



# ***Menopause***

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# ***Definition***

## ***✿ Climacteric***

***★ The phase in the aging process of women marking the transition from the reproductive stage of life to the non-reproductive stage***

## ***✿ Menopause***

***★ Menopause is defined by complete, or near complete, ovarian follicular depletion and absence of ovarian estrogen secretion.***



# ***Menopause***

- ✿ ***12 months of amenorrhea after the final menstrual period.***
- ✿ ***FSH and LH increases***
- ✿ ***Women sex hormones decreased.***

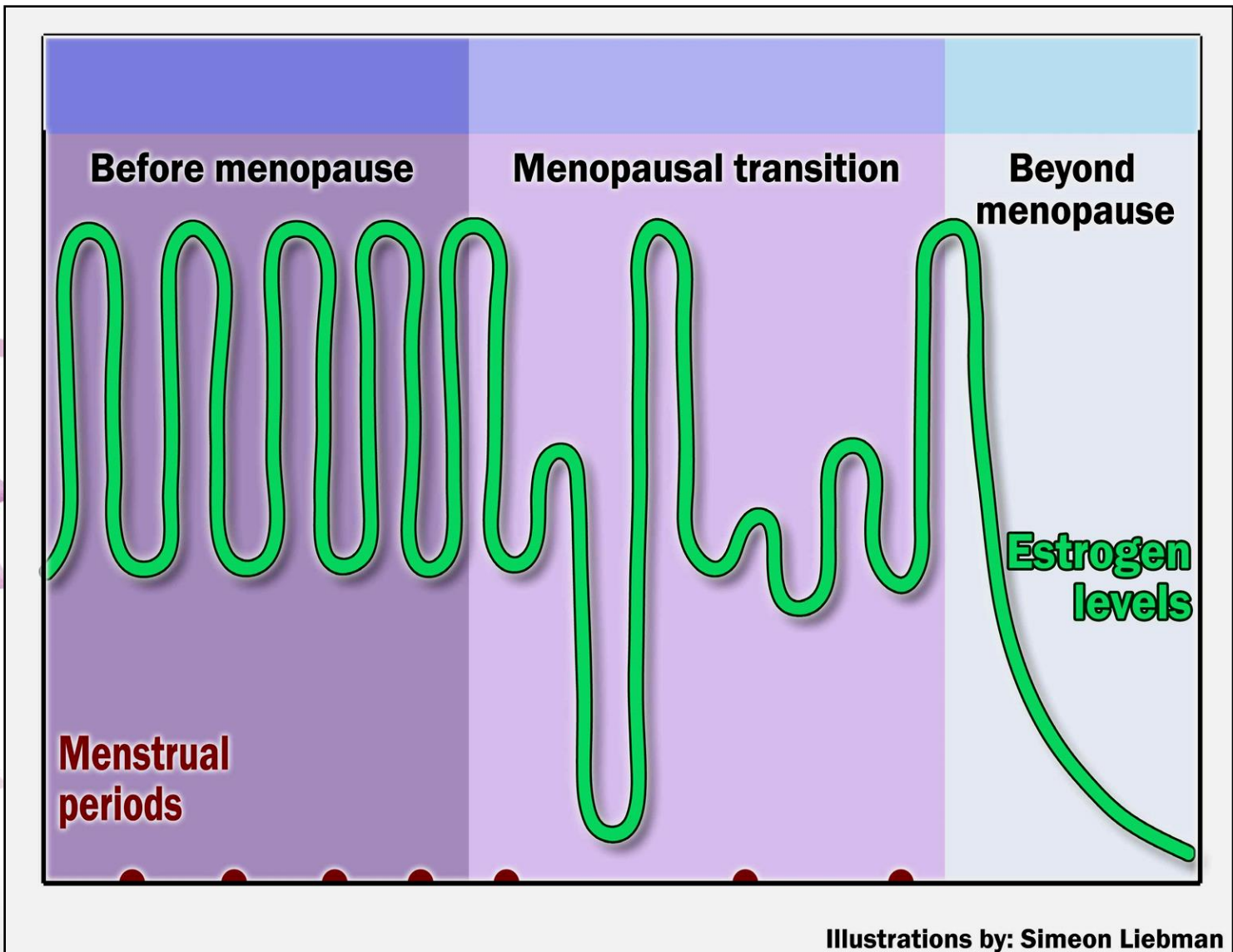


# ***Age at menopause***

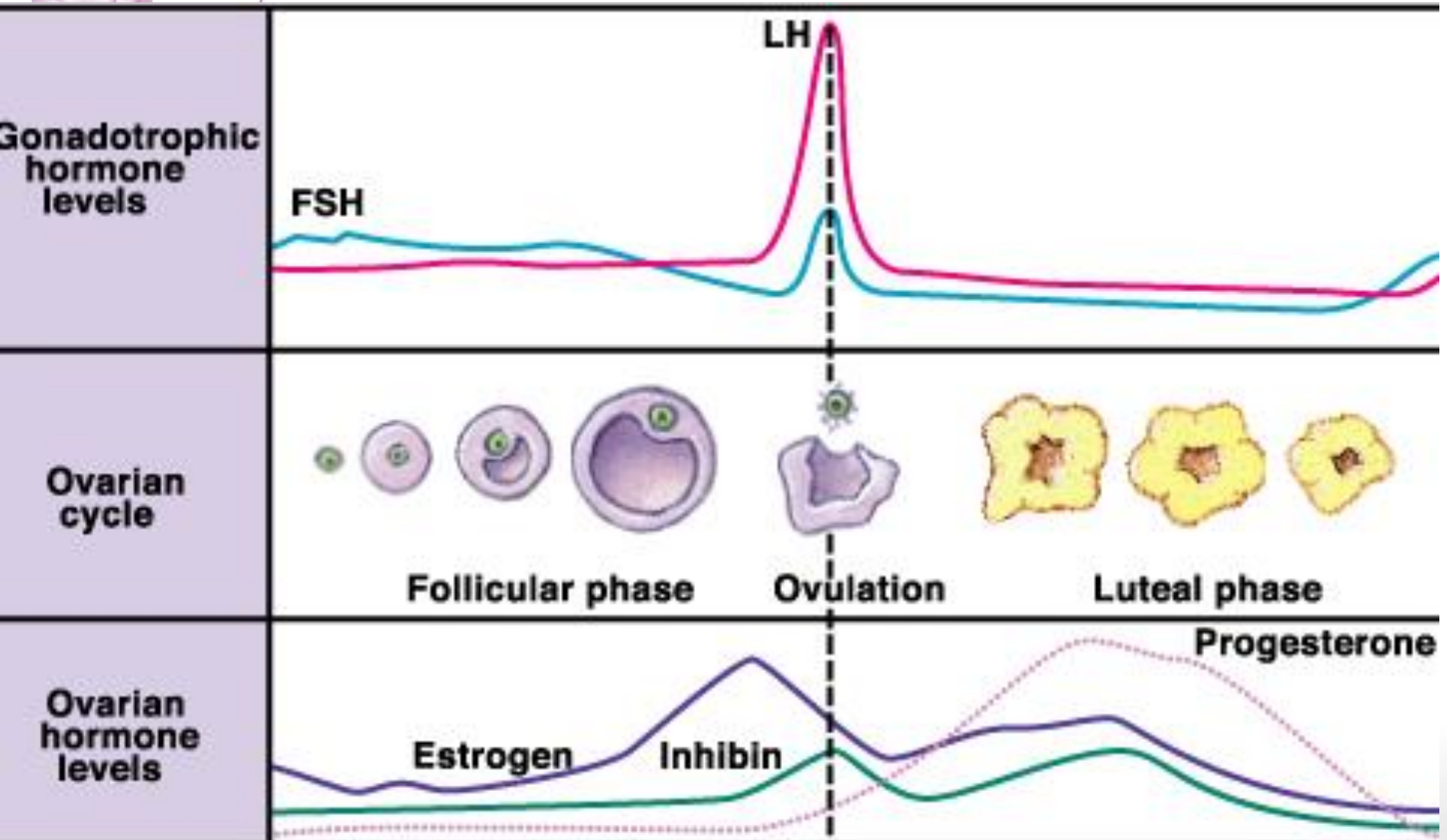
- ✿ ***Although the average age at menopause is approximately 51 years***
- ✿ ***Late menopause: 5 percent of women, it occurs after age 55 years***
- ✿ ***Early menopause: 5 percent of women, it occurs between ages 40 to 45 years***



