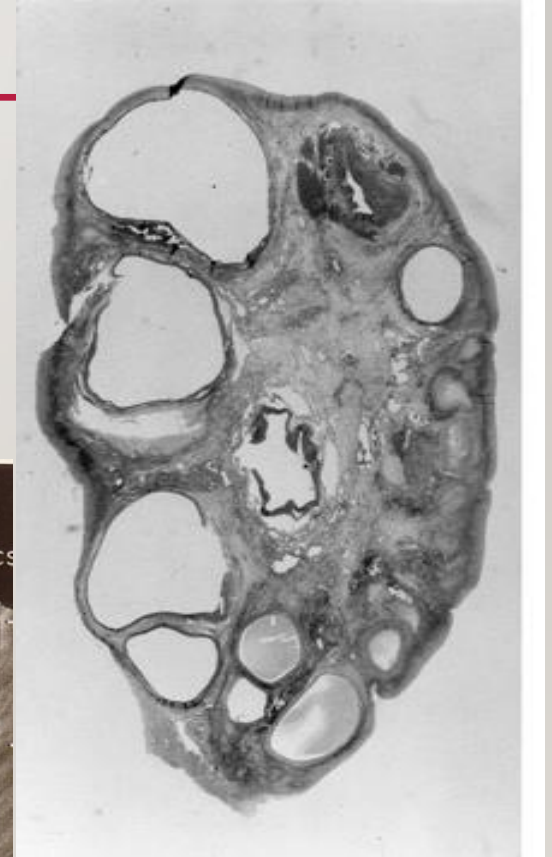
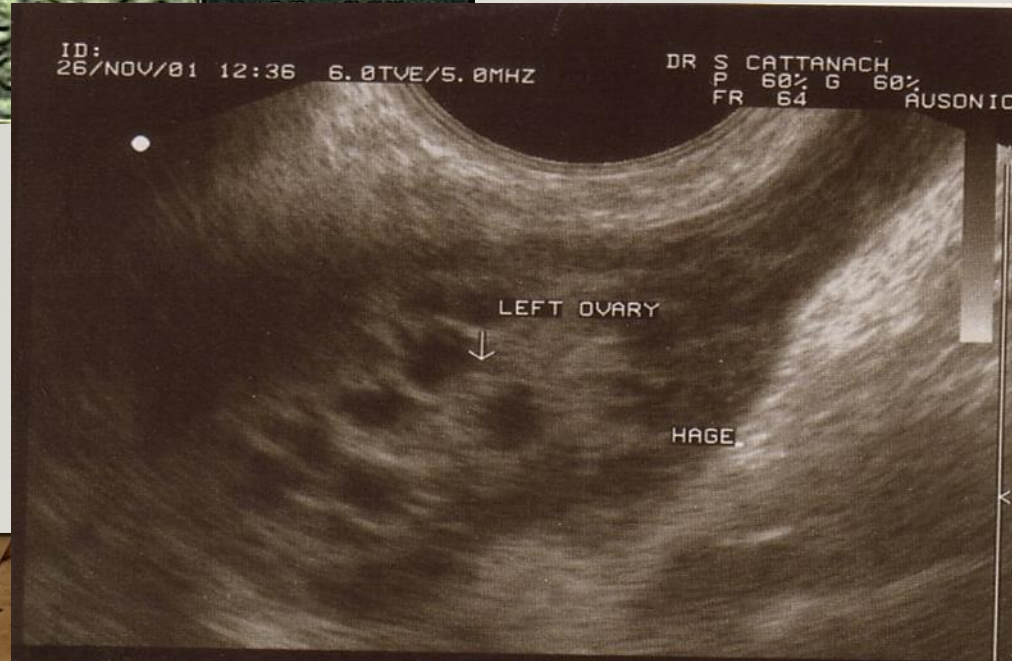
Normal ovary

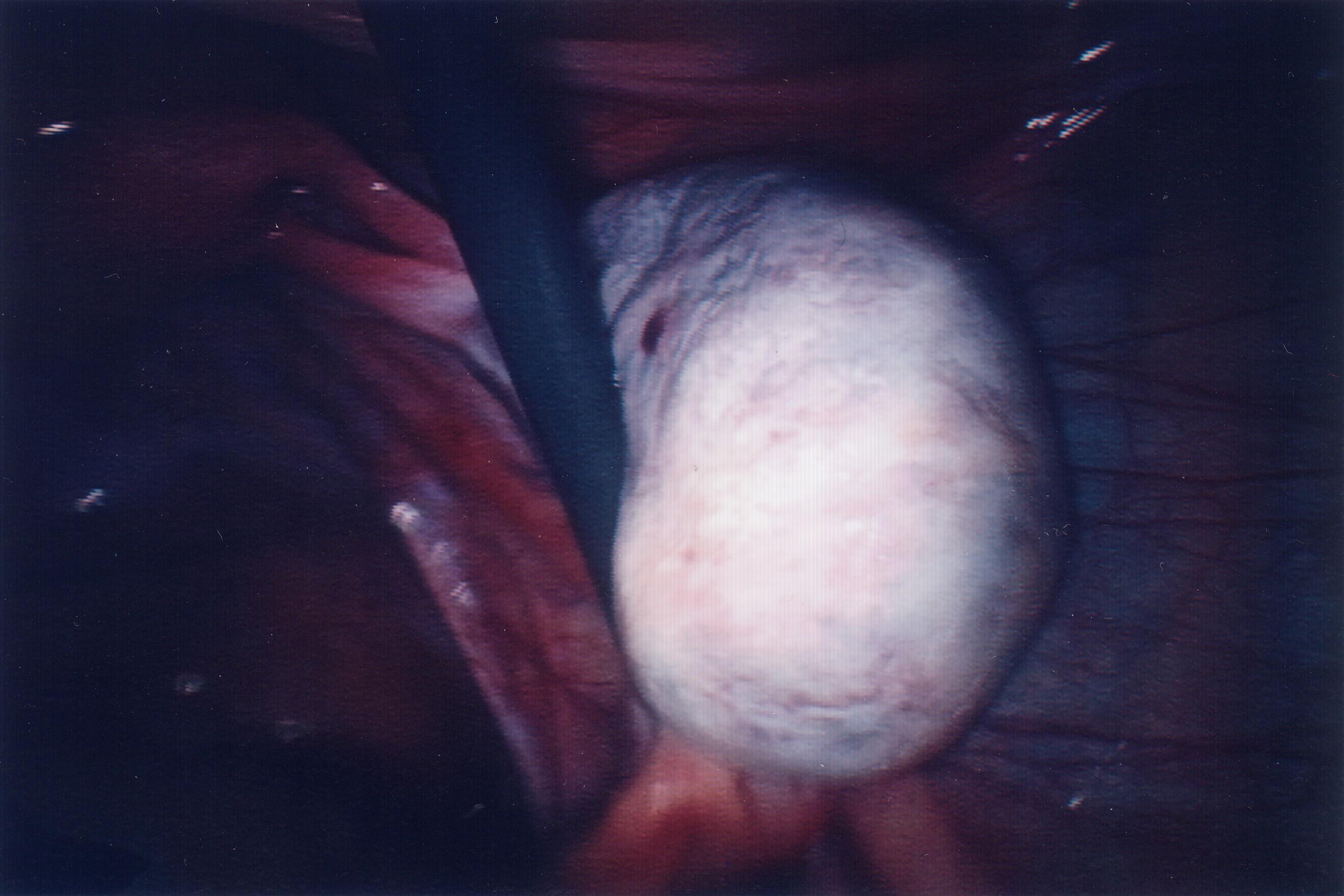


Polycystic ovary



PCOS: Imaging and Pathology



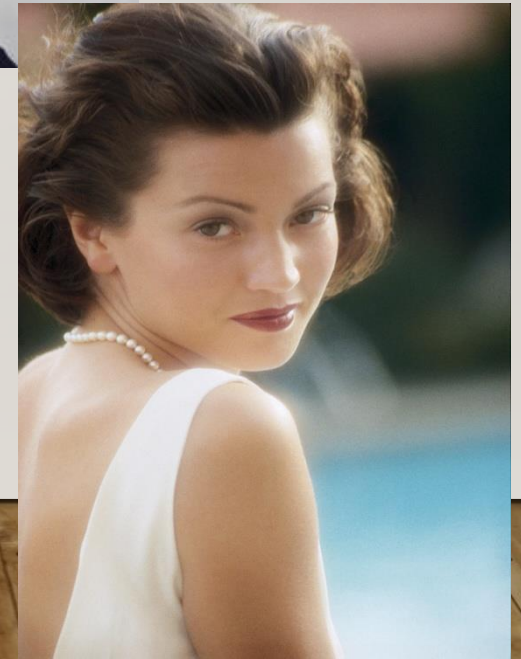


ACANTHOSIS NIGRICANS

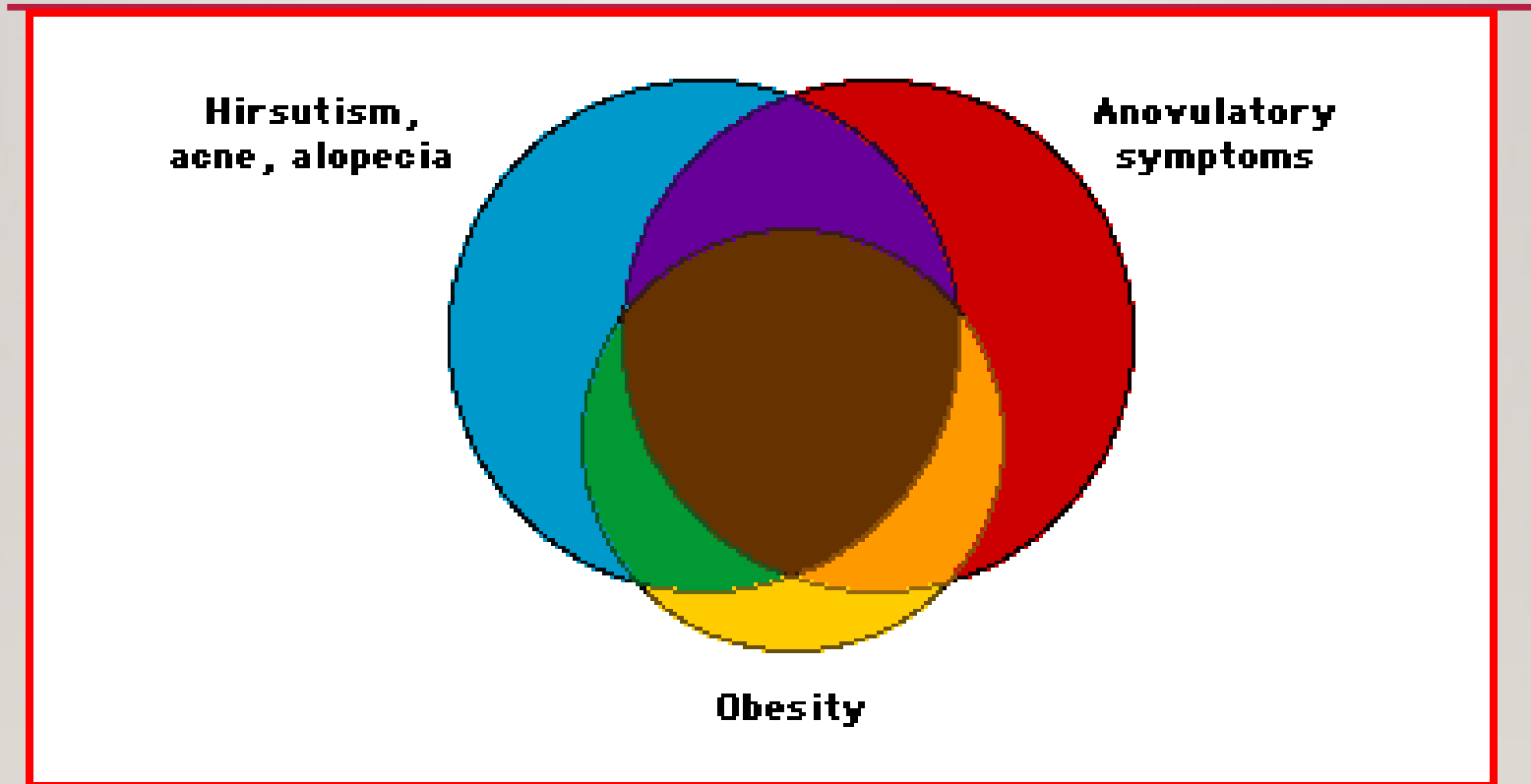
- **Acanthosis nigricans** is a brown to black, poorly defined, velvety hyperpigmentation of the skin. It is usually found in body folds, such as the posterior and lateral folds of the neck, the axilla, groin, umbilicus, forehead, and other areas.
- It typically occurs in individuals younger than age 40, may be genetically inherited, and is associated with obesity or endocrinopathies, such as hypothyroidism or hyperthyroidism, acromegaly, polycystic ovary disease, insulin-resistant diabetes, or Cushing's disease.



