



بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

CHRONIC PAIN, PHYSICAL ACTIVITY, AND THE ROLE OF INTERNIST IN MANAGEMENT

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NEED FOR A HOLISTIC APPROACH



For decades, many countries has seemed powerless to curb excessive health care spending and improve the quality of care in pain patients.

EXERCISE PRESCRIPTION

EFFECTIVE IN PREVENTION & TREATMENT OF PAIN

INCREASES PAIN THRESHOLD

EFFECTIVE IN PREVENTION & TREATMENT OF DISEASES



Adaptations to exercise

- increased bone density
- improved flexibility and ROM
- increased muscle tone & strength & mass & glycogen
- improved coordination & balance
- reduced symptoms of depression & anxiety
- improved fat & CHO metabolism
- increased insulin receptor sensitivity
- improved weight control, decrease in body fat percent



The standard posture

- Ideal rather than average or normal
- Deviations=impairment

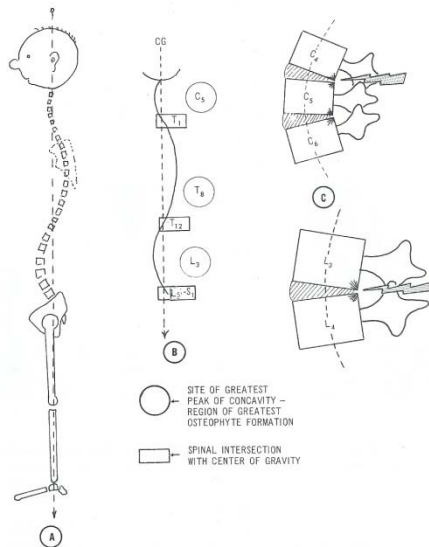
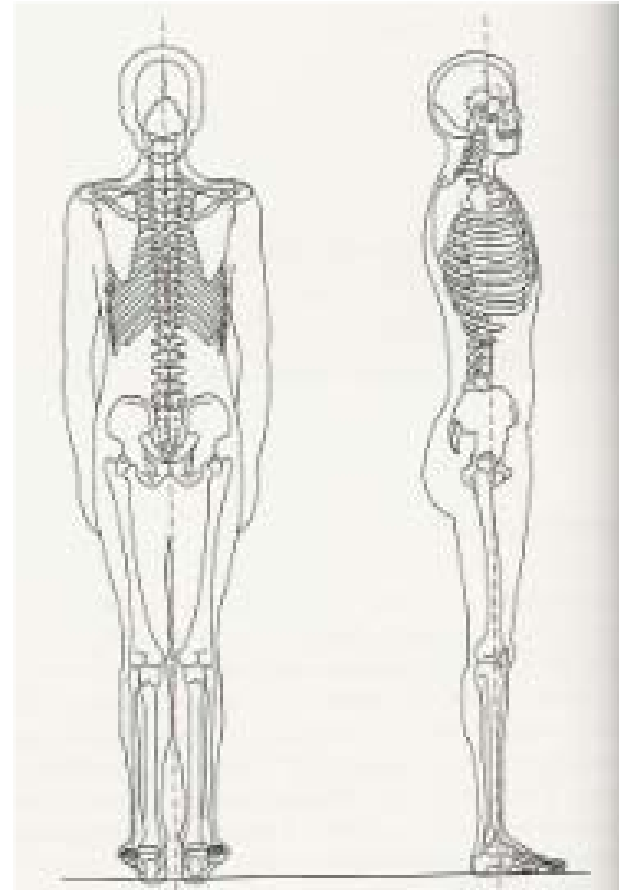


Figure 9-1. Spinal curve relationship to center of gravity. A, Erect posture. B, Transection of the spinal curves to the center of gravity (CG). C, Potential injury to the spinal joints from excessive lordosis.

Poor posture

Forward Head (poke Neck)	Headache, Neck & shoulder or arm pain
Kyphosis (Hump Back)	Sunken chest , impaired Respiration , neck & shoulder Pain
Lumbar Lordosis (sway Back)	Back pain & injury , protruded abdomen , low Back syndrome
Abdominal ptosis	Back pain , lordosis, L.B.P , painful menstruation
Hyperextended knee	Knee injury , pelvis Tilt & lordosis
Flat Back	LBP , Back pain
Round shoulder	Limited Motion, trigger point, impingement syndrome

