

# Strength Training Slows Knee Osteoarthritis

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BOSTON — Lower-extremity strength training may do more to stave off the incidence and progression of knee osteoarthritis symptoms in older individuals than do conventional range-of-motion exercises, said Steven A. Mazzuca, Ph.D., at the 10th World Congress on Osteoarthritis, sponsored by the Osteoarthritis Research Society International.

Several previous studies have linked quadriceps weakness with osteoarthritis, suggesting that weak leg muscles may be a risk factor for the incidence of the condition, said Dr. Mazzuca of the division of rheumatology at Indiana University in Indianapolis. However, he noted, “research has not clearly shown whether exercises designed to improve leg strength can slow the progression of osteoarthritis.”

Dr. Mazzuca and colleagues randomized a population-based sample of 221

subjects (mean age 69 years) into either a resistance-based strength-training intervention or a range-of-motion intervention. In both groups, subjects exercised three times per week for 12 weeks at a fitness facility, then transitioned to home-based exercise by month 12 and twice-yearly “booster” sessions until month 30. Attendance at scheduled exercise sessions was similar between both groups. Of the original 221 subjects, 154 completed the study, including 72 from

the strength-training group and 82 from the range-of-motion group, Dr. Mazzuca noted.

At 30 months, those individuals randomized to quadriceps strength training retained more strength than did those in the range-of-motion group, and exhibited marginally less frequent progressive joint-space narrowing, said Dr. Mazzuca.

“Strength training decreased the rate of joint-space narrowing by 26%” compared with range-of-motion subjects, he said.

In addition, the percentage of osteoarthritic knees exhibiting more than 0.50-mm joint-space narrowing was marginally smaller in the strength-training group than it was in the range-of-motion group.

However, among knees that were normal at baseline in the strength-training group, the investigators observed an increase in incident joint-space narrowing greater than 0.50 mm, compared with the range-of-motion group. This was a finding that could not be explained, said Dr. Mazzuca. ■

## Bisphosphonate Shown to Ease Some Knee OA

SAN DIEGO — Risedronate treatment preserved trabecular bone in patients with advanced medial compartment knee osteoarthritis, and at a high dose even appeared to build it, Christopher Buckland-Wright, Ph.D., said at the annual meeting of the American College of Rheumatology.

Despite the loss of cartilage, “high doses of risedronate appeared to protect joints against bone loss, and preserved the structure and integrity,” said Dr. Buckland-Wright, professor of radiologic anatomy at King’s College London.

If the results are confirmed by additional studies, perhaps bisphosphonate treatment will be used to delay the onset of the compartmental collapse in knees affected by osteoarthritis.

Dr. Buckland-Wright presented the results of an analysis of a multicenter, placebo-controlled trial involving three different doses of risedronate in knee osteoarthritis: 5 mg/day, 15 mg/day, and 50 mg once a week. The analysis included 100 patients randomly selected from each of the four groups. Patients were selected from the entire 1,200-patient cohort.

Overall, most of the patients had evidence of vertical and trabecular bone loss during the 2-year course of the study. But among those who had progressive narrowing of the joint space, risedronate at the higher two doses appeared to preserve bone. Patients taking 15 mg/day had stabilizing of both vertical and horizontal trabeculae. In the patients taking 50 mg per week, horizontal trabeculae stabilized, and there was an increase in vertical trabeculae, Dr. Buckland-Wright said.

The study was sponsored by Procter & Gamble Pharmaceuticals Inc., Mason, Ohio.

—Timothy F. Kirn

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