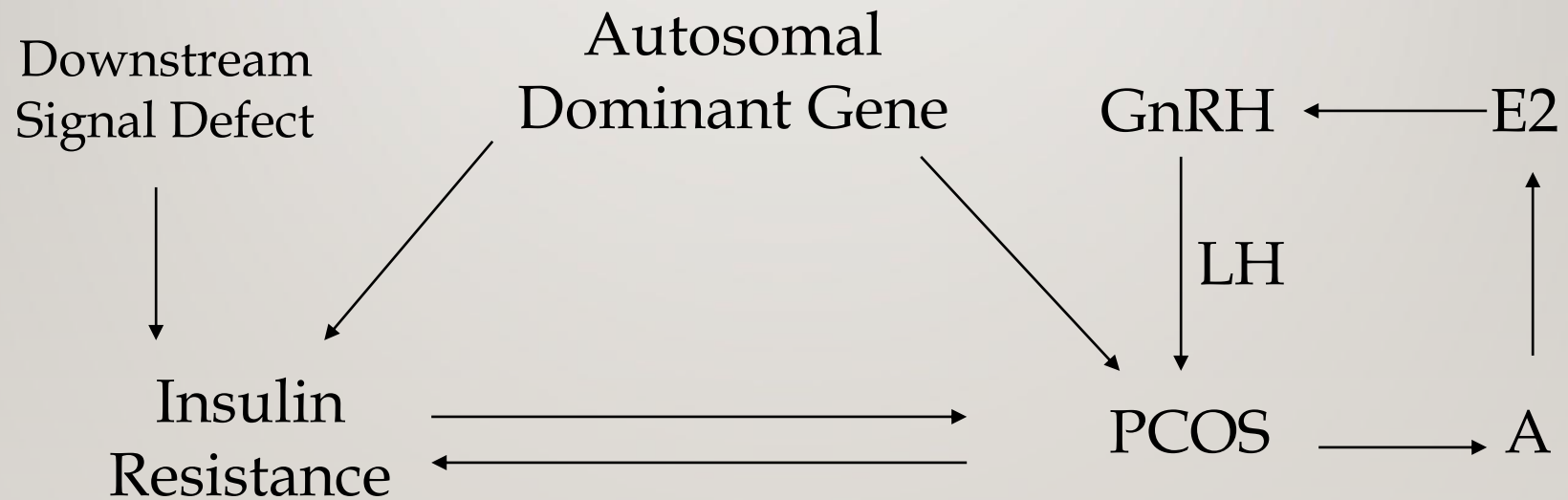
The Faces of PCOS



PCOS: Signs and Symptoms II



PCOS: Current theories of pathophysiology



A=androgens
E2=estradiol

PCO IS NOT PCOS.

- PCO FOUND IN 20% OF RANDOMLY SELECTED WOMEN OF REPRODUCTIVE AGE.
- WHILE MOST OF THESE WOMEN ARE CYCLING NORMALLY THIS GROUP ARE SIGNIFICANTLY MORE LIKELY TO HAVE INFERTILITY, IRREGULAR BLEEDING, HIRSUITISM AND ELEVATED TESTOSTERONE.

PCOS: Pathophysiology

- “Vicious cycle” چرخه معیوب
- Abnormal gonadotropin secretion
 - Excess LH and low, tonic FSH
- Hypersecretion of androgens
 - Disrupts follicle maturation
 - Substrate for peripheral aromatization
- Negative feedback on pituitary
 - Decreased FSH secretion
- Insulin resistance, Elevated insulin levels

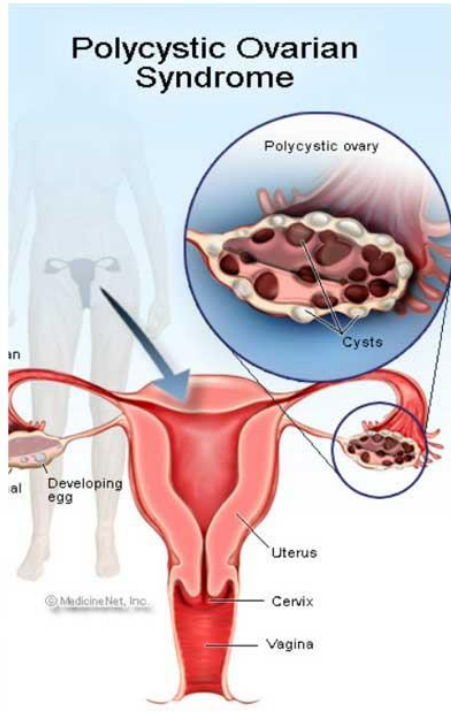
CLINICAL FEATURES

- **MENSTRUAL DISORDER** ↔ **AMENORRHOEA**
 - Oligomenorrhoea
 - Irregular Bleeding
 - Metrorrhagia
- **Obesity**

- **Androgenisation** ↔ **Hirsutism**
 - Acne
 - Oily Skin
- **Infertility**

Anatomy of PCOS





A close-up photograph of a person's skin, specifically the neck and shoulder area. The skin is dark and shows a characteristic thickening and darkening, known as acanthosis nigricans, which is a clinical sign of hyperandrogenism and hyperinsulinemia. The skin has a leathery, wrinkled appearance. A person's ear with a small gold stud is visible on the left side of the frame.

**Hyperandrogenism
Hyperinsulinemia**

DEFINITION CLINICAL FEATURES OF PCOS

In the:

1. USA - Endocrine Profile
2. UK & Europe - Ultrasound Signs

ENDOCRINE FEATURES

- Acyclic increase in pulsatile LH levels
- Raised LH to FSH ratio
(test in early follicular phase)
- Raised androgens
- Reduced sex hormone binding globulin

ULTRASOUND FEATURES

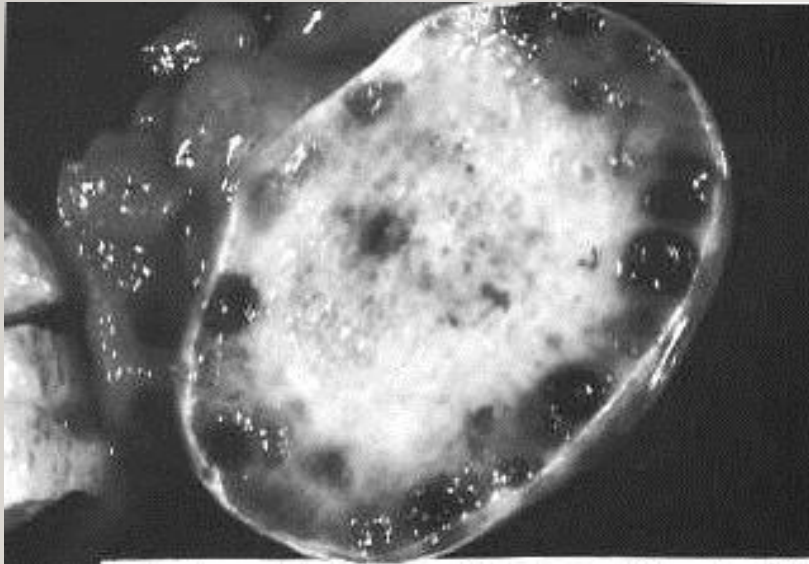
- Increased stromal echo
- 10 or more follicles in one plain
- Follicles 2-10mm in diameter
- Increased ovarian volume

PCOM

- PCOM (polycystic ovarian morphology)
 - ≥ 12 follicles at 2 - 9 mm in at least 1 ovary
 - Volume $> 10\text{cc}$
 - If a follicle is $> 10\text{mm}$, repeat scan next cycle.
- 2003 Rotterdam ESHRE/ASRM Consensus. Fertil Steril 81:19, 2004

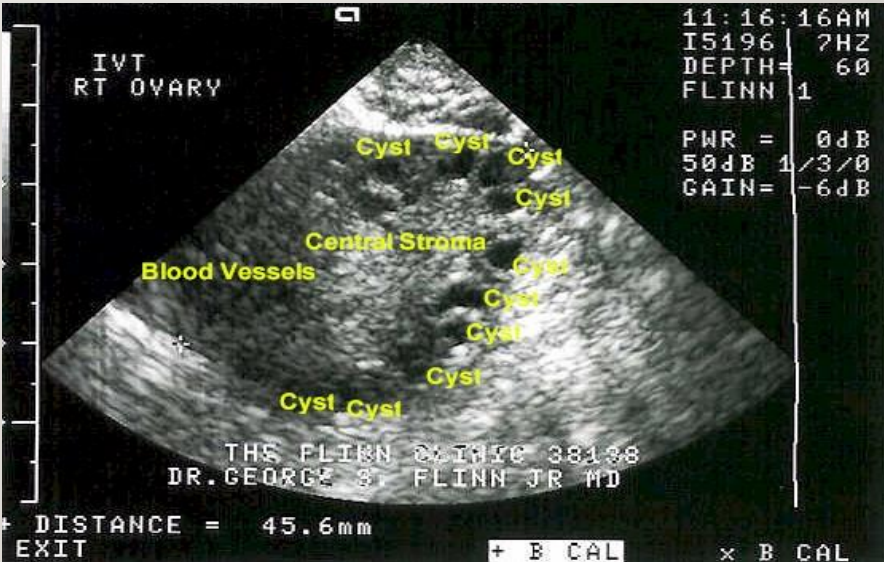
PCOM

PCOM (polycystic ovarian morphology)



PCOM

PCOM (polycystic ovarian morphology)



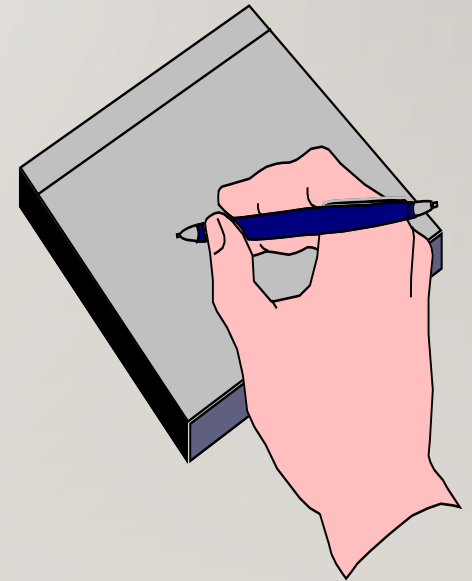
PCOM VS. FOLLICLES

PCOM (polycystic ovarian morphology)
vs. Pre-ovulatory Follicles



INVESTIGATIONS

- Ultrasound - transvaginal ultrasound is best
- LH/FSH.
- Free testosterone
- SHBG (sex hormone binding globulin)



HISTOLOGICAL FEATURES OF PCO

- Increased volume
- Same number of primordial follicles
- 2 x ripening or atretic follicles
- Increased collagenization of tunica
- Increased cortical stroma thickness
- Increased subcortical stroma

PROGNOSIS

- People with acanthosis nigricans should be screened for diabetes and, although rare, cancer.
- Controlling blood glucose levels through exercise and diet often improves symptoms. Acanthosis nigricans maligna may resolve if the causative tumor is successfully removed.
- Acanthosis nigricans often fades if the underlying cause can be determined and treated appropriately

AETIOLOGY

3 MAJOR HYPOTHESIS

I. Familial - Strong family history

Autosomal dominant but $> 50\%$ occurrence Epigenetic factors (related to male pattern premature baldness and NIDDM)

2. Ovarian & adrenal steroidogenesis disorder

An abnormality of the gene controlling the cytochrome P450 mixed function oxidase system complex.

Increased activity of 17 α hydroxylase, 17, 20 lyase enzyme results in increased androgen production.

3. Hyperinsulinaemia occurs much more commonly in PCOS.

Insulin resistance does not affect the ovary and exaggerated androgen response occurs to LH.