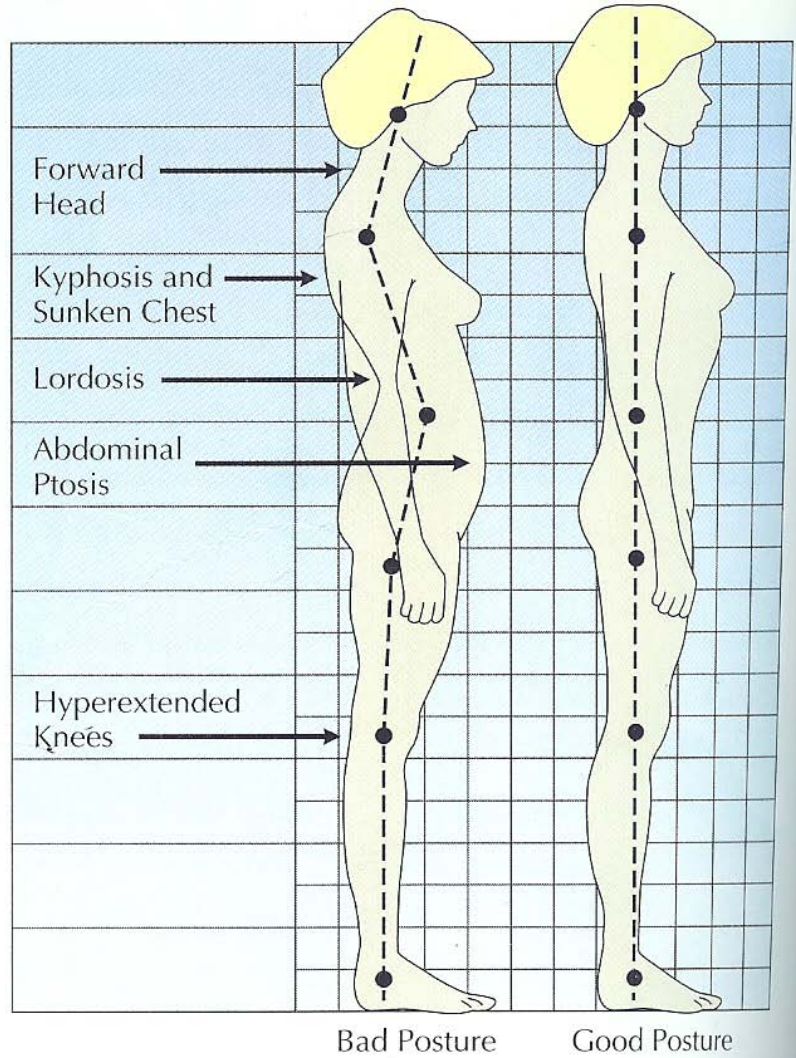


Figure 1
Comparison of bad and good posture.

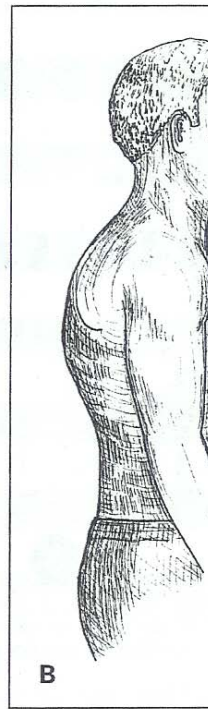
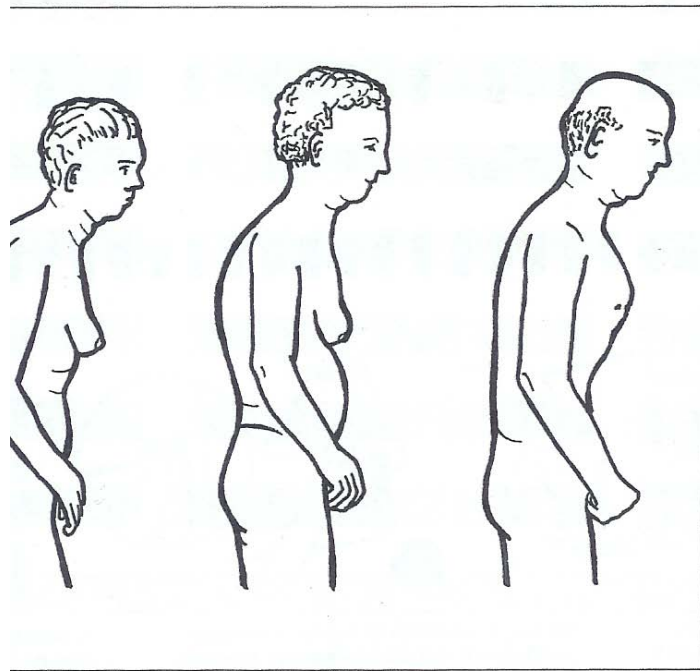


FIGURE 2. A, Kyphotic deformities. B, Kyphosis.

Kyphosis (Hump Back)

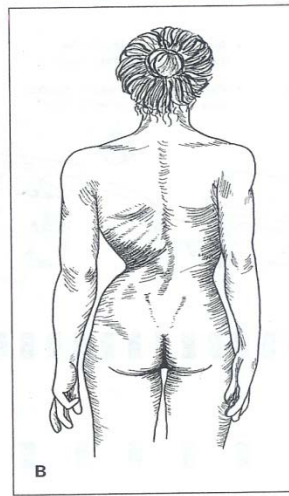
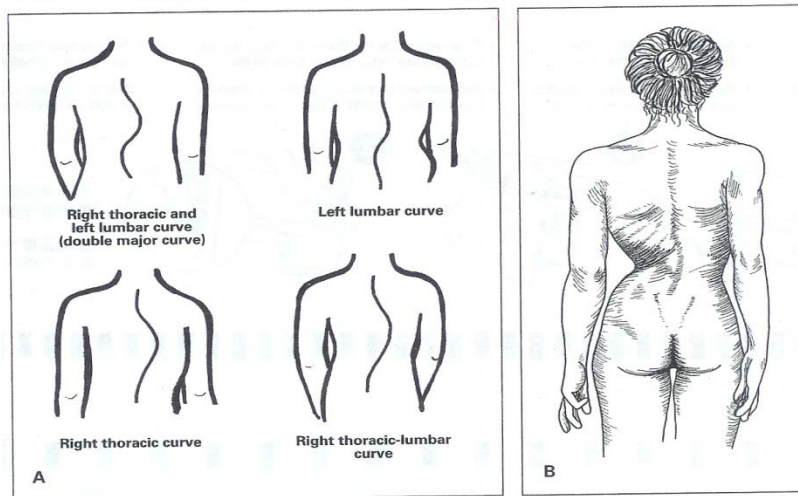


FIGURE 1. A, Examples of scoliosis curve patterns. B, Scoliosis.