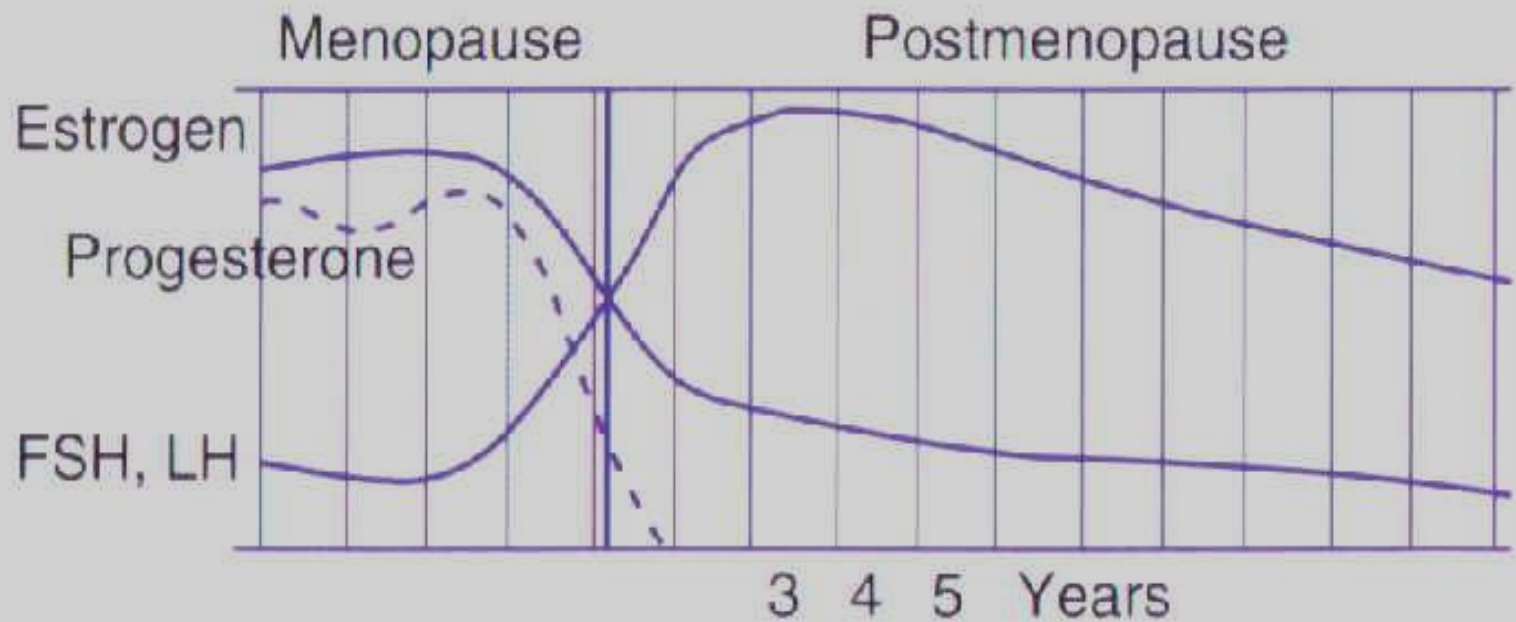
# *Changing hormone levels with menopause*



# *Normal ovarin cycle*



## Menopausal and postmenopausal hormonal levels



**Fig. 2.9.** Decline in estrogen, progesterone, FSH and LH levels with age and menopausal status.



# ***Target organs of Estrogen***

- ✿ ***Bone***
- ✿ ***Urogenital***
- ✿ ***Vasomotor***
- ✿ ***Heart***
- ✿ ***Breast***
- ✿ ***Eyes***
- ✿ ***Teeth***
- ✿ ***Colon***





# ***Universal signs of menopause***

- ✿ ***Cessation of menses***
- ✿ ***Vaginal dryness***
- ✿ ***Skin changes***
- ✿ ***Bon loss***

