CHRONIC PAIN, PHYSICAL ACTIVITY, AND THE ROLE OF INTERNALIST 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
<table>
<thead>
<tr>
<th>Poor posture</th>
<th>Poor posture</th>
</tr>
</thead>
</table>
| **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** |
HYPER LORDOSIS

Figure 1
Comparison of bad and good posture.
**Scoliosis**

**Kyphosis**

( Hump Back )

**FIGURE 2.**  

**FIGURE 1.**  
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.
ASIS plane / pubis plane

ANTERIOR PELVIC TILT

Vertical plane through ASIS anterior to vertical plane through symphysis pubis
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

- Osteoporosis
- DM type 2
- 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
THE AIM:
Physical activity from childhood, through adulthood and to old age has an important effect on cardiovascular fitness
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
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
BMD - 0.5-1% & 5-7% decrease during pre- and post- menopausal period respectively
Vitamins, Minerals & PAIN
Vitamin D deficiency

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

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

HEART BLOCKS
Figure 2
The physical activity pyramid.
<table>
<thead>
<tr>
<th>Strength and endurance</th>
<th>Flexibility training</th>
<th>Cardiovascular training</th>
<th>Activity of Daily Living</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>overload</td>
<td>mod</td>
<td>Mod to severe</td>
<td>mod</td>
<td>I</td>
</tr>
<tr>
<td>rep 8-12</td>
<td>15-60sec</td>
<td>&gt;20 min</td>
<td>&gt;30 min</td>
<td>D(T)</td>
</tr>
<tr>
<td>2-3 days a week</td>
<td>3-7 days a week</td>
<td>3-6 days a week</td>
<td>5-7 days a week</td>
<td>F</td>
</tr>
</tbody>
</table>
THERE IS A VICIOUS CYCLE INVOLVING
PAIN, DISEASE & INACTIVITY

TAKE MESSAGE HOME:
THANK YOU FOR YOUR KIND ATTENTION