SCOLIOSIS

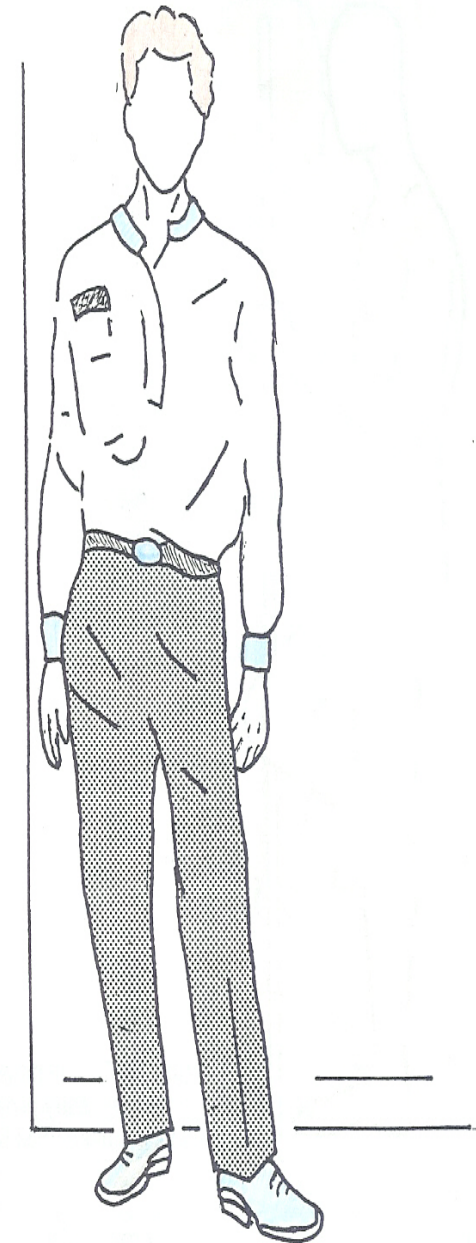


Figure 12-1 One example of a normal asymmetric standing posture. Support in the lower extremity is mainly through the right leg, using ligamentous and bony support at the hip and knee.

normal



ASIS plane / pubis plane



Figure 2
Balanced muscle strength and length permit good postural alignment.

ANTERIOR PELVIC TILT



Vertical plane through ASIS anterior to vertical plane through symphysis pubis

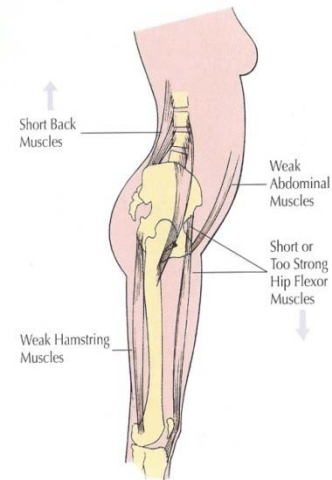


Figure 3
Unbalanced muscular development may cause poor posture or back problems.

ROUND SHOULDER

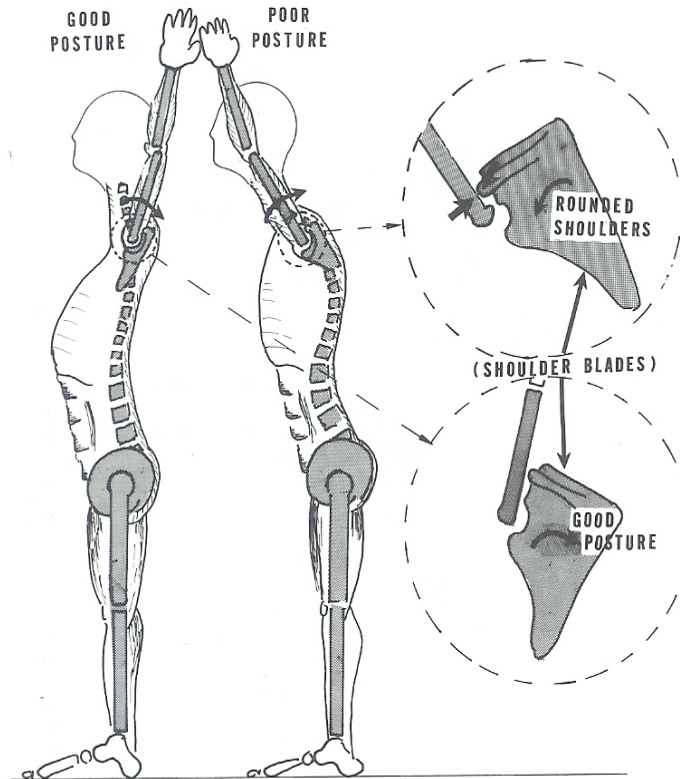
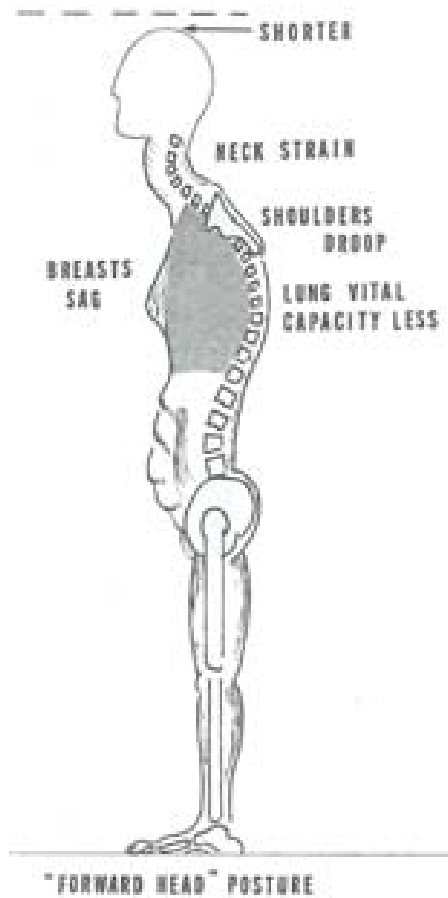


Figure 7-37. Good posture, poor posture. Poor posture causes “round shoulders” with downward rotation of the scapula, entrapping the rotator cuffs of the gleno humeral joints.



