

Perturbation Exercises Promote Stability in Knee OA

BY PATRICE WENDLING
Chicago Bureau

CHICAGO — Agility and perturbation exercises may enhance knee stability and function in patients with knee osteoarthritis, G. Kelley Fitzgerald, Ph.D., reported at a symposium sponsored by the American College of Rheumatology.

Knee instability is a common problem in knee osteoarthritis (OA) and affects physical function beyond what can be explained by knee pain and muscle weakness, said Dr. Fitzgerald, a physical therapist at the University of Pittsburgh.

Exposing the knee to such unpredictable and varied stresses can boost the patient's confidence to perform more complex movements.

In an study of 105 patients with knee OA, Dr. Fitzgerald found that 67 patients (64%) reported knee instability during daily living activities, and 47 (45%) reported that instability affects their physical function (Arthritis Rheum. 2004;51:941-6).

A gait analysis of 48 patients, led by colleague John D. Childs, Ph.D., found that those with knee OA had reduced knee flexion and extension movements and significant increases in muscle co-contractions during walking. The vastus lateralis, medial hamstrings, tibialis anterior, and medial gastrocnemius were activated about 1.5 times longer than the same muscles in controls (Clin. Biomech. [Bristol, Avon]2004;19:44-9).

To keep their knee stable, patients will often freeze their range of motion and simplify the steps necessary to perform a movement. The instability encourages them to resort to "primitive movement steps that limit their ability to perform higher level movements," he said.

The combination of restricted knee movement and increased co-contractions puts additional stress on the joint, which in turn can accelerate OA disease progression.

The same interventions used to promote knee stability in athletes with knee ligament injuries can be modified to improve knee stability and function in people with knee OA, said Dr. Fitzgerald, who recommended adding agility and perturbation exercises twice a week to a traditional strengthening and stretching program.

Such modifications mean that agility

drills with quick starts and stops are done at a walk rather than while running.

Perturbation techniques that for athletes involve a therapist rocking a roller or tilt board while the patient stands on it are done with the OA patient sitting down or while standing on both legs, rather than just one leg.

Exposing the patient's knee to such unpredictable and varied stresses can help expand movement patterns and boost the patient's confidence to perform more

complex movements, making the patient more likely to stay active, he said.

The exercises have been tried in a handful of knee OA patients, who were then able to return to higher levels of physical activity with less pain and instability following rehabilitation.

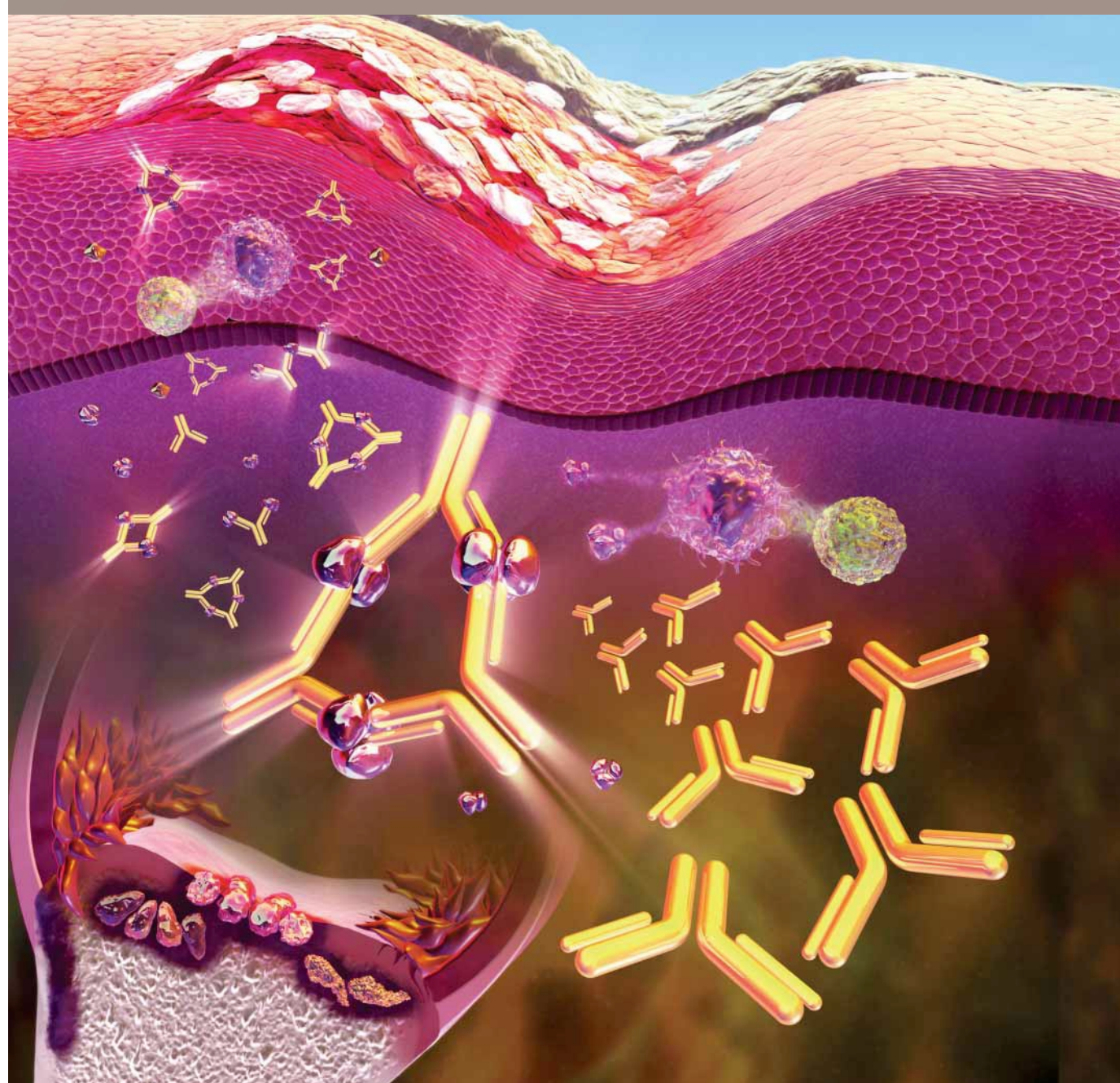
In one case report, a 73-year-old woman with bilateral knee OA who complained of partial "giving away" at the knee during walking, was able to resume playing golf and tennis, in addition to feeling more con-

fident while walking and going up and down stairs following rehabilitation. Her program consisted of a dozen sessions, held twice a week, of agility and perturbation exercises in addition to stretching, strengthening, and endurance exercises (Phys. Ther. 2002;82:372-82).

The results are "promising," Dr. Fitzgerald said. The role of agility and perturbation training will be further evaluated in a forthcoming randomized trial of 160 patients with knee OA. ■

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