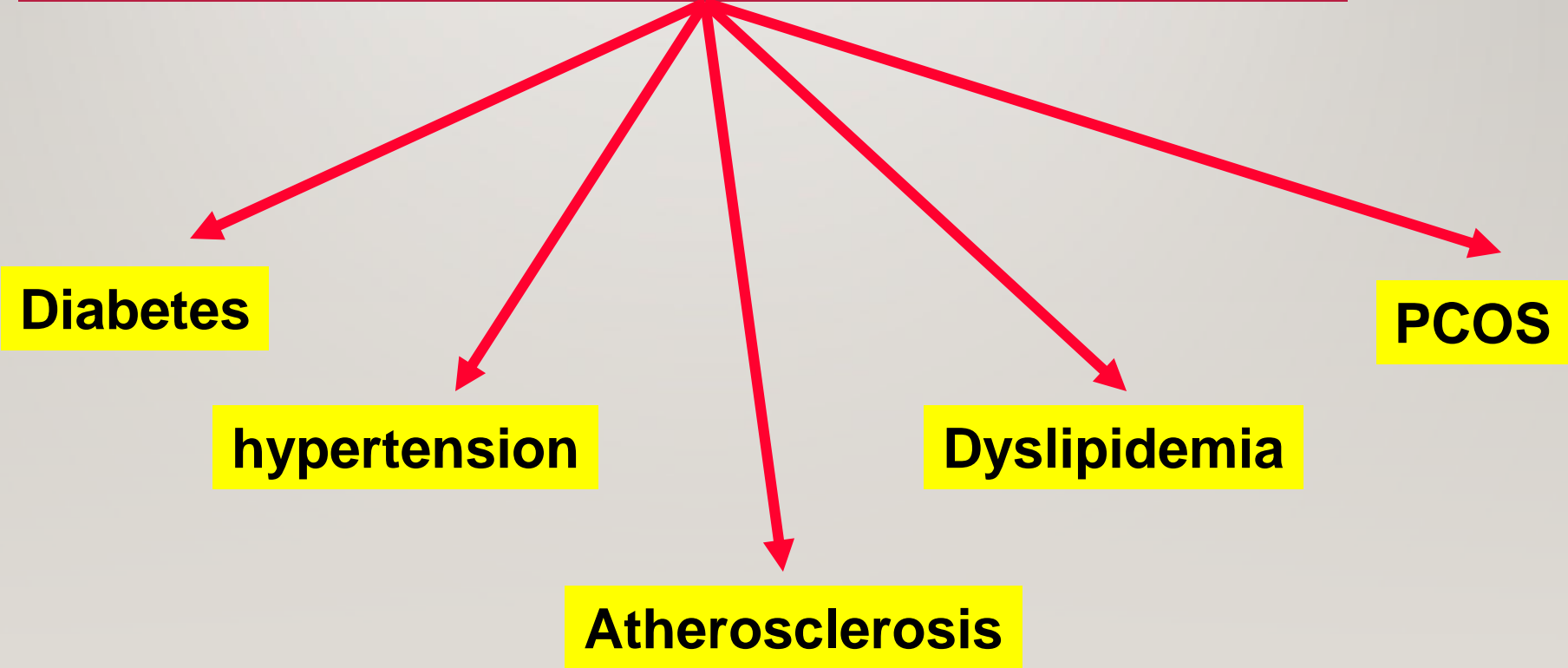
OTHER CAUSES

- High androgens & LH causes granulosa cells to fail perpetuating anovulation
- Intra-ovarian endocrine & paracrine disorder
- Exogenous or excess endogenous androgens will produce PCOS
(in utero, at puberty or in adult life)



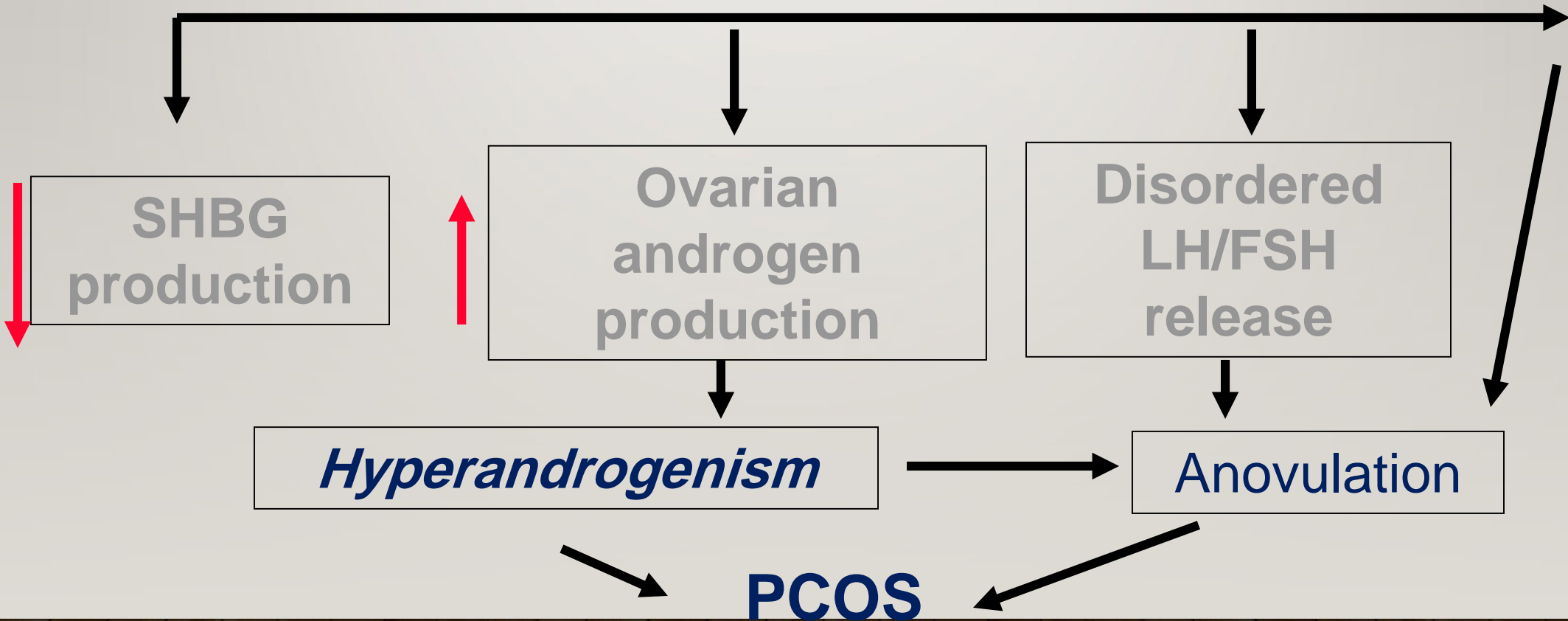
METABOLIC IMPACT OF PCOS: SYNDROME X

Insulin Resistance and Hyper-insulinemia



Hyperinsulinemia and Hyperandrogenism

Hyper- Insulinemia



INSULIN RESISTANCE IN WOMEN WITH PCOS

Insulin Sensitivity decreases



Insulin release and circulating levels increase



Normal glucose tolerance



***Compensatory Hyperinsulinemic
Insulin Resistance***

OTHER INVESTIGATIONS

- 17 hydroxy progesterone
- ACTH
- 24 hour urinary cortisol
- Dexamethasone suppression test
- Biopsy
- CT,MRI

DIFFERENTIAL DIAGNOSIS

- **Late onset congenital adrenal hyperplasia**

DHEAS > 18mmol/l

17 OH Prog > 6 mmol/l

- **Ovarian + adrenal androgen secreting tumours**

V. high testosterone > 6mmol/l

- **Cushings Syndrome**

- Dexamethsone suppression test

- 24 hours urinary cortisol

- DHEAS > 13 mmol/l

DIFFERENTIAL DIAGNOSIS CONTINUED

- **Ovarian hyperthecosis**
- **Iatrogenic and illegal androgen ingestion**
- **Hypothyroidism**
- **Multicystic ovaries**

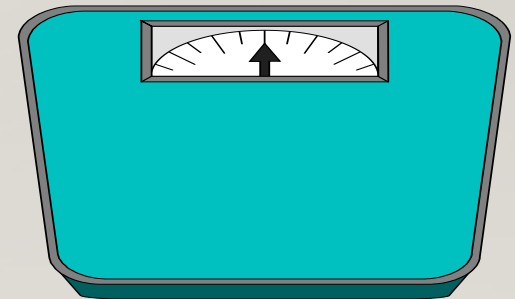
TREATMENT

Weight Loss

PCOS: 90% of anovulatory women restored to full ovulation despite relatively small amounts of weight loss following exercise and change of diet

BMI of 21 is ideal but the patient often respond to much less stringent body mass index

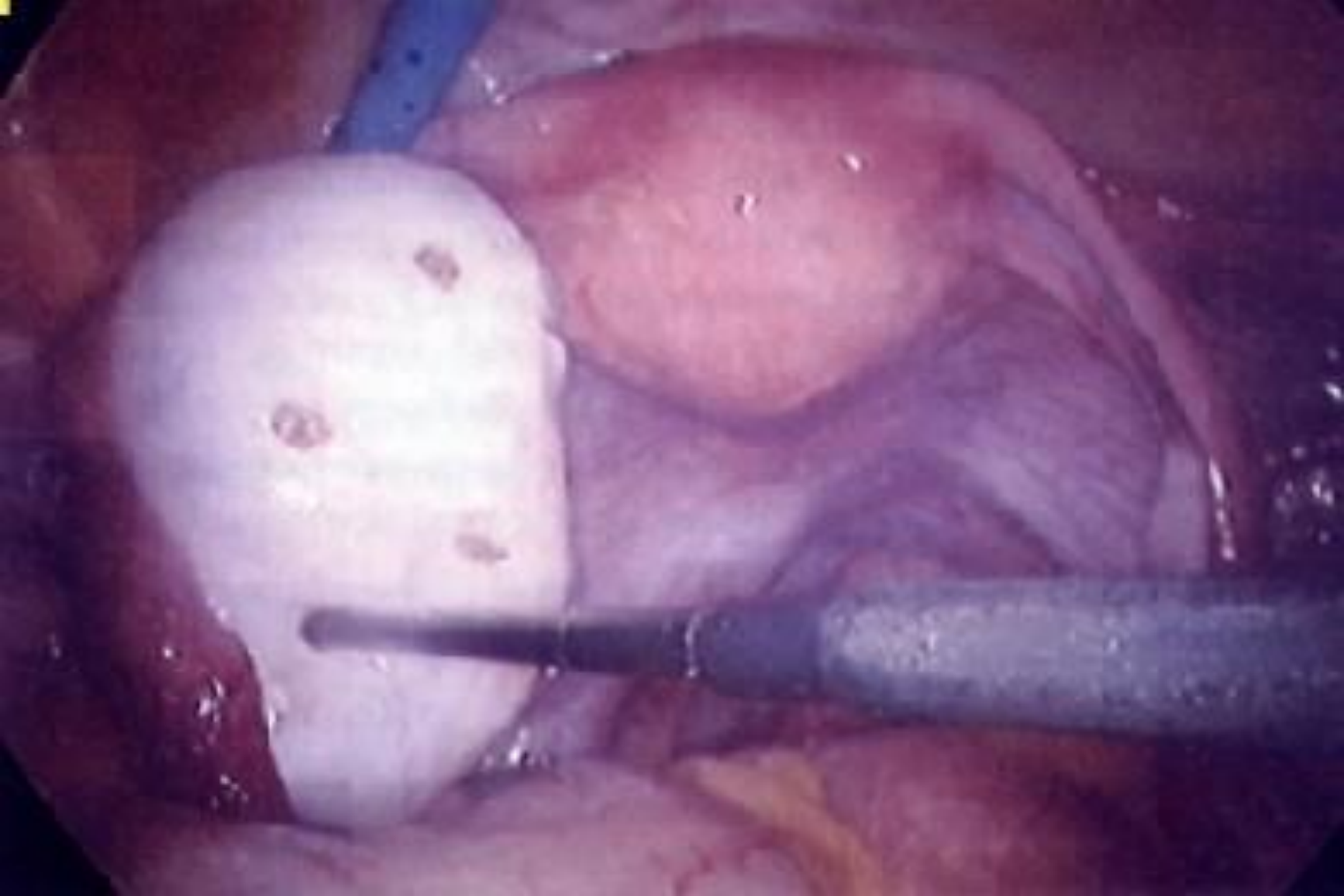
$$\text{BMI} = \frac{\text{Wt Kg}}{\text{Height squared in (metres)}}$$



PCOS: SURGICAL THERAPY

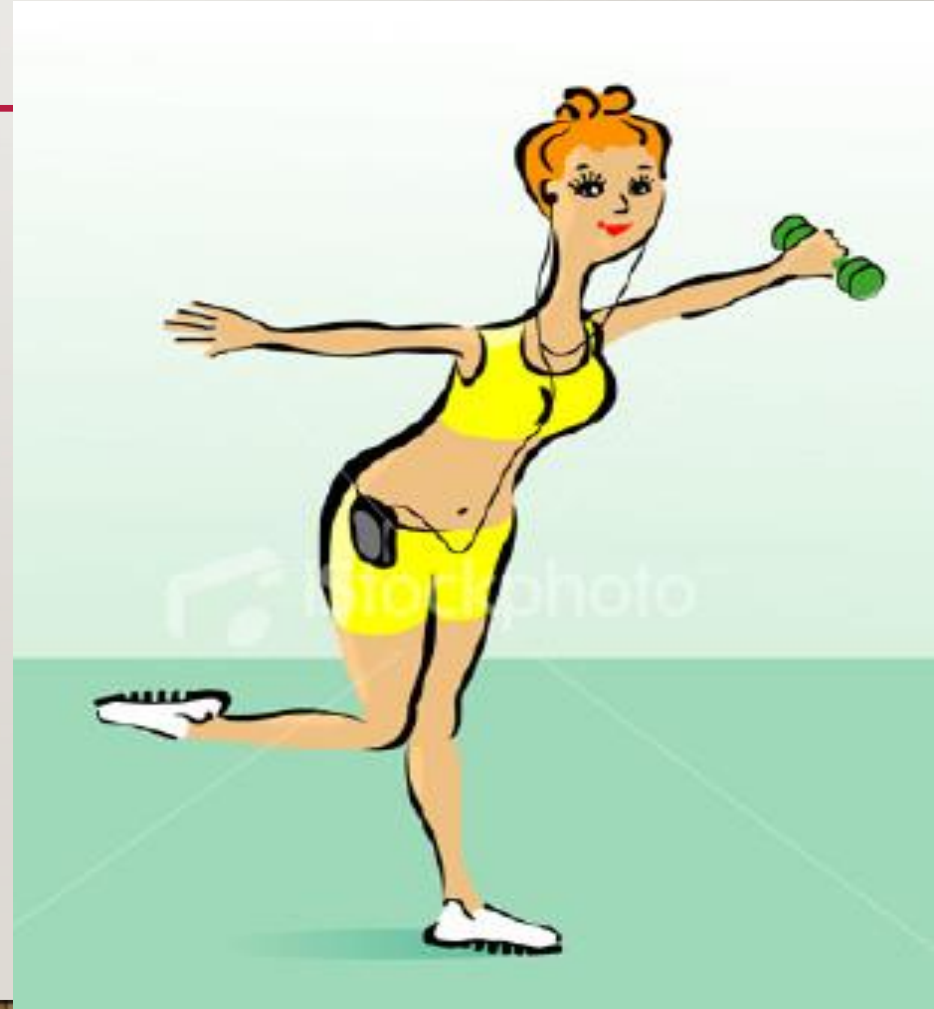
- Wedge resection
- Ovarian drilling





PCOS CLINIC FITNESS

- Individual assessment and recommendations
- Group education and instruction
- Surgical Method