Forward Head (poke Neck)

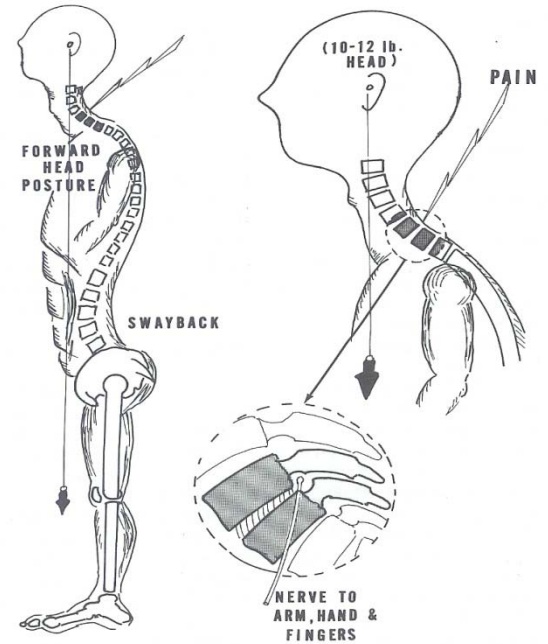


Figure 5-7. Forward-head posture rejuvenation strategy. When the head is held ahead of the center of gravity (forward-head posture), the 10-to-12-pound head causes an increase in lordosis and a closing of the posterior foramina, thus entrapping the nerve roots.

Headache, Neck & shoulder or arm pain

Goals of an interdisciplinary approach

- Improved quality of life & independence
- enjoyment & socialization
- compliance increases when grouped
- mental and intellectual stimulation
- Increase in lean body mass
- prevention of disease
- prevention of complications of inactivity
- minimizing symptoms of disease
- **Increasing pain threshold**



COMMON MEDICAL PROBLEMS IN CHRONIC PAIN PATIENTS

A sphygmomanometer is used to measure arterial blood pressure.



- Osteoporosis
- DM type2
- HTN
- CAD, angina pectoris, heart failure
- Intermittent claudication
- CVA
- Asthma, bronchitis, COPD
- Multi- Drug use
- Renal disease
- Constipation & fecal overflow incontinence
- DVT & PTE
- bed sore
- dependent edema
- Obesity
- depression
- Isolation
- chronic fatigue syndrome
- Cancer
- Infectious diseases
- Rheumatological disease

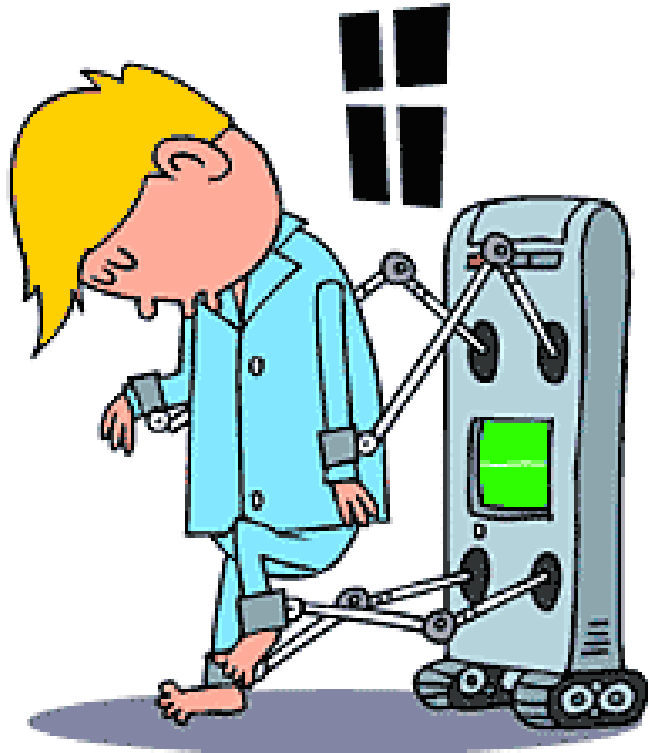
CHRONIC CONDITIONS

Pharmacological
treatment
Non-pharmacological
treatment



THE AIM:

Physical activity from childhood, through adulthood and to old age has an important effect on cardiovascular fitness



می توانید با روبات مخصوص در خواب ورزش کنید و در وقتان صرفه جویی کنید



THE FACT: Physical inactivity is the most important predictable risk factor of CAD (in Iran :87%)

Diabetic Neuropathy

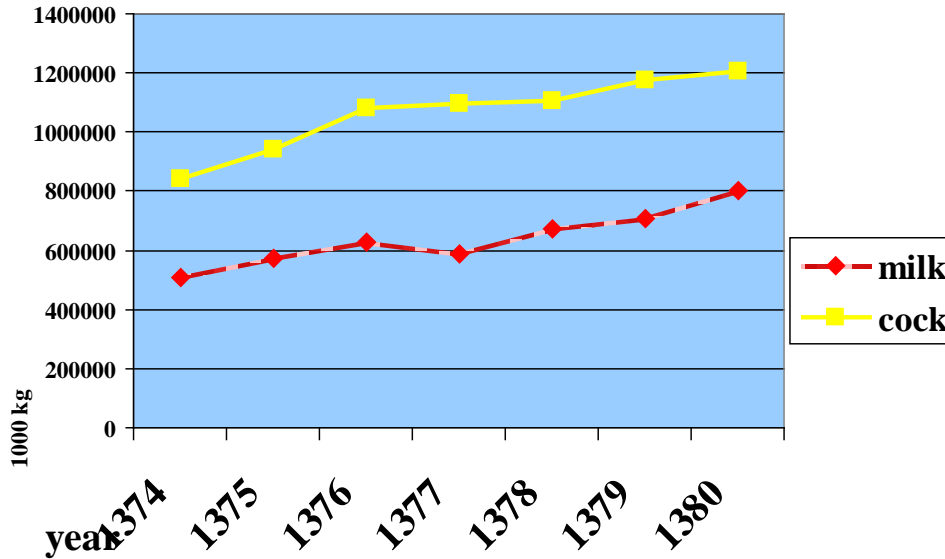
- 10-18% of patients have evidence of nerve damage at the time their DM is diagnosed: even in prediabetics.
- Treatment of diabetic neuropathy is less than satisfactory.
- Improved glycemic control will improve nerve conduction velocity, but symptoms of neuropathy may not necessarily improve.
- Risk factors for neuropathy such as HTN & HLP to be treated.
- Avoidance of neurotoxins (alcohol) and smoking, supplementation with vitamins for possible deficiencies (B₁₂, folate;)
- Intensive diabetes therapy markedly delays or prevents the development of clinically manifest diabetic polyneuropathy as confirmed by objective nerve function testing in patients with insulin-dependent diabetes mellitus.
- Vitamin B12 levels are 30% lower during metformin treatment.
- Currently, evidence does not support supplementation of the diet with vitamins, antioxidants (vitamin C and E), or micronutrients (chromium) in diabetes

