



## Spruce Street Osteoporosis Center

Promoting Bone Health in Boulder County

Newsletter  
January 2005  
Number 5

### Our Facility

We use a state of the art GE Lunar Prodigy densiometer with the capacity for instant vertebral assessment (IVA).

If you, or your staff, are interested in trying this technology for yourself, please schedule with Patty von Gruening, our office manager.

She can also provide you with brochures, script pads or whatever other information you might need.

You can reach Patty at ext. 102.

### Spruce Street Osteoporosis Center

2575 Spruce St.  
Boulder, CO  
80302

303.449.3594  
fax 447.0462

Medical Director: Hillary L. Browne, MD, FACP

## Bone Health & Osteoporosis

### A Surgeon General's Report

On October 14, 2004, the Surgeon General's office released a comprehensive report on osteoporosis. According to this report, 1 million Americans over the age of 50 have osteoporosis, the most common bone disease, while another 34 million are at risk for developing it. By 2020, 1 in 2 Americans over the age of 50 will be at risk for fractures from osteoporosis or low bone mass. The central focus of the report is to alert individuals and the medical community to the meaning and importance of bone health, including its impact on overall health and well-being, and the need to take action to prevent, assess and treat bone disease throughout life. The complete report can be viewed at <http://www.surgeongeneral.gov>.

## Vitamin D: for bones & beyond

From muscle strength to immunity, scientists are finding new vitamin D benefits. In the 1920's, 400 iu/d, the amount in a tsp of cod liver oil, was established as the amount to prevent rickets in children. In 1997, that amount was established as the RDA for adults 50-70(600 iu is recommended for adults older than 70). Most experts feel that 400-600 iu/d of vitamin D is nowhere near enough, especially for benefits beyond bone. Most Americans are not even getting the RDA. Low vitamin D causes rickets in children and osteomalacia in adults.

\*50% of hip fracture patients were found to be vitamin D deficient in a study in Great Britain.

\*67% of patients over age 65 admitted to the hospital were found to be vitamin D deficient.

Several studies have now demonstrated low vitamin D levels among free-living healthy young adults (AmJMed 2002; 112:659; Bone 2002 30:771.)

Prophylactic vitamin D increases muscle strength and reduces falls in the elderly by 20% at 400 iu. 800 iu/d may be the ideal dose to improve this parameter (JAMA 2004;291:1999. A meta analysis of 20 studies).

Vitamin D intake of 400 iu/d or more may decrease risk of developing MS by 60% (Neurology 2004, 62:2325.) In a study of patients labeled as having fibromyalgia, 93% had vitamin D levels below 20 ng/ml; 28% were below 8 ng/ml. (MayoClinProc.2003; 78:1463)

Low vitamin D may decrease insulin sensitivity, leading to a higher risk of Type II diabetes (AmJClinNut 2004;79:820).

Low vitamin D levels in blood are linked to increased risk of colorectal cancer in women (Epidemiology, Biomarkers and Prevention. 2004 13:1502.)

Vitamin D may protect against breast and prostate cancer, and a lack may contribute to developing those diseases (AmJClinNut 2004; 80:1721; Anti-Cancer Research 2004 24:2905.)

The best way to evaluate a patient's vitamin D level is to measure 25 hydroxy vitamin D, the precursor to active vitamin D. Although there is no consensus on adequate levels, last year a round table discussion at an osteoporosis conference in Lausanne concluded that 80 nmol/L\* is optimal. (5<sup>th</sup> Int/ Symp. on Nutritional Aspects of Osteoporosis. May 2003.14-17. Lausanne.) In North America, the typical blood concentration is 40 nmol/L. People most at risk for deficiency are darker skinned, live at temperate latitudes, elderly, shut ins, etc.

**Clinical Pearls:** Serum 25(OH) levels are important. The RDA ensures only the **absence of rickets or osteomalacia** Recommend 400-800 IU for most if not all of your adult patients (400 IU is in most multivitamins).

For elderly patients, check levels 3 months later. If the level is less than 80 nmol/L, consider giving 1000 IU/day; if not to goal in 3 months, consider 2000 IU/day (this is the tolerable upper limit or TUL) and recheck.

Calcium absorption peaks at 80 nmol/L. Optimal levels for non-bone effects are not known.

**N.B.** Most researchers say that these recommendations are far from levels that might be cause for concern. According to Reinhold Vieth, 10 times or more 400 IU/day would be safe for most individuals. (JAMA, 2004 292, no. 12:1416-1417)

\*Ideal level of 80 nmol/L = 32 ng/ml