

## Osteoporosis: Evaluation Summary

### Risk factors for developing osteoporosis (8, 9)

#### Genetic factors

- Female
- Caucasian or Asian
- Family history of osteoporosis
- Low body mass or significant decrease in body weight since the age of 25
- Early menopause

#### Health status factors

- Oophorectomy
- Estrogen deficiency
- Intestinal malabsorption
- High gastric pH
- Vitamin D deficiency
- Amenorrhea
- Various metabolic disorders
- Various medications

#### Nutritional factors

- Lifelong low calcium intake
- Very low or high protein intake
- High caffeine intake
- High phosphate intake
- High fiber intake
- High sodium intake
- Heavy alcohol consumption

#### Life-style choices

- Sedentary lifestyle
- Cigarette smoking
- Nulliparity
- Alcohol abuse
- Long-term intensive aerobic exercise during childhood and adolescence

### Risk factors for hip fracture (16)

- Maternal history of hip fracture
- Greater height
- Increased likelihood of falling

### Risk factors for falls/fragility fractures (16, 17)

- Fracture after the age of 40 (Risk of subsequent fracture, 2X)
- Postural instability
- Gait disorder
- Muscle weakness

- Poor vision
- Multiple medications
- Depression
- Poor health
- Various medications (see p. 8)
- Limited physical activity
- Smoking
- Environmental hazards, including slippery surfaces, loose wires and rugs, snow and ice, inadequate walking aids, unfamiliar environment

### Summary of Recommended Physical Examination (15)

- Vitals (include height and weight)
- Posture
- Skin
- Ophthalmoscopic examination
- Thyroid palpation
- Lymph nodes
- Breast exam (men and women)
- Gynecological exam (optional after 65)
- Testicular exam
- Heart auscultation
- Abdominal exam (palpation, auscultation in patients over 50)
- Gross range of motion of spine and extremities
- Spinal palpation for joint dysfunction

### Summary of Exam Procedures (18-22)

- Vision
- Posture
- Gait
- Balance (using a timed one-leg stand)
- AROM (spine and extremity)
- Sensory testing of lower extremity, especially the feet
- Strength testing (to include grip, quads, ankle)
- Wall sit/slide test (*See Special Appendix VIII*)
- Abdominal strength evaluation (*See Special Appendix IX*)
- Muscle tightness (to include pecs, lats, psoas, hamstrings, adductors, calf muscles)

#### Other Options

- Timed loaded standing test (indicated for kyphotic patients with limited reaching ability) (21)
- Timed Up-and-Go Test (indicated for patients with difficult ambulation) (20)
- Breathing pattern (indicated for patients with kyphosis)
- Pelvic floor test for strength
- Lung auscultation and excursion (indicated in patients with rib fracture or kyphosis)

# Osteoporosis: Management Summary

## Management Strategy Overview

- Educate patients, especially women, about how to prevent and/or manage this disorder.
- Decrease bone loss and promote bone gain.
- Increase balance and biomechanical integrity to prevent falls.
- Treat pain from postural loads and fractures while maximizing function.

## Summary of Dietary Recommendations (25-29)

- Counsel on smoking, alcohol, caffeine, protein, and phosphates
- Dietary calcium and supplements, 1,000-1,500 mg/day (See *Special Appendix V*)
- Supplement Vitamin D, 700-800 IU/day
- RDA supplements of zinc, copper, and manganese

## Summary of Exercise Options

### Increase bone density (33)

Weight bearing activities 40-60 minutes, 3 times a week to daily

Upper extremity strengthening exercise

Weight lifting

Tubing exercises (*Tubing Exercises protocol*)

### Prevent falls/increase bone density

Postural training (See *Special Appendix X*)

Chin tucks

Standing and seated Brügger positions

Scapular retraction exercises (See *Scapular Training Track protocol*)

Gait training

Stylized gait

Chair rises (See *Special Appendix XI*)

Balance (See *Special Appendix XII*)

“Sink” exercises

Rocker board (37)

Wall-push exercise (See *Special Appendix XIII*)

### Lower extremity strength (39)

Walking

Stair climbing

Wall slide/wall sit (See *Special Appendix VIII*)

Bridge (See *Special Appendix XIV*)

Quadruped leg kicks (See *Special Appendix XIV*)

Timed Up-and-Go Test (20)

### Extension/ROM (40, *Special Appendix XV*)

Standing back arch

Seated back arch

Cat stretch

### Low back strength (41)

Prone leg lifts

Prone trunk lifts

Quadruped leg kicks

### Pelvic floor strength (optional) (42)

Lying down

Sitting or standing

Dynamic

### Breathing exercises (optional) (42)

## General Self-care Advice (43-44)

- Counsel on proper eyeglasses.
- Advise on side effects of prescription and OTCs.
- Limit the intake of alcoholic beverages.
- Wear supportive, rubber-soled, low-heeled shoes. Avoid walking in socks or slip-on slippers.
- Counsel on sexual activity, ways to protect spine while coughing, and home environment.

## PARQ Conference and Charting (31)

It is very important that the patient be made aware of any additional risks that he or she may have for manual therapy and that proper informed consent be documented if osteoporosis is suspected. When making the PARQ entry, add brief notes concerning the nature or degree of the patient's risk and what additional precautions, if any, will be used to further minimize side effects (e.g., “low force techniques will be used when treating the ribs”). In such cases, a treatment alert should be placed prominently on the left side of the chart.

Record the grade of mobilization used. Grade V mobilization should be recorded in the usual fashion for adjusting: listing, adjustive procedure, response.