**PCO
& MODERN
MEDICINE
& CAM**

HIRSUTISM AND ACNE

- **Weight loss and exercise**
- **OCP e.g. Diane 35**
- **Cyproterone acetate 50-100mg first 10 days with OCP**
- **Spirolactone 100-200mg daily**
- **Dexamethasone 0.25 - 0.5mg nocte**
- **Ovarian wedge resection or laparoscopic drilling**

INFERTILITY

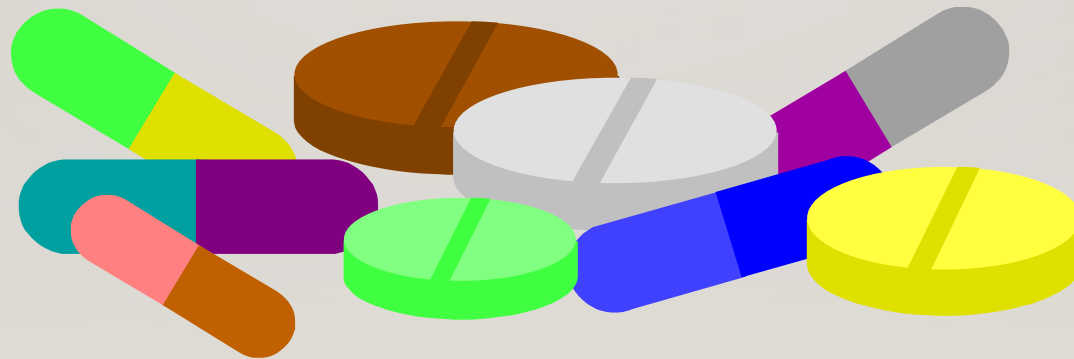
- **Weight loss/exercise**
- **Clomiphence citrate 50-100mg QD +/-**
- **Gonadotrophins plus/minus GnRH analogues**
- **Dexamethasone 0.25 - 0.5mg daily**
- **Metformin 500mg bid**
- **Wedge resection**
- **Laparoscopic drilling**

METFORMIN

- **INCREASES OVARIAN RESPONSE TO OVULATION INDUCTION**
- **MAY HAVE A FUTURE WITH WEIGHT CONTROL**
- **TREATMENT OF HERSUITES**
- **NO LONG TERM STUDIES YET**
- **MAY BE BEST UTILIZED IN RESEARCH PROTOCOLS UNTIL FURTHER DATA**

OLIGO/AMENORRHOEA

- **OCP**
- **Cyclic provera or norethisterone**



CAM & PCO

- **Reflexotherapy**
- **Auriculotherapy**
- **Acupressure**
- **Acupuncture**
- **Massage**
- **Exercise and Movement**
- **Homeopathy**

Yang

Exterior

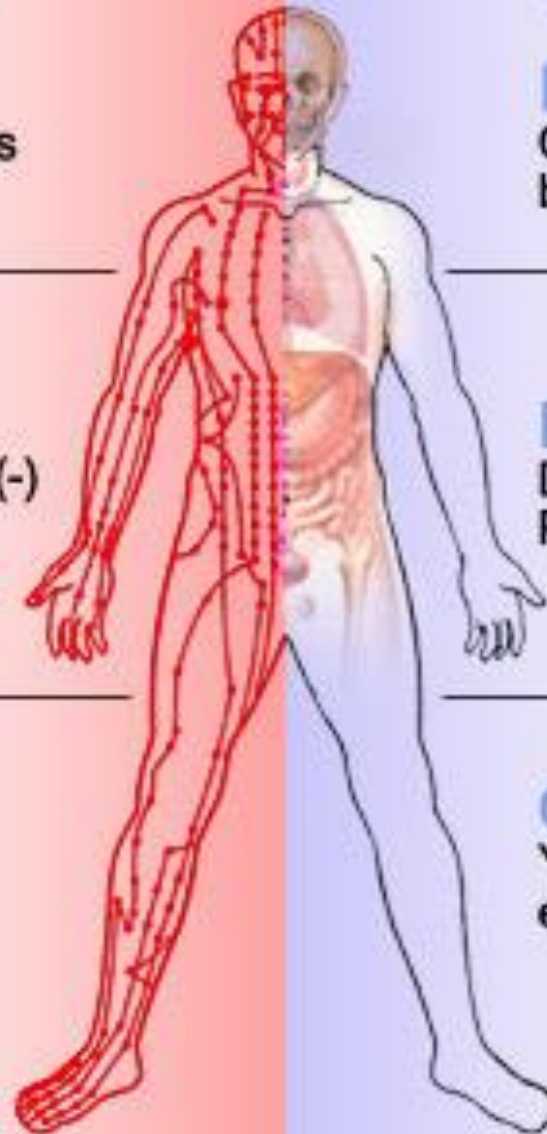
Skin, hair, flesh & meridians

Excess(*shi*)

Disease preventing forces (-)
Pathogenic factors ↑

Heat

Yin deficiency or
excess heat



Yin

Interior

Organs, bone marrow, qi & blood

Deficiency(*xu*)

Disease preventing forces ↓
Pathogenic factors (-)

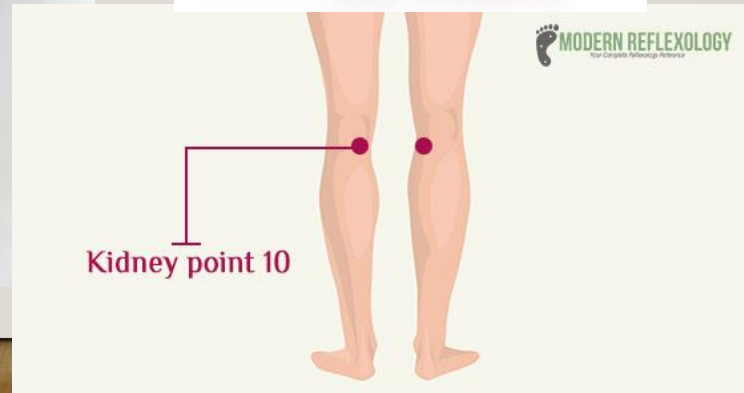
Cold

Yang deficiency or
excess cold





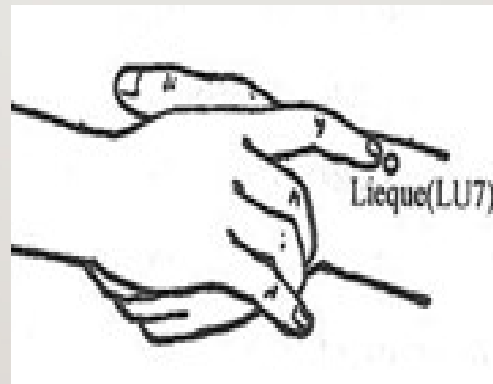
ACUPRESSURE



ACUPRESSURE



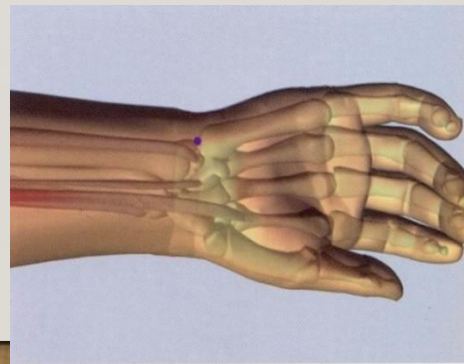
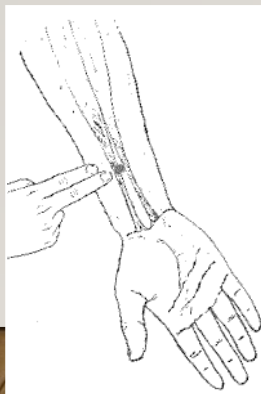
P6



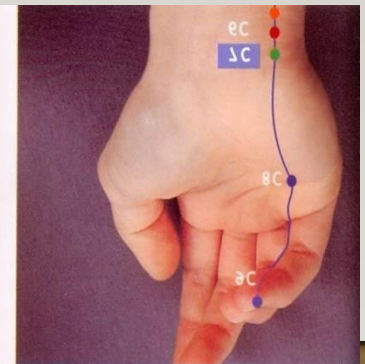
Lu7



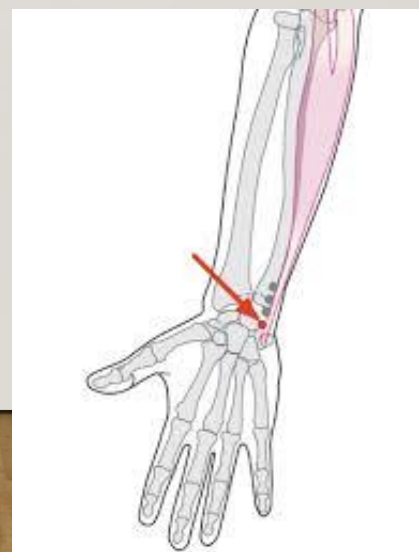
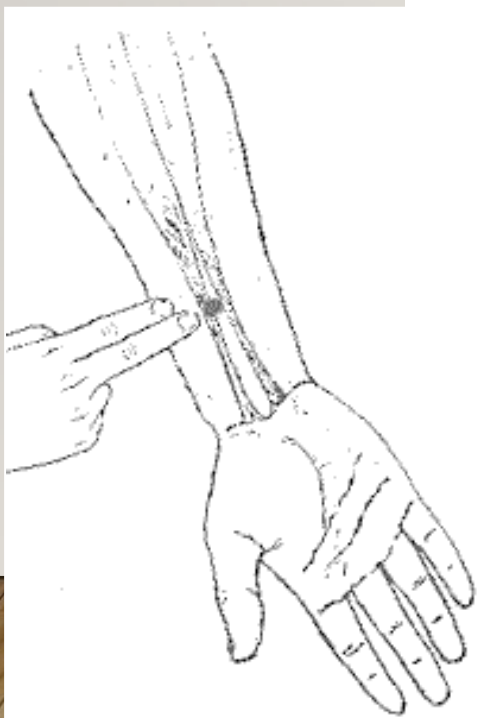
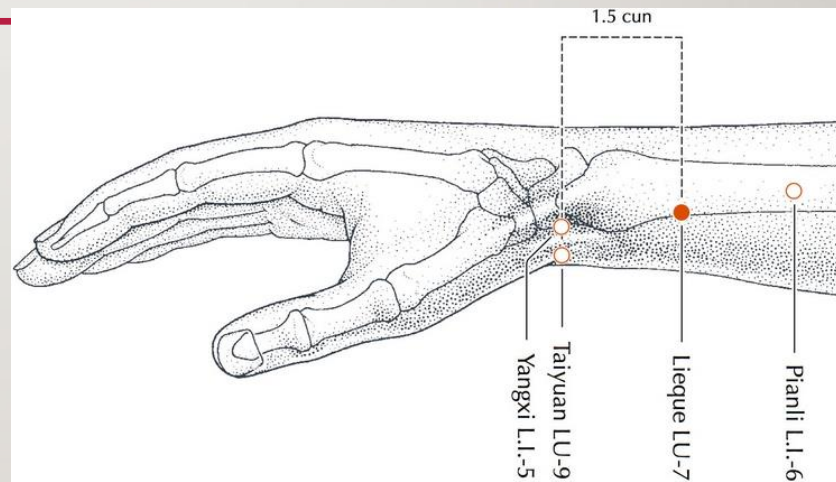
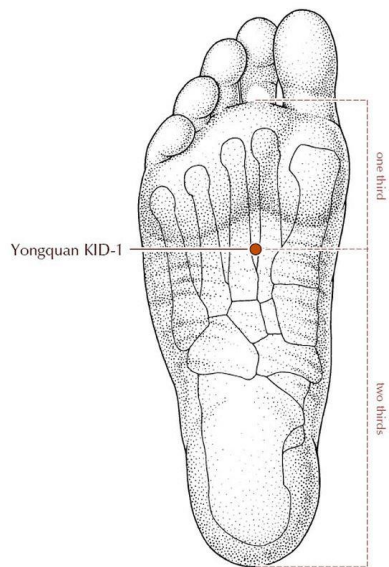
KI