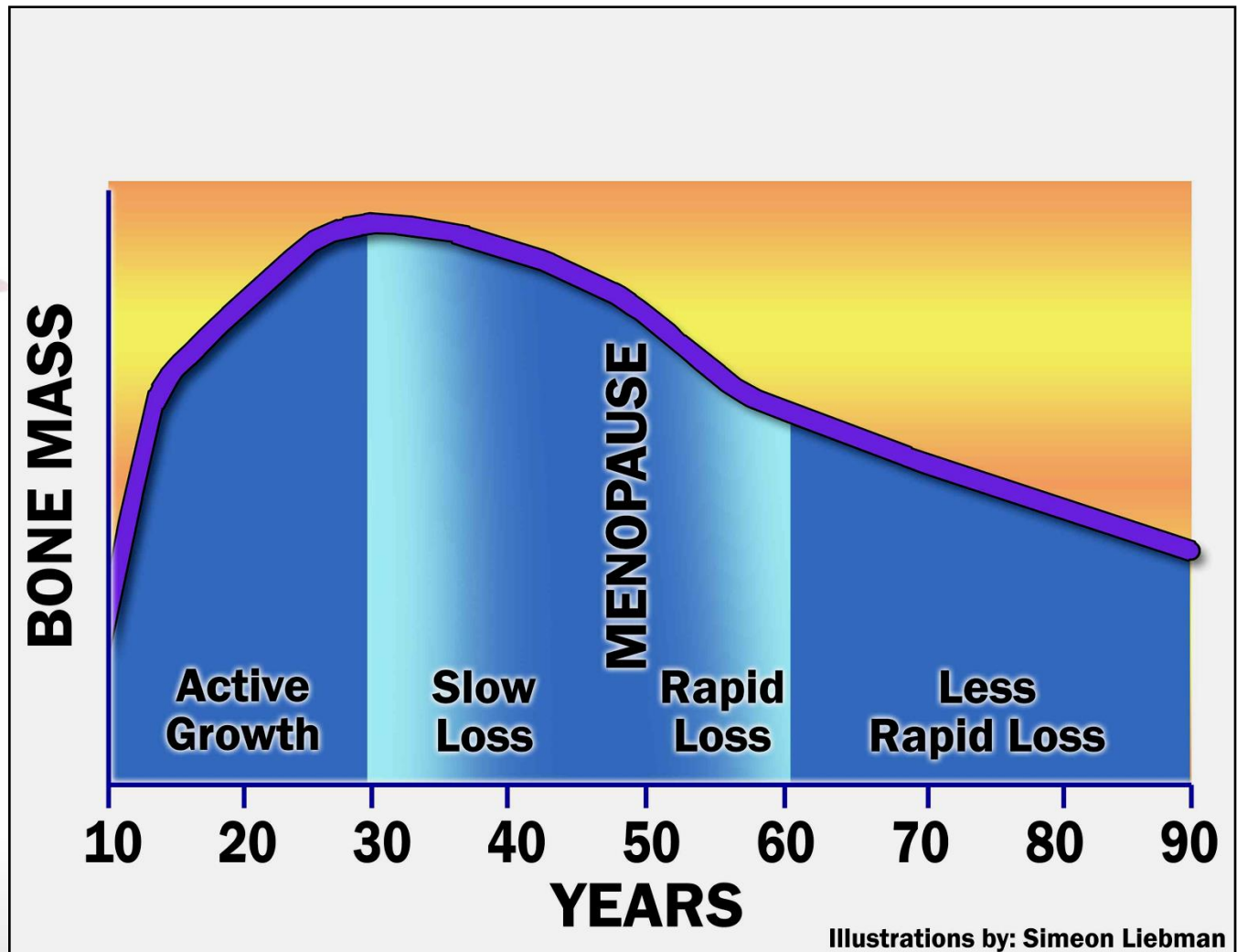


# ***Non-universal changes Consequences of Estrogen Loss***

- ✧ ***Hot flashes***
- ✧ ***Sleep disturbance***
- ✧ ***Urogenital Atrophy***
- ✧ ***Osteoporosis***
- ✧ ***Skin Dryness***
- ✧ ***Aging***