- Reduce weight
- better glucose control
- decrease in glycosylated Hb
- increase in insulin sensitivity



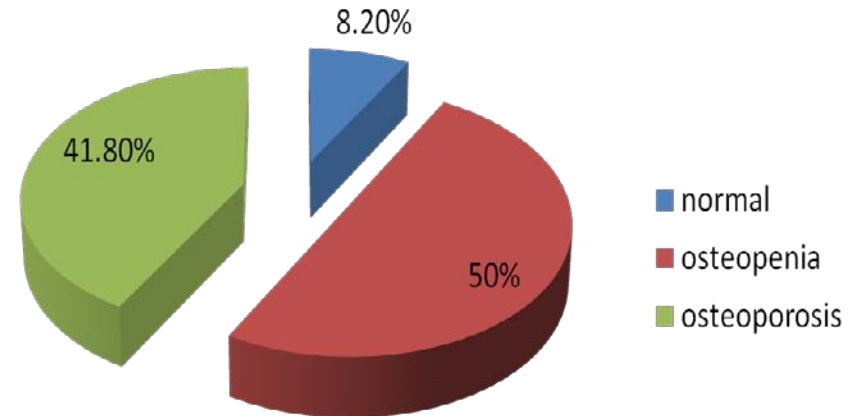
Osteoporotic fx and Pain

comparison of pasteurized milk to coca production



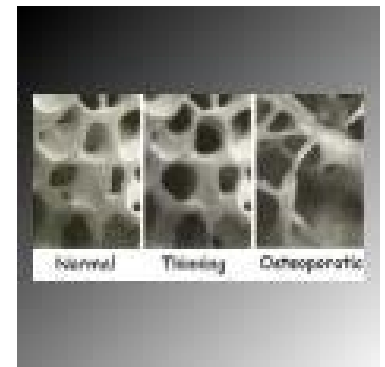
Vit D deficiency
Poor nutrition
Inactivity

Iranian postmenopausal women

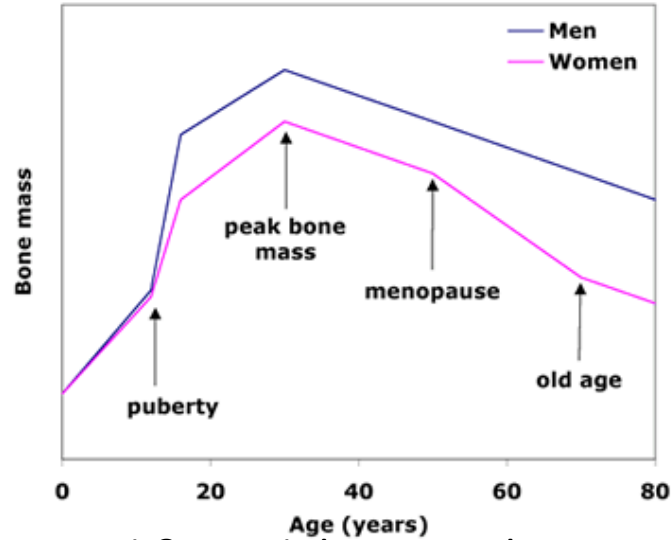


About 50% of men and 70% of women with age 50 or older suffer from osteoporosis or osteopenia in Iran.

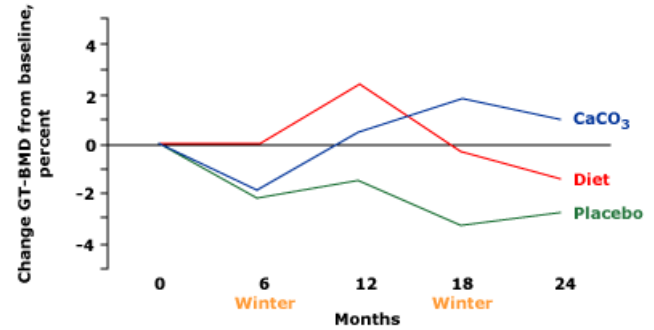
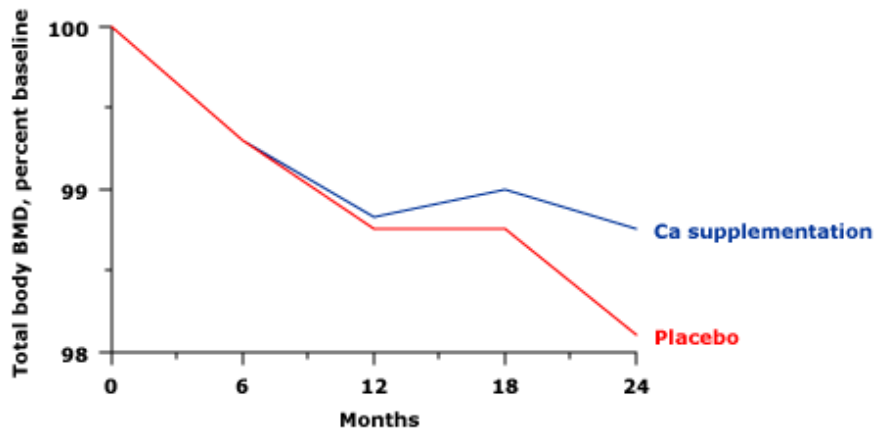
- weight bearing exercises
- a relation between muscle mass and BMD