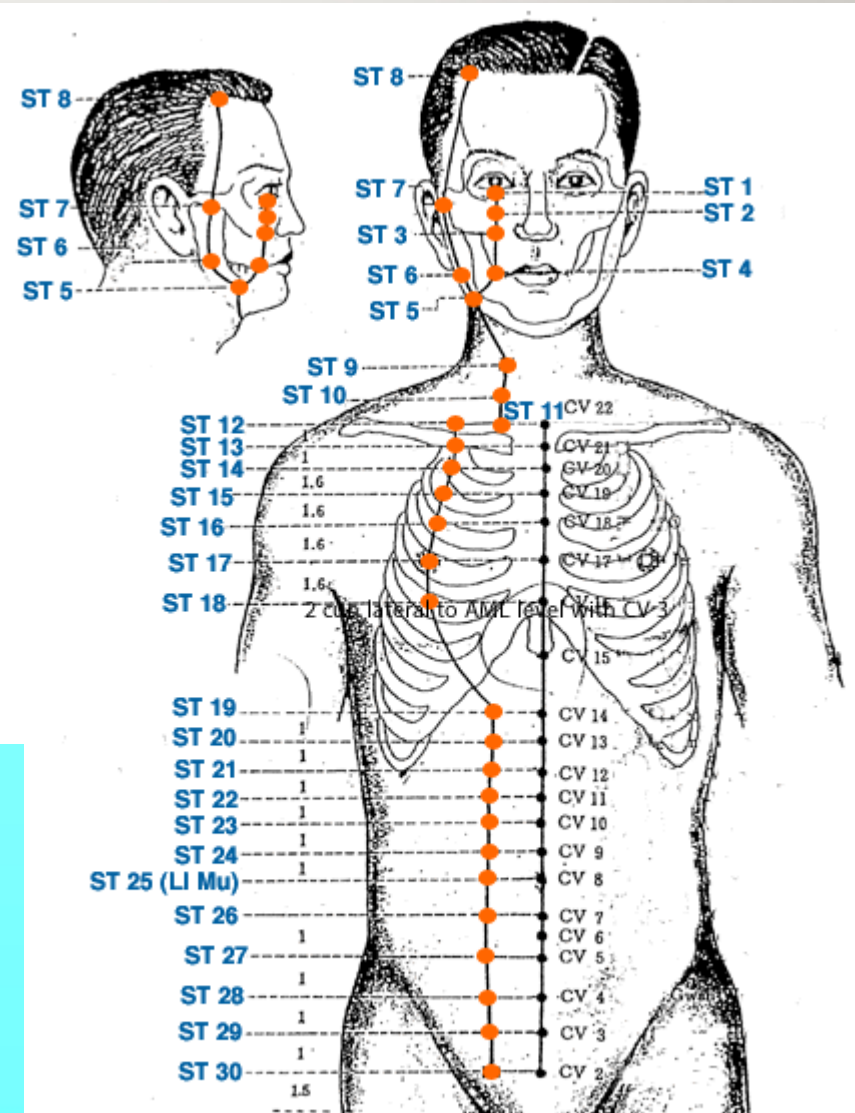
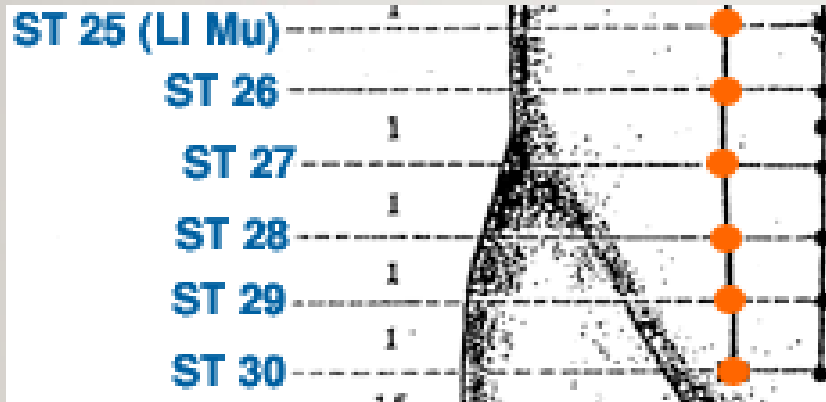
H7



نقاط کاربردی کنترل اضطراب، خواب



REN6 AND ST30



PCO



Sp6



LI4



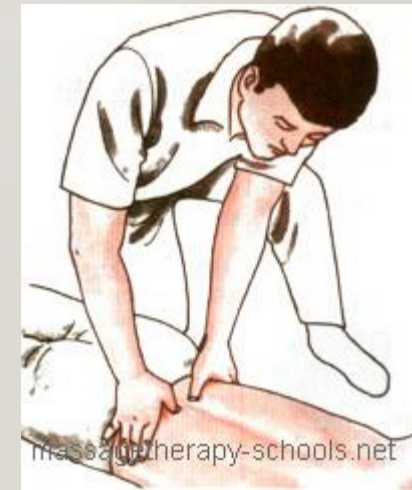
BL32



GB20

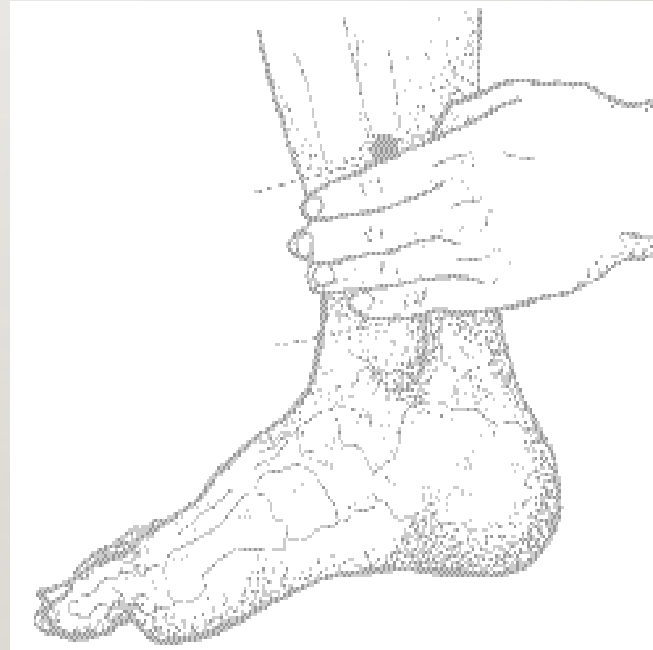
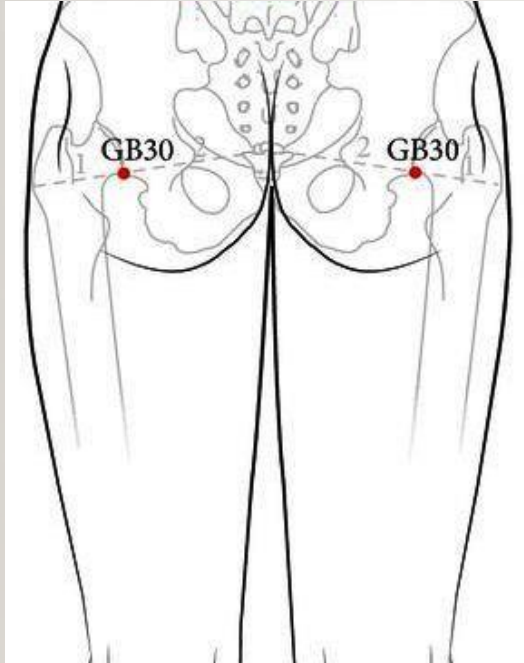


Ren6

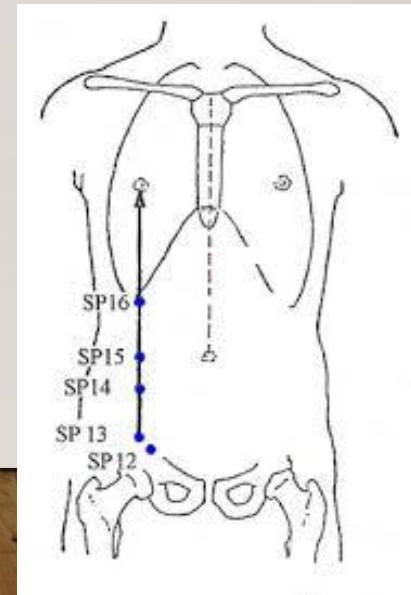
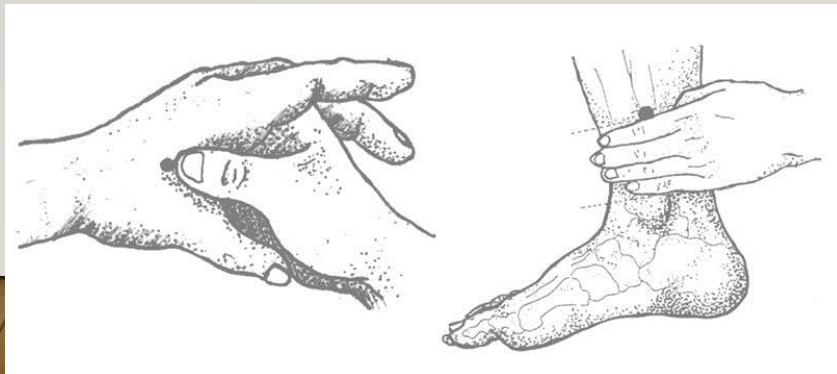
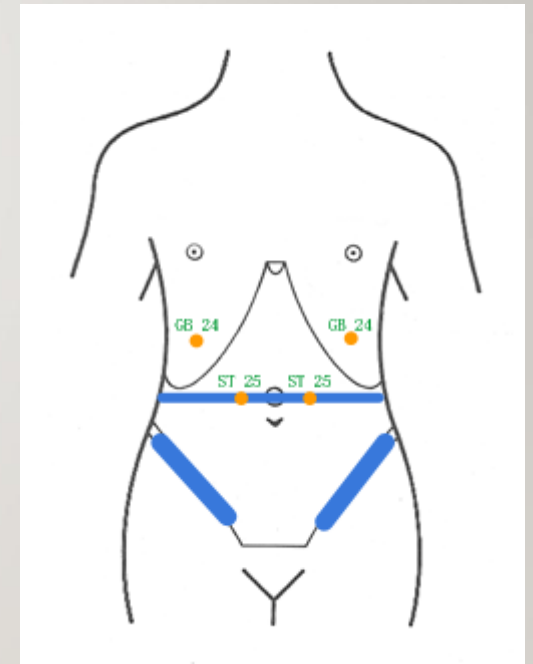
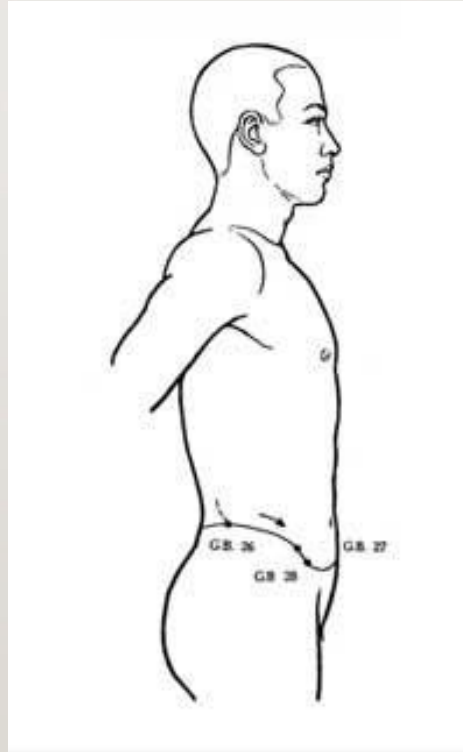
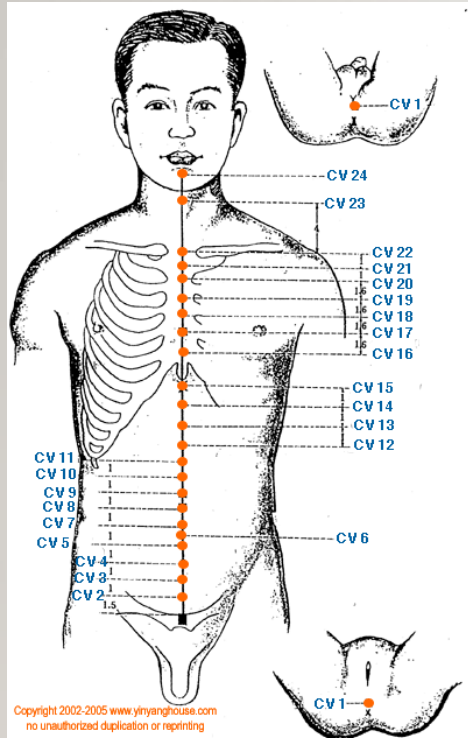