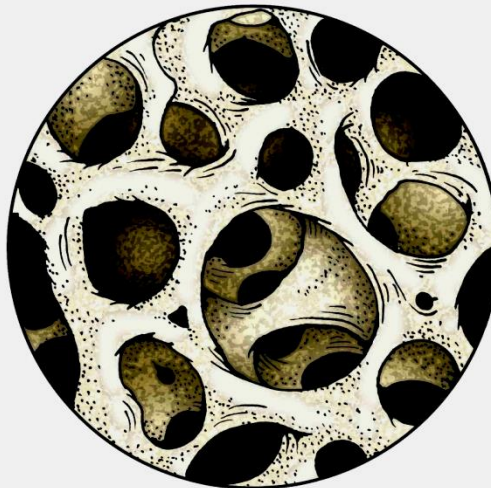
***Cultural differences***

# ***Bone loss with aging***



# Osteoporosis

- ✿ ***A bone thinning disease that sets the stage for serious fractures***



**STRUCTURED**  
Healthy Bone is Well Connected



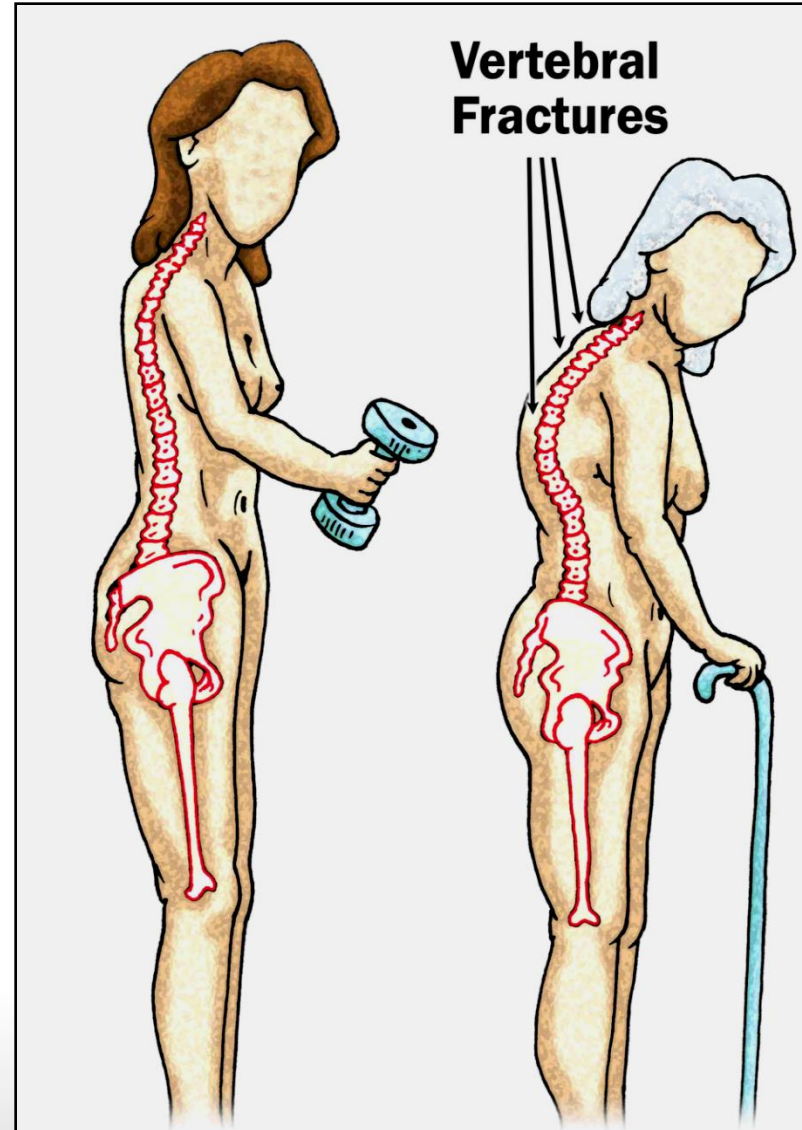
**FRACTURED**  
Weak, Osteoporotic Bone



# ***Osteoporosis***

***Osteoporosis is associated with fracture:***

- ✦ ***Vertebral***
- ✦ ***Distal radius***
- ✦ ***Femoral neck***



Illustrations by: Simeon Liebman



# ***Prevention of osteoporosis***

- ✿ ***Change lifestyle risk factors***
- ✿ ***Exercise***
- ✿ ***Adequate calcium / vitamin D intake***
- ✿ ***Hormone Replacement Therapy***
- ✿ ***Alendronate***
- ✿ ***Raloxifene***



