



# University of Miami Faculty Help Design Nation's First Osteoporosis Physical Therapy Guidelines

Bone density loss, or osteoporosis, is a potentially devastating condition, but until recently there were no nationally recognized clinical practice guidelines for physical therapists. To remedy this, faculty at the University of Miami and peers around the country have developed guidelines to provide physical therapists better exercise-based tools to help their patients prevent or manage osteoporosis. These guidelines were recently published in the journal *Geriatric Physical Therapy*.



Gregory Hartley,  
PT, DPT

“We didn’t have any osteoporosis guidelines specifically



geared toward physical therapists,” said Gregory Hartley, PT, DPT, assistant professor of clinical physical therapy at the University of Miami Miller School of Medicine and one of the lead authors of the guidelines. “While there are osteoporosis management guidelines geared toward physicians, pharmacologists and surgeons, there was very little for physical therapists.”

Osteoporosis is a metabolic disease that disrupts the hormonal balances associated with bone formation and deformation. The lifetime risk of developing the condition is 50% for women and 20% for men. Women are at greater risk due to hormonal changes after menopause and longer lifespans.

Progressive bone weakening leads to increased vulnerability as people age. In extreme cases, patients may experience spontaneous vertebrae or other fractures while performing ordinary tasks, such as standing or bending over. Others break bones in falls, which can lead to long-term health issues.

“The combination of osteoporosis and falls creates an array of health consequences,” said Dr. Hartley. “Post-fall, post-fracture outcomes for these patients can be quite poor. This work seeks to improve treatment for one of their major risk factors.”

To generate a set of robust guidelines, the national team, recruited by the Academy of Geriatric Physical Therapy and led by Indiana University associate professor Keith Alvin, PT, Ph.D., scoured the scientific literature to find relevant clinical practice guidelines. One in particular, created in Scotland primarily for physicians, included exercise information. The group began the long process of adapting the exercise recommendations for American physical therapists.



One of the challenges was making the Scottish guidelines work in the U.S. healthcare system. Research has shown that successful interventions generally require at least six months of physical therapy. However, the U.S. system isn't built for that type of sustained treatment. The group needed to make recommendations for long-term exercise within the existing framework.

"We would need a shorter episode of care but have the patient come back in six or eight months," said Dr. Hartley. "Then the patient could come back a few months after that to review and progress the exercise program."

The goal is to produce lifelong behavior changes by encouraging patients to incorporate exercise as a long-term preventive strategy. Teaching patients the appropriate exercises and checking in with them periodically to ensure they're doing it correctly is a good model.

The guidelines include exercises to increase bone density in the femoral neck, the bone that links the femur to the hip, which can be at high risk for fractures, and vary for pre- and postmenopausal women. Before menopause, women can participate in higher-impact exercises, such as jogging, weight training or stair climbing, all of which can help maintain bone density.

Postmenopausal women may already be losing density and should rely on lower-impact activities, such as tai chi, standing on one leg or using lighter weights. Bones respond to stress, and each intervention must be personalized to help the patient increase bone density without risking injury.



Kathryn Roach, PT,  
Ph.D.

“The research shows that high-force, dynamic weightbearing exercises are not effective in postmenopausal women, contrary to what you might expect,” said co-author Kathryn Roach, PT, Ph.D., professor in the Department of Physical Therapy. “It’s also a riskier form of exercise in that group, so finding it’s not effective is important. We want clinicians to understand that they shouldn’t take that risk because it’s not likely to benefit their patients.”

The new clinical practice guidelines have already been embraced by the American Physical Therapy Association and other professional groups, but the work is far from done. Drs. Hartley, Roach and others will be speaking at conferences and distilling the guidelines into more useful formats to disseminate the information.

“The average clinician wants a translation,” said Dr. Harley. “They need to have this 20-odd page document synthesized into an easy-to-apply decision tree or algorithm or infographic that they can actually apply in their practice.”

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