BL23

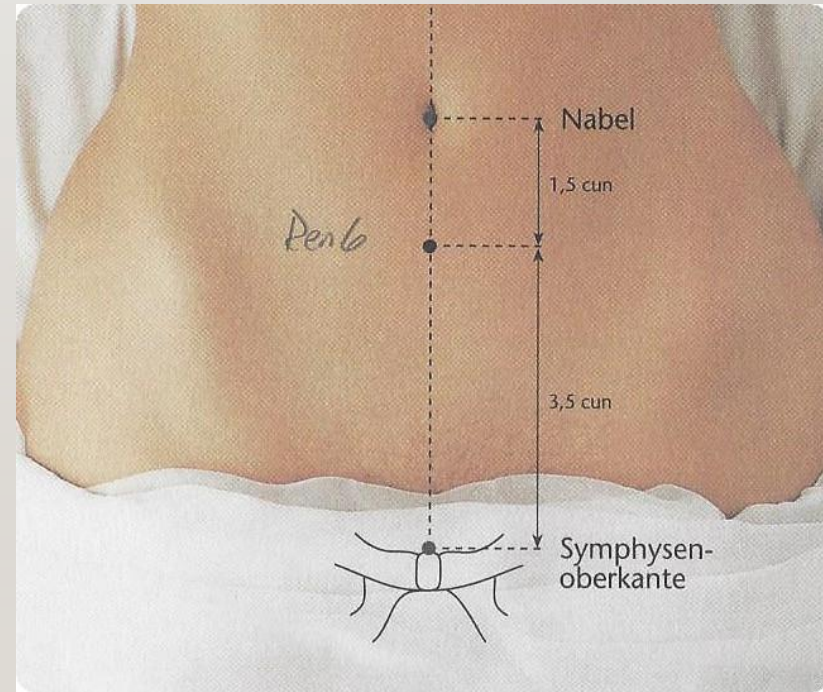
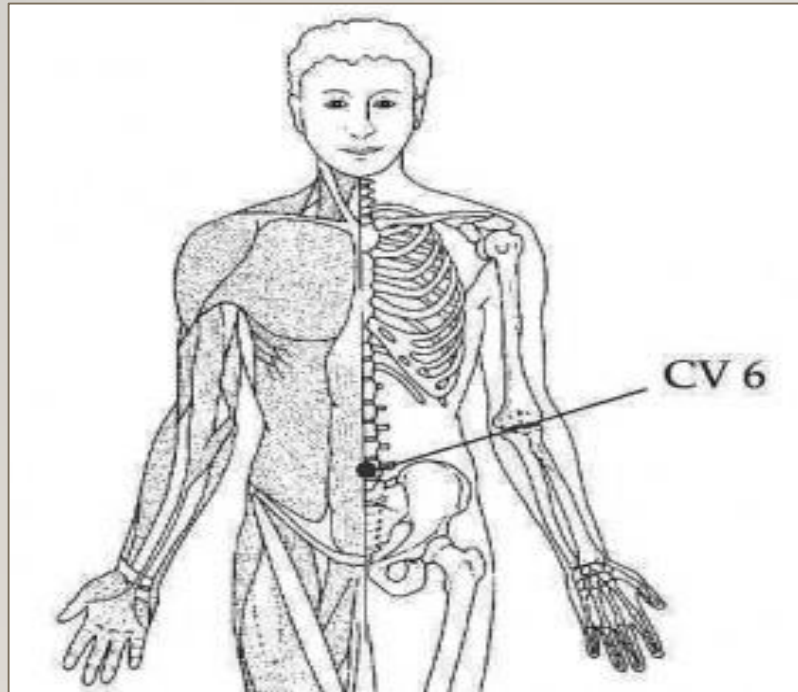
PCO



PCO



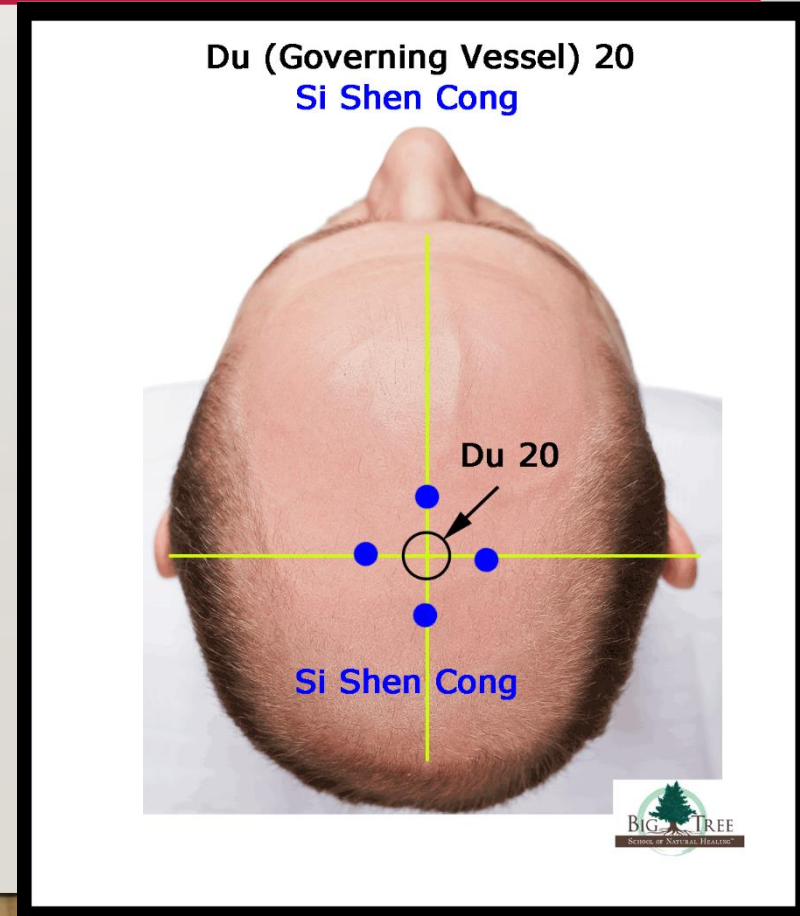
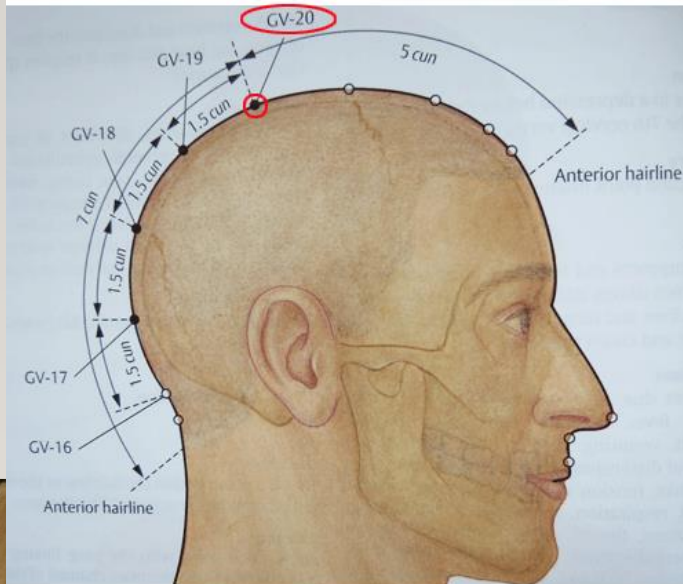
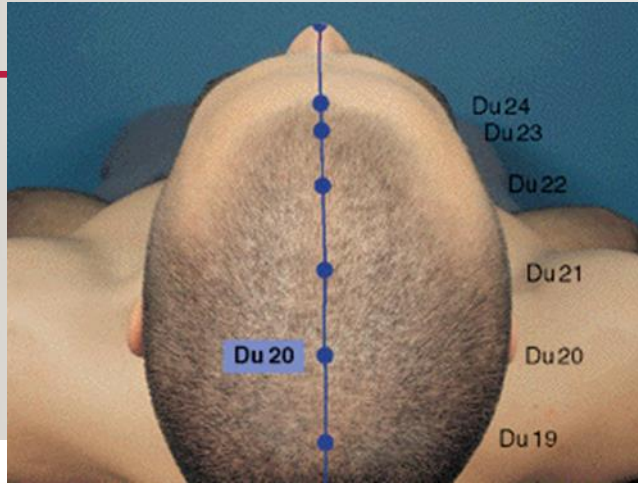
ACUPRESSURE POINT CV 6



CV 6

- One of the most empowering acupressure points on the body is **CV 6**, known as **the Sea of Energy**.
- **CV 6** strengthens the body's internal condition especially the **colon, immune system, sexual urinary reproductive system**, and heightens your ability to heal yourself.
- Point Location: **CV 6** is located two finger widths below the center of your belly button. The finger pressure should always be applied gradually.
- During pregnancy be very gentle, and use the palm of your hand instead of fingertips.

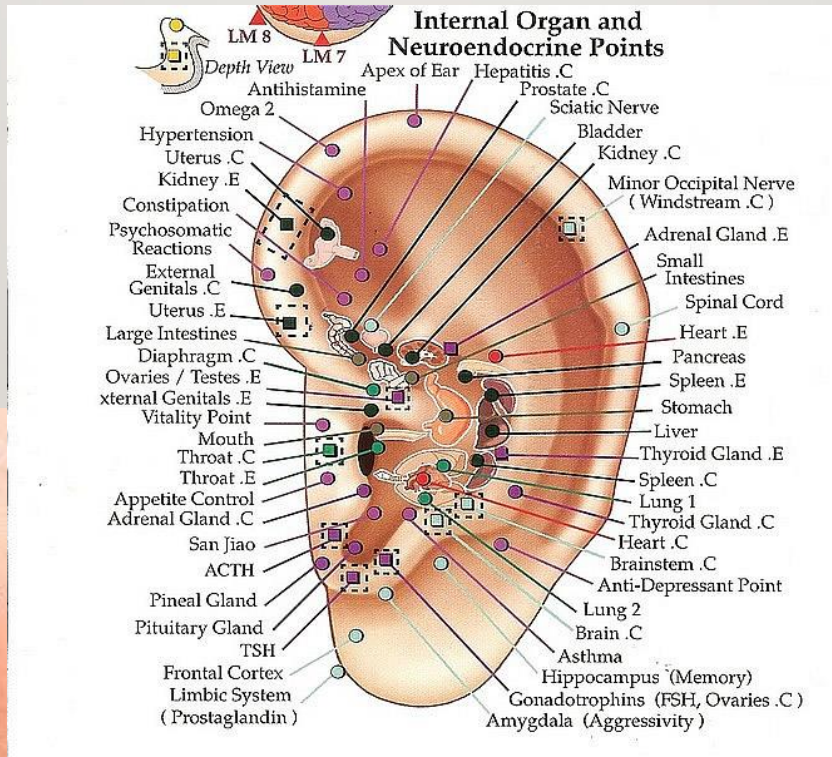
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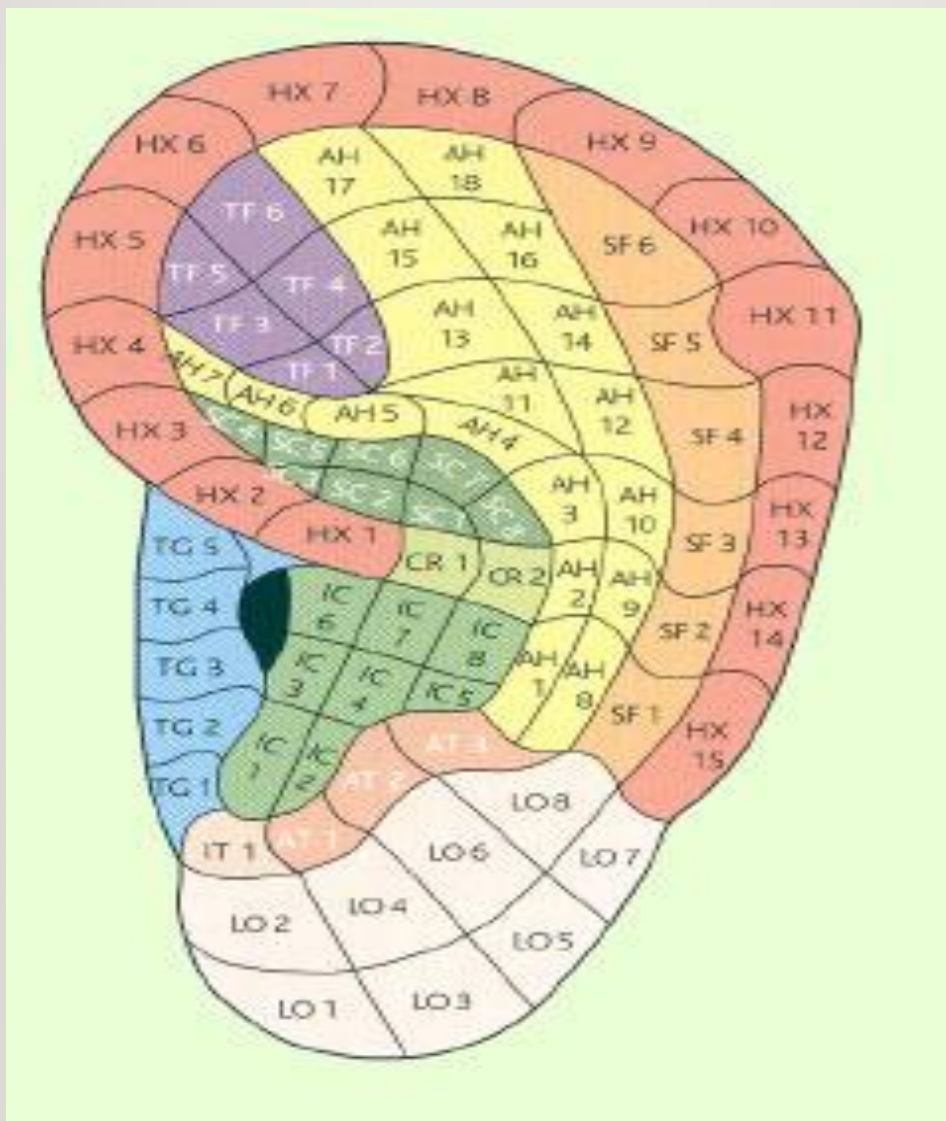


