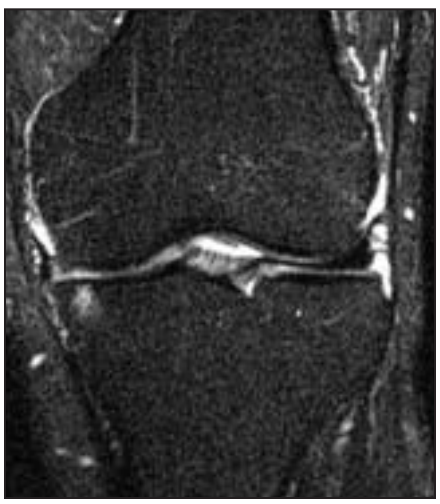
Marrow Lesions Tied to Knee OA With Exercise

BY KATE JOHNSON

MONTREAL — The presence of bone marrow lesions in pain-free knees may be a marker for an increased risk of future osteoarthritis among people who participate in vigorous activity. However, it's not known whether a modified exercise program could reduce this risk, Dr. Anita Wluka said at the World Congress on Osteoarthritis.

"It's possible that we should be changing our recommendations from weight-bearing to non–weight-bearing physical activity in this group, but this warrants further investigation," said Dr. Wluka of Monash University in Clayton, Victoria, Australia.

Dr. Wluka's findings were based on a subgroup analysis of people participating in the longitudinal Melbourne Collaborative Cohort (MCC) study, established in 1990 to assess the role of diet and lifestyle in the risk for cancer and diabetes. The original cohort included 41,500 people (aged 40-69 years). In 2002, the investigators expanded the outcomes of interest to include cardiovascular disease and metabolic syndrome.



COURTESY DR. ANITA WLUKA

A bone marrow lesion, seen on MRI in this patient's knee, may signal an increased risk of OA with exercise.

In a subanalysis, her group identified 271 individuals (aged 50-79 years) who had no knee disease or pain at baseline and results from two magnetic resonance imaging scans taken 2 years apart. Cartilage volume and defects, as well as the presence of bone marrow lesions (BMLs), were assessed on MRI.

The degree of participation in vigorous physical activity was recorded when subjects first entered the larger MCC study (1990-94), and again around the time of the first MRI (2004).

Overall, the worsening of cartilage loss and defects was similar among all of the individuals from the first to the second MRI, regardless of their level of exercise, she said.

"These were not people who ran marathons. These were people who jogged, or danced, or played tennis for more than 20 minutes—enough to raise a sweat or become short of breath."

The cohort was divided according to the presence (37 subjects) or absence (234 subjects) of BMLs on MRI. Among those with BMLs, the risk of medical knee cartilage defects and volume loss was much more pronounced among exercisers, compared with nonexercisers (odds ratio 3.4).

"This study identifies a subgroup—those with BML—who are more likely to have adverse outcomes with exercise," she concluded. "It may be that the biomechanical properties of bones with BML are altered, and this alters the ability of cartilage to withstand normal or abnormal loading related to physical activity," Dr. Wluka said.

Dr. Wluka said that her group chose to look at BMLs because they have been associated with pain and progression in patients with symptomatic OA. Even in clinically asymptomatic populations, BMLs have been associated with an increased prevalence of cartilage defects and loss, she said at the congress, which was sponsored by the Osteoarthritis Research Society International.

"I'm not suggesting everyone go out and get an MRI to see if they have BMLs, but looking at why people have BMLs might be helpful, and there might be noninvasive ways of identifying them," she said in an interview.

Dr. Wluka said she had no conflicts of interest. ■