Changes in bone mass with age



BMD - 0.5-1% & 5-7% decrease during pre- and post-menopausal period respectively



Vitamins, Minerals & PAIN





Vitamin D deficiency

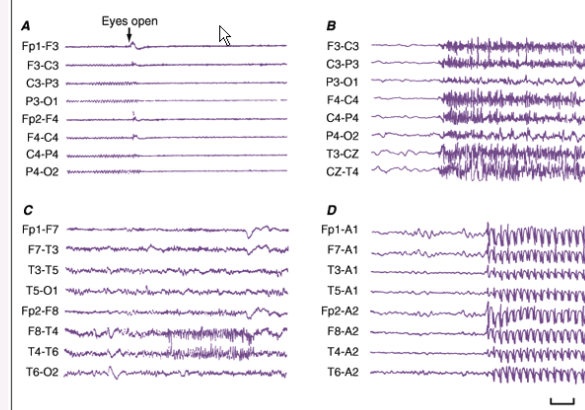
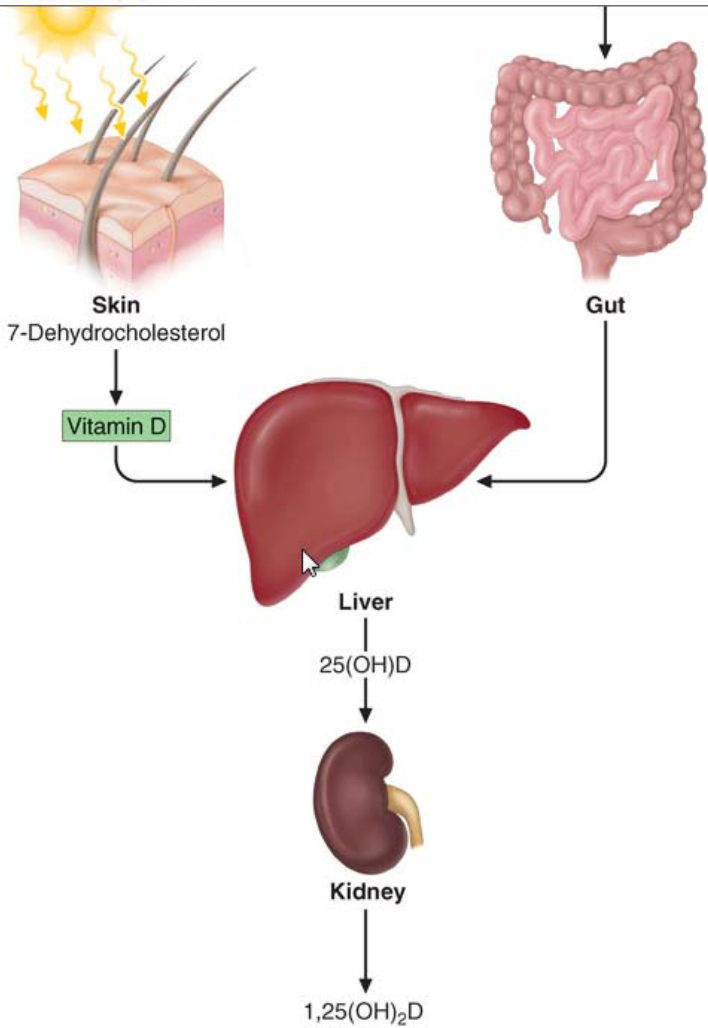


FIGURE 348-34. A normal EEG showing a posteriorly situated 9-Hz alpha rhythm that attenuates with eye opening. **B.** Onset of a tonic seizure showing generalized repetitive sharp activity with synchronous onset over both hemispheres. **C.** Burst of repetitive spikes in the right temporal region during a clinical spell suggestive of a complex partial seizure. **D.** Generalized 3-Hz spike-wave activity occurring synchronously over both hemispheres during an absence seizure. Horizontal calibration: 1 s; vertical calibration: 200 μ V in **A** and **C**, 400 μ V in **B**, and 750 μ V in **D**. Electrode placements are indicated at the left of each panel in accord with the international 10:20 system. A, earlobe; C, central; F, frontal; Fp, frontal polar; P, parietal; T, temporal; O, occipital. Right-sided placements are indicated by even numbers, left-sided placements by odd numbers, and midline placements by Z. [From MJ Aminoff (ed): *Electrodiagnosis in Clinical Neurology*, 4th ed. New York, Churchill Livingstone, 1999]

Signs of deficiency are muscle soreness, weakness, total body, and bone pain.

Thiamine deficiency

In either form of beriberi, patients may complain of pain and paresthesia.

- *Wet beriberi*
- *Dry beriberi*

Niacin deficiency, pellagra

- absolute lack of niacin
- deficiency of micronutrients required for the conversion of tryptophan to niacin
 - Iron
 - riboflavin,
 - pyridoxine