# ***Cardiovascular disease***

***\* Rapid increase in mortality and morbidity from cardiovascular disease after menopause***

- \* Coronary heart disease (CHD)***
- \* MI***
- \* Stroke***
- \* Pulmonary Embolism***



# ***Prevention of cardiovascular disease***

- ✿ ***Healthy life style***

- ✿ ***Diet***

- ✿ ***Avoid smoking***

- ✿ ***Control of:***

- ☆ ***Hypertension***

- ☆ ***Diabetic***

- ☆ ***Hyperlipidaemia***

- ✿ ***H RT?***

- ☆ ***HDL ↑, LDL ↓, Lipoprotein ↓***

- ☆ ***Insulin sensitivity ↑***

- ☆ ***Vascular dilatation***



# ***Hot flashes***



# ***Hot flashes***



- \* Hot flashes typically begin as a sudden sensation of heat centered on the face and upper chest that rapidly becomes generalized***
- \* Peripheral vasodilatation, profuse perspiration followed by chills***
- \* Sudden onset, seconds to minutes (2 - 4 minutes)***





# ***Hot flashes***

- \* Unknown etiology.***
- \* Thermoregulatory dysfunction***
- \* 75% of menopausal women complain of hot flashes***
- \* 20% seek therapy.***
- \* Self limited to 1-5 years.***



# ***Avoid hot flash***

- ✿ ***Alcohol***
- ✿ ***Caffeine***
- ✿ ***Spicy foods***
- ✿ ***Hot foods and drinks***
- ✿ ***Warm environment***
- ✿ ***Stress***
- ✿ ***Smoking***





# ***Tip for Patients***

- \* Wear cotton***
- \* Wear open neck shirts***
- \* Keep ice water on hand***
- \* Sleep with fewer blankets***
- \* Take cool shower before bed***
- \* Eat smaller, more frequent meals***
- \* Limit caffeine and alcohol***
- \* Stop smoking***



# ***Night Sweats***

***✿ Hot flashes can arouse from sleep and primary sleep disorders more common***

***✿ Irritability***

***✿ Anxiety***

***✿ Fatigue***

***✿ Forgetfulness***

***✿ Inability to concentrat***



# ***Therapies***

- ✿ ***Estrogen** is most effective*
  - ☆ ***If women has uterus give with progesterone***
  - ☆ ***Short term therapy***
  - ☆ ***Taper to end***
- ✿ ***SSRIs** are One of first choices if not taking HRT.*
- ✿ ***Gabapentin** is suggested for nocturnal hot flashes*



# ***Therapies cont...***

✿ ***Progestins***

✿ ***Clonidine (alpha adrenergic agonist)***

✿ ***Phytoestrogens***

✿ ***Herbal (Black Cohosh)***

✿ ***Vitamins***





# ***Urogenital Atrophy***

## ***\* Estrogen deficiency:***

***☆ pH >4.5***

***☆ Leads to thinning of epithelium***

***✦ Vaginal atrophy:***

***✦ Lack of the normal rugae***

***✦ Pale***

***☆ Vaginal dryness***

***☆ Frequent UTI***



# ***Vaginal dryness***

- ✿ ***Sexual dysfunction***
- ✿ ***Dyspareunia***
- ✿ ***Postcoital bleeding***
- ✿ ***Itching***
- ✿ ***Urethritis***
- ✿ ***Urinary incontinence***



# ***Therapies***

## ***✿ Topical estrogen:***

***★ Vaginal Cream***

***★ Vaginal tablet***

***★ Vaginal ring***



# ***Central Nervous System***

- ✿ ***Psychological***
- ✿ ***Anxiety***
- ✿ ***Depression***
- ✿ ***Cognition***
- ✿ ***Memory***





# ***Skin Dryness***

## ***✿ Estrogen deficiency:***

***☆ Can lead to reduced collagen content of the skin and bones.***

***✦ Thinning of epidermis***

***✦ Atrophy of sebaceous glands***

***✦ Increased aging and wrinkling of the skin.***

***☆ Increased sensitivity to temperature, humidity, and trauma***