M. Valiani

12 December 2020







AURICULOTHERAPY AND PCO VIDEO





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Glass



Silicone

Cup Types



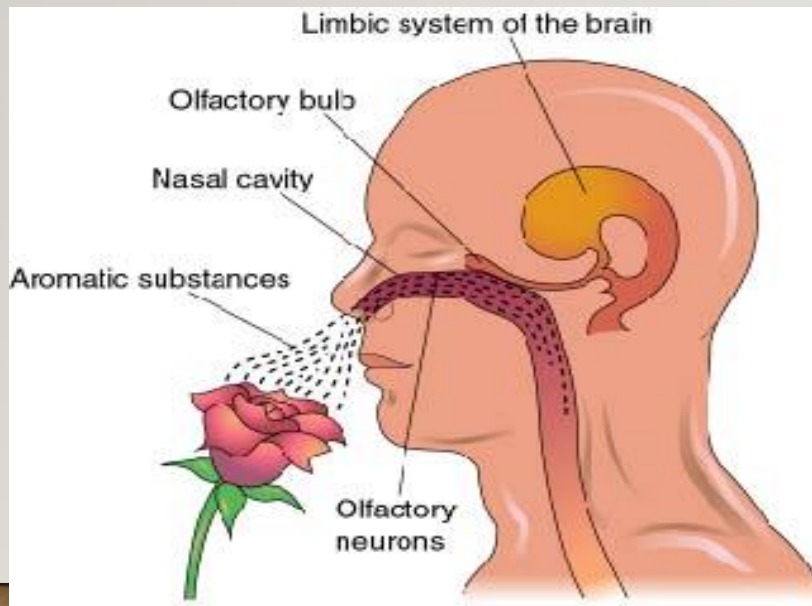
Bamboo



Plastic





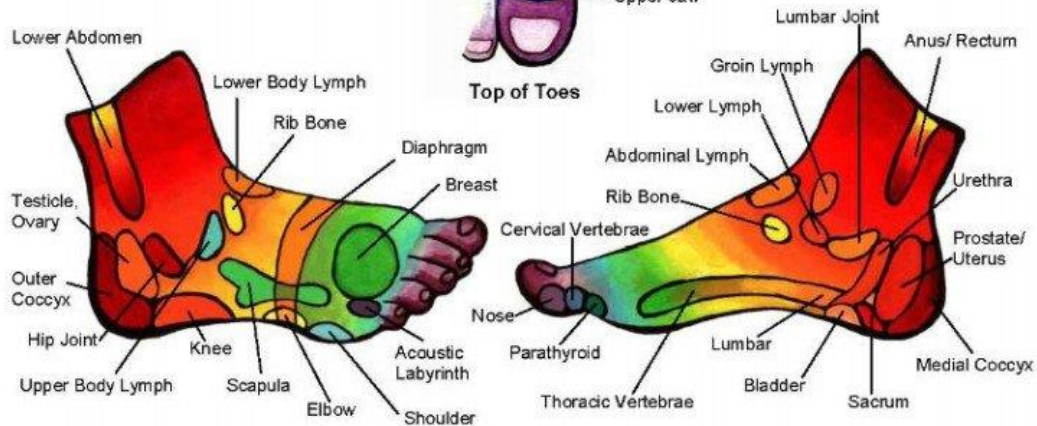
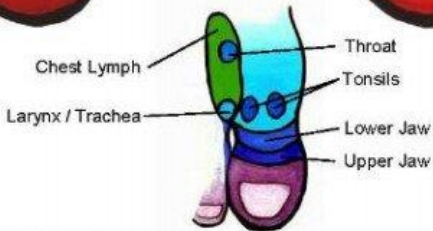
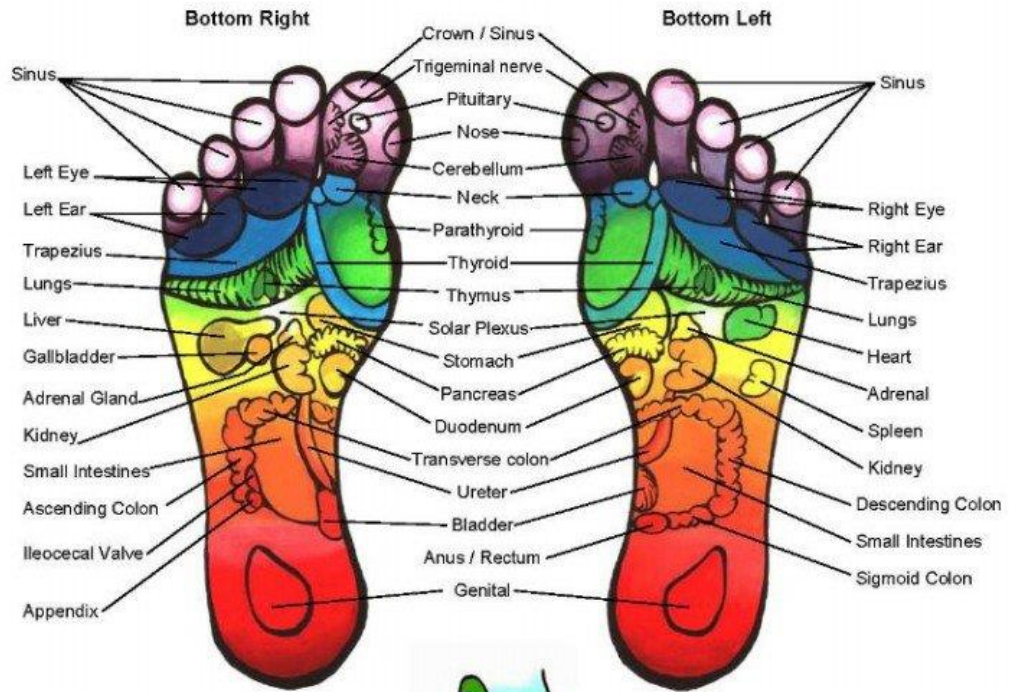