Niacin toxicity

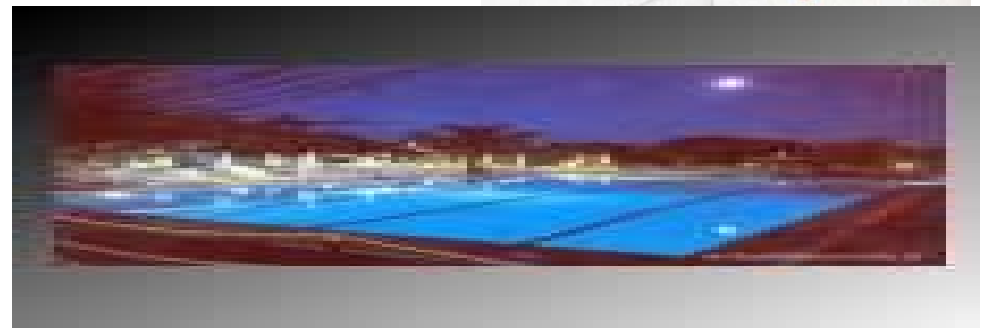
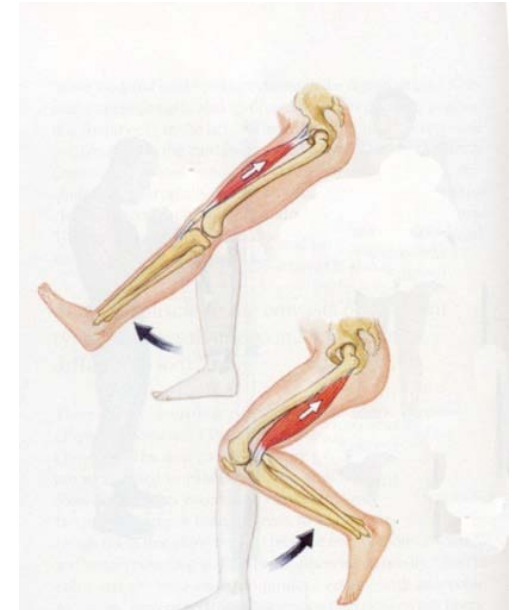
Vit A toxicity

Osteoarthritis & PAIN

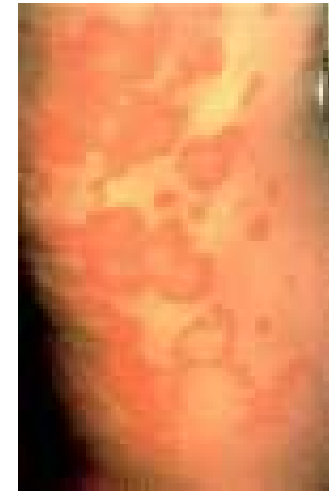
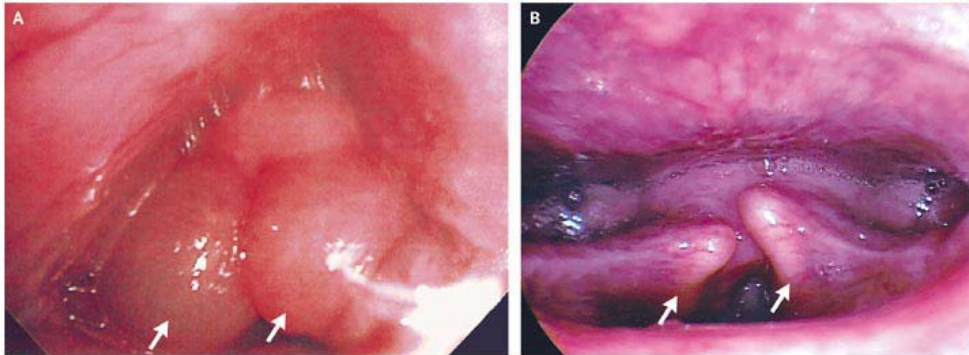
exercise as treatment:



- ✓ weight reduction,
- ✓ improved muscle tone,
- ✓ reduced atrophy,
- ✓ increased flexibility,
- ✓ improved biomechanics
- ❖ low-impact, low-intensity
- ❖ emphasis on strength and flexibility
- ❖ aquatic- machines



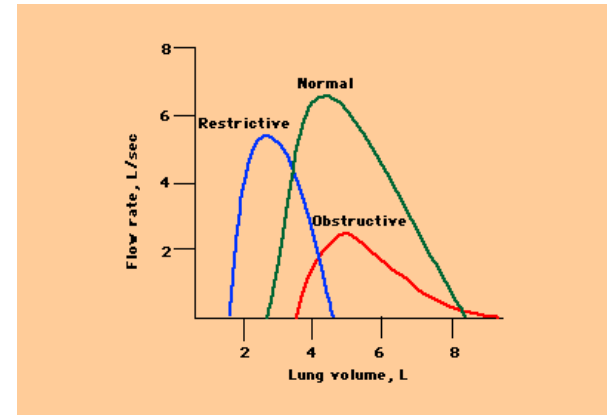
Glucocorticoid users



Proper warm-up and cool-down may prevent or reduce the incidence of exercise-induced asthma



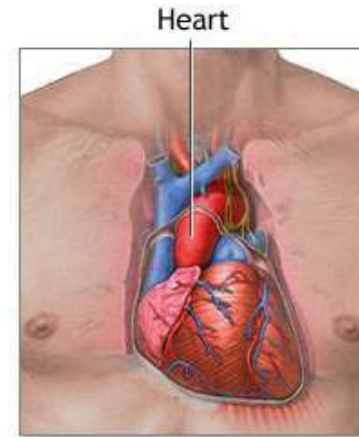
ADAM



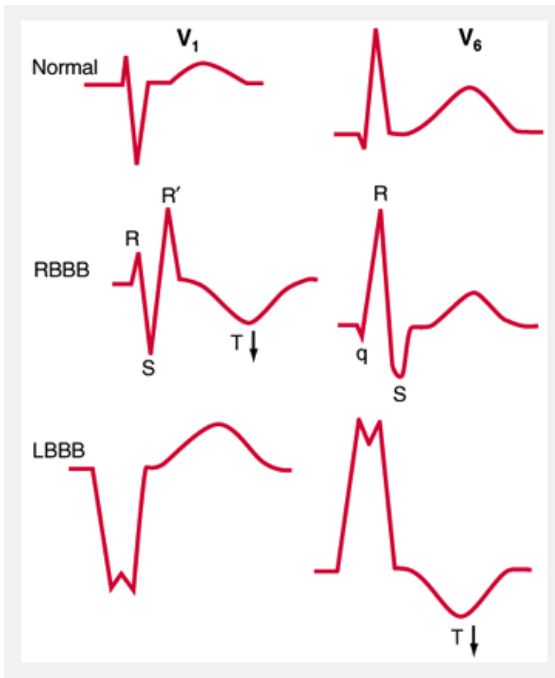
Flow-volume curves in obstructive and restrictive lung disease Sample flow-volume curves during a maximal forced expiration in normals and in obstructive and restrictive lung disease. The normal expiratory portion of the flow volume curve is characterized by a rapid rise to the peak flow rate, followed by a nearly linear fall in flow as the patient exhales toward residual volume. With obstructive disease, maximal expiration begins and ends at higher lung volumes and lower flow rates than normal. With restrictive disease, the lung volumes and flow rates are reduced but the flow in relation to lung volume is actually higher than normal.

CAD & PAIN

- ETT
- Education of symptoms
- monitor anti anginal therapy

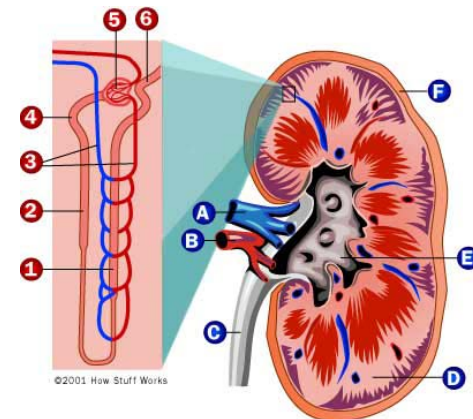


Electrocardiogram



ADAM.

HEART BLOCKS



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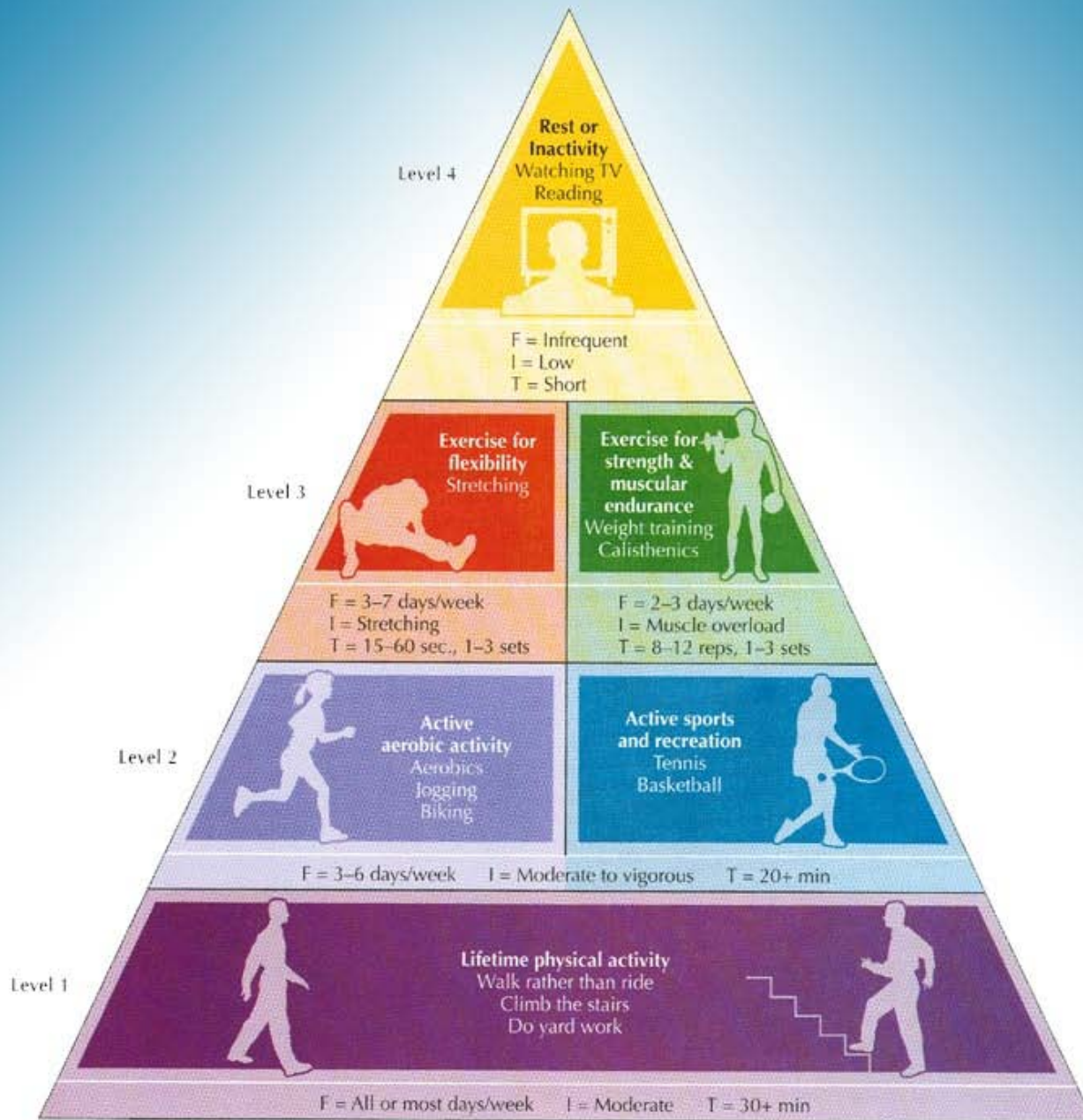


Figure 2

The physical activity pyramid.

Strength and endurance	Flexibility training	Cardiovascular training	Activity of Daily Living	M
overload	mod	Mod to severe	mod	I
rep 8-12	15-60sec	>20 min	>30 min	D(T)
2-3 days a week	3-7 days a week	3-6 days a week	5-7 days a week	F



TAKE MESSAGE HOME:



**THERE IS A VICIOUS CYCLE INVOLVING
PAIN, DISEASE & INACTIVITY**

THANK YOU FOR YOUR KIND ATTENTION