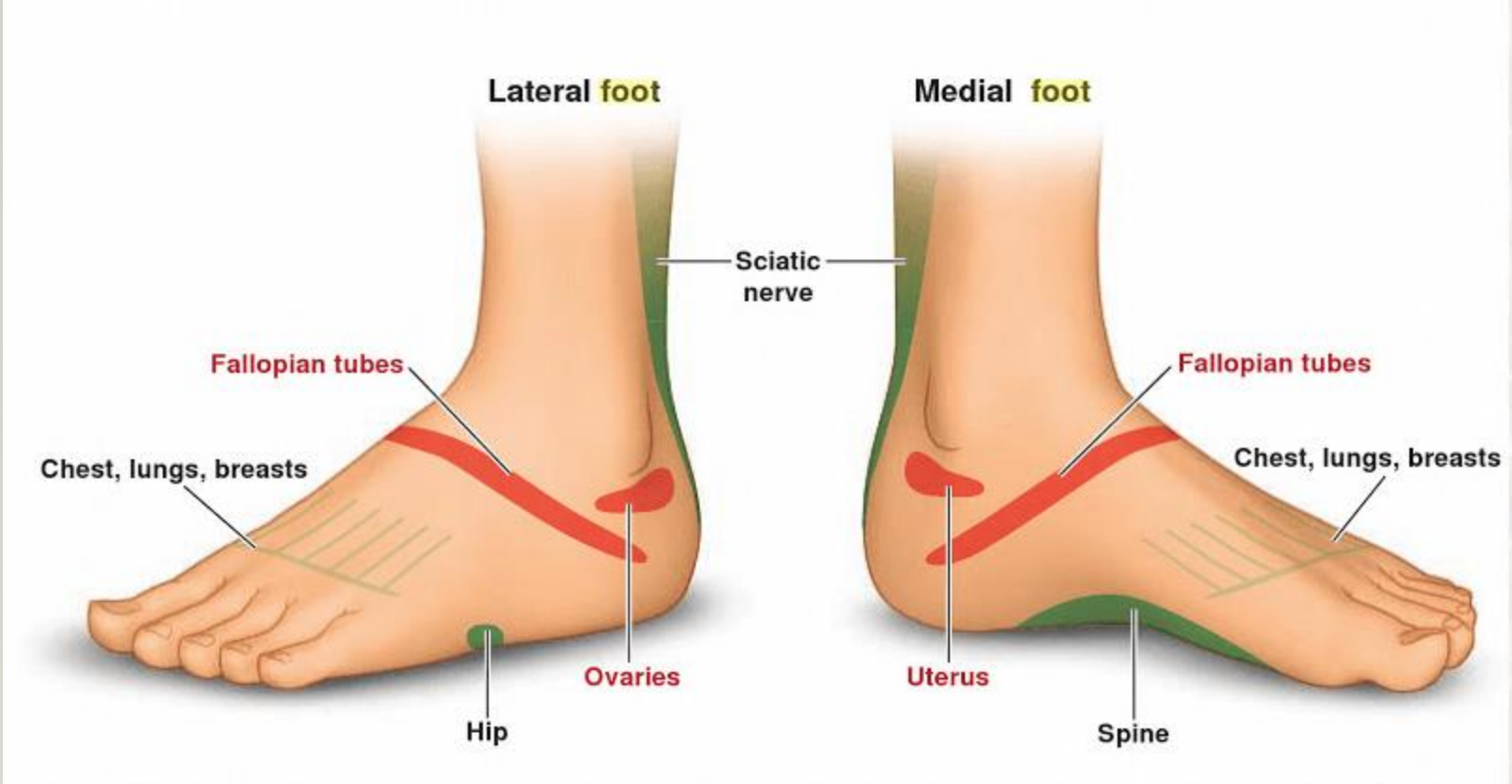




راز یانه
بابونه

Foot Reflex Chart



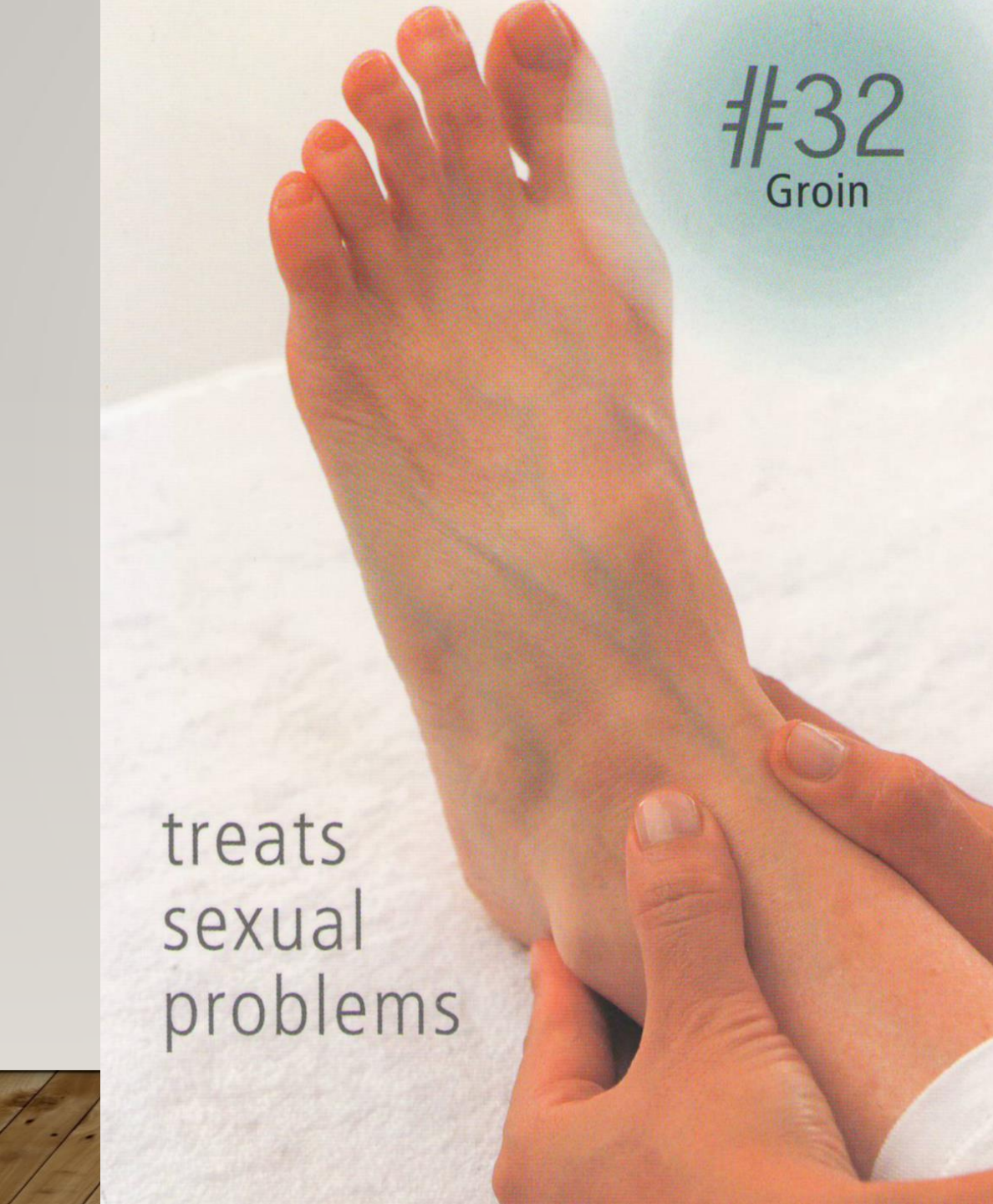


Reflexology Technique

5 Incredible reflexology techniques: walk, rotate, hook & backup, pressure and pivot on a point.







#32

Groin

treats
sexual
problems

#32

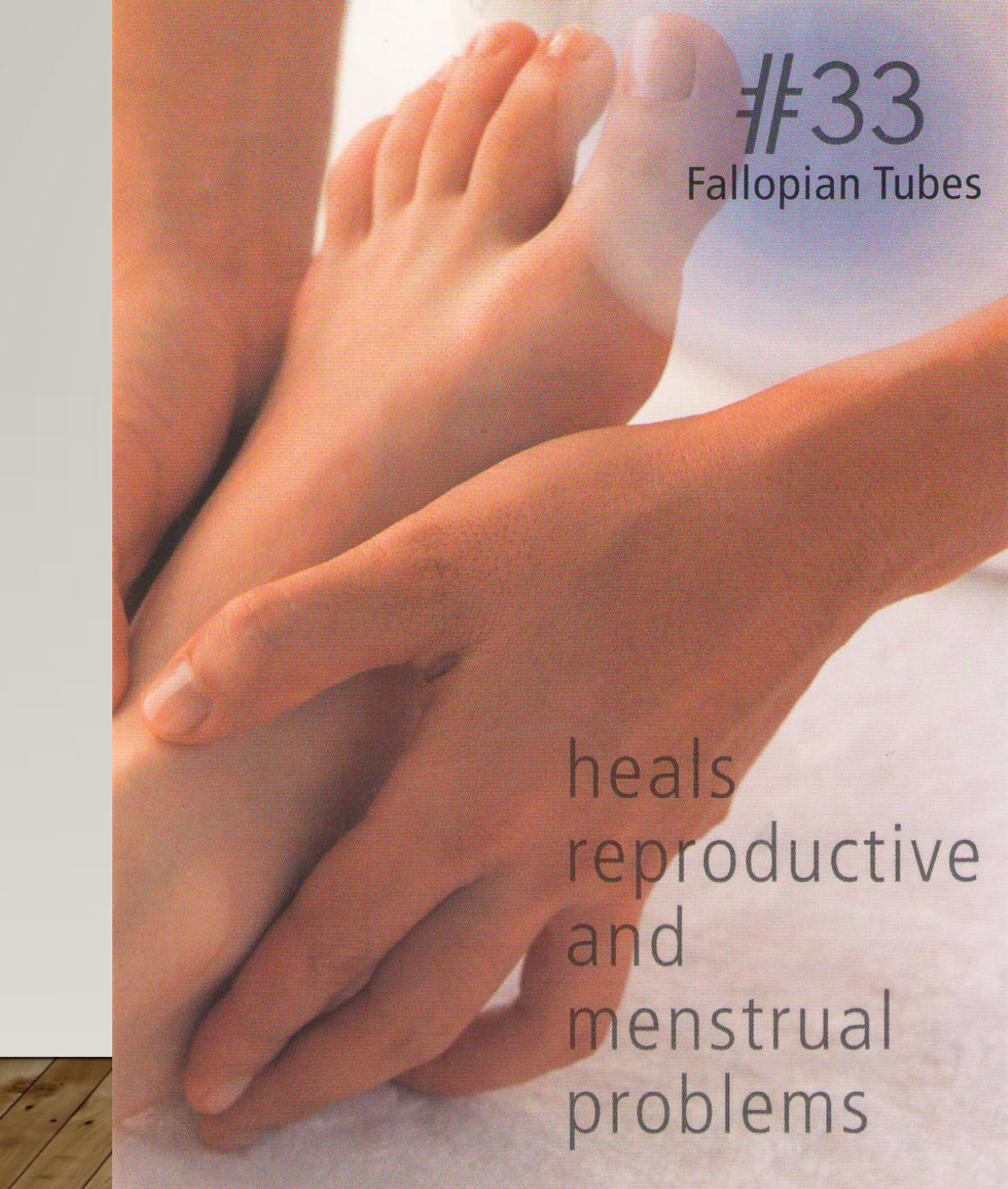
Groin

LOCATION The top of each foot, where the arch and ankle join, corresponds to the groin.

CONDITIONS AIDED BY MASSAGING THIS POINT Sexual problems, libido, reproduction, impotence

TREATMENT Begin by bending one foot at the ankle several times, slowly, then gently rotate the foot. Next, stroke the top of the foot with your fingertips, from one anklebone to the other, over the arch where the foot bends. Use your fingers and thumbs to massage the area, working back and forth from one anklebone to the other, applying steady, even pressure. Repeat the process on the other foot.

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of ylang-ylang, patchouli, or jasmine to enhance sexual function.



#33

Fallopian Tubes

heals
reproductive
and
menstrual
problems

#33

Fallopian Tubes

LOCATION The tops of a woman's feet, where the arch and ankle join, correspond to the fallopian tubes.

CONDITIONS AIDED BY MASSAGING THIS POINT Menstrual problems, cramps, irregularity, reproduction problems

TREATMENT Begin by bending one foot at the ankle several times, slowly, then gently rotate the foot. Next, stroke the top of the foot with your fingertips, from one anklebone to the other, over the arch where the foot bends. Use your fingers to massage the area, working back and forth from one anklebone to the other, applying steady, even pressure. Repeat process on other foot. (Note: Consider massaging the areas that correspond to the ovaries and uterus, too.)

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of rose, bergamot, melissa, or sweet orange to promote balance and reduce stress.

#34

Ovaries/Testes

treats infertility
and impotence

#34

Ovaries/Testes

LOCATION On both feet, the area on the outer side of the heel, about halfway between the anklebone and the bottom of the foot, corresponds to the ovaries and testes.

CONDITIONS AIDED BY MASSAGING THIS POINT Infertility, impotence, low libido, menstrual cramps, irregular periods, mood swings, menopausal complaints

TREATMENT Begin by stroking the outer side of one heel with your fingertips. Next, use your thumb to rub the area, using a circular motion and gradually increasing the degree of pressure. Hold your thumb on the tender spot and press steadily for about thirty seconds or until tenderness begins to diminish. Repeat the process on the other foot. (Note: Consider massaging the areas for the fallopian tubes, uterus, or prostate, too.)

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of jasmine, rose, or sweet marjoram to soothe tension and restore balance; musk or patchouli to stimulate libido or hormone production.

#35

Cervix

treats sexual
problems

#35 Cervix

LOCATION The back center of a woman's heel, on the soles of both feet, corresponds to the cervix.

CONDITIONS AIDED BY MASSAGING THIS POINT Sexual problems

TREATMENT Begin by massaging the heel of one foot with the heel of your hand. Ball your hand into a fist and knead the specific area with the knuckles, using a rocking motion and gradually increasing the degree of pressure. Finish by pressing the thumb firmly to the point and hold for about thirty seconds. Repeat the process on the other foot. (Note: Consider massaging the areas that correspond to the fallopian tubes and uterus, too.)

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of jasmine, rose, or melissa to promote balance and encourage positive emotions.

#36

Uterus

heals
reproductive
and menstrual
problems

#36

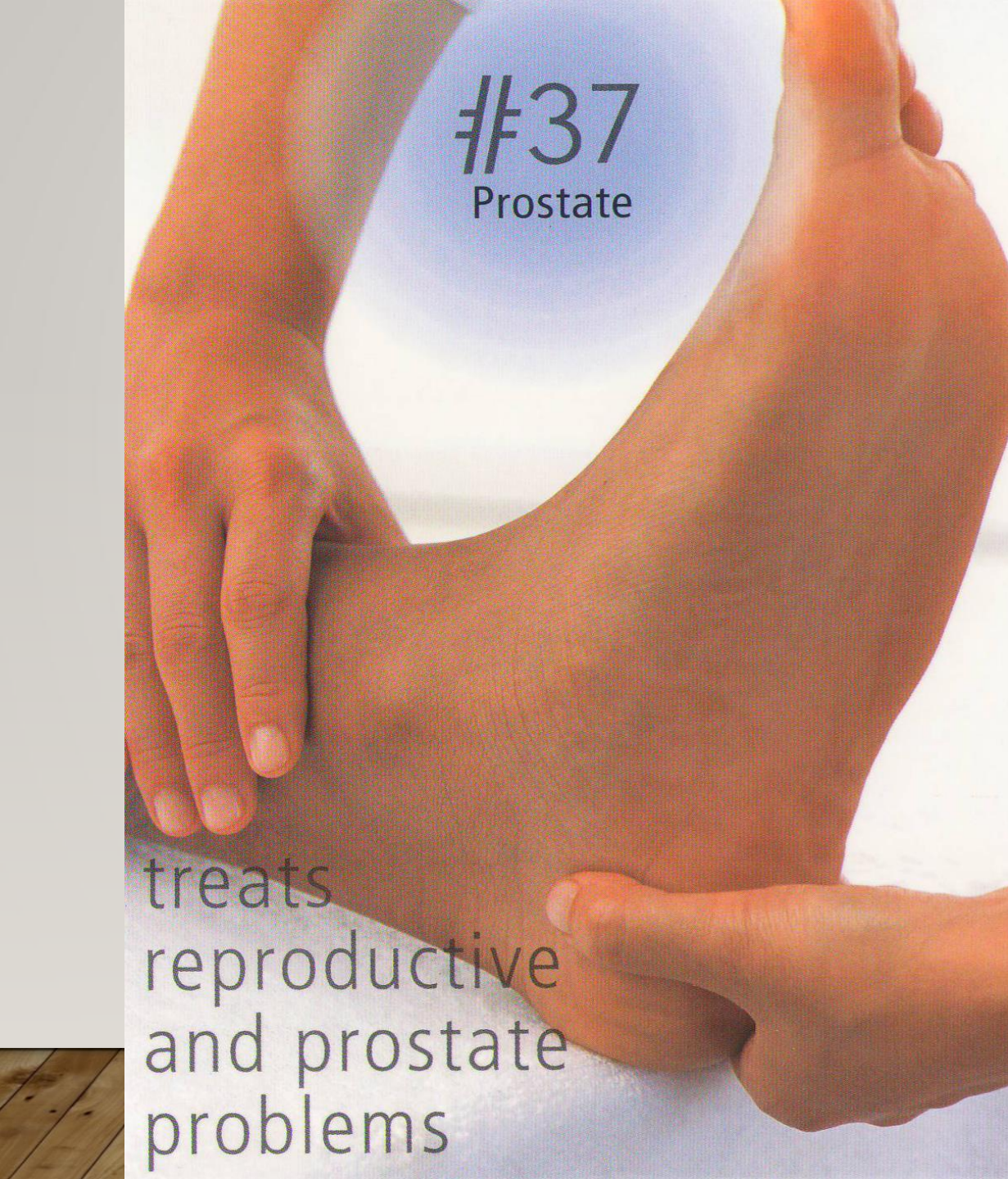
Uterus

LOCATION On both of a woman's feet, the inner side of the heel about halfway between the anklebone and the sole of the foot, corresponds to the uterus.

CONDITIONS AIDED BY MASSAGING THIS POINT Reproduction problems, menstrual cramps, irregular periods, menopausal complaints

TREATMENT Begin by stroking the inner side of one heel with your fingertips. Then press your thumb to this point and hold for about thirty seconds. Next, massage the area with your thumb, using a circular motion. Repeat process on other foot. (Note: Consider massaging the areas that correspond to the fallopian tubes and ovaries, too. Caution: Do not work on this area during pregnancy.)

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of jasmine, rose, or melissa to promote balance.



#37

Prostate

treats
reproductive
and prostate
problems

#37

Prostate

LOCATION On both of a man's feet, the inner side of the heel, about halfway between the anklebone and the sole of the foot, corresponds to the prostate.

CONDITIONS AIDED BY MASSAGING THIS POINT Reproduction problems, enlarged prostate, impotence

TREATMENT Begin by stroking the inner side of one heel with your fingertips. Then press your thumb to this point and hold for about thirty seconds. Next, massage the area with your thumb, using a circular motion. Repeat the process on the other foot. (Note: Consider massaging the areas that correspond to the testes, too.)

BENEFICIAL ESSENTIAL OILS To enhance results, use massage oil or lotion that contains essential oil of sandalwood, musk, or patchouli to improve prostate function.