

# Novel Exercise Program May Trump Meds for Dementia

Caroline Cassels | Mar 28, 2013

San Diego, California — A novel exercise program may improve physical and cognitive outcomes in patients who have dementia, with effect sizes greater than those achieved with dementia medications, new research suggests.

A pilot study showed the program, which integrates functional movement and mindful body awareness, improved patients' cognitive and physical function and quality of life and reduced caregiver burden compared with usual care (UC).

"This very small pilot study provides preliminary evidence [this program] may improve cognitive function, quality of life, physical function and caregiver burden with effect sizes that are substantially larger than what is typically seen with currently available dementia medications," principal investigator Deborah E. Barnes, PhD, MPH, University of California, San Francisco, and the San Francisco Veterans Affairs Medical Center, told delegates here attending the American Academy of Neurology (AAN) 65th Annual Meeting.

According to the investigators, traditional exercise programs have been shown to improve physical function in individuals with dementia, but little is known about the effect of exercises that integrate functional movements with mindful body awareness, which may also affect cognitive function.



**Dr. Deborah E.  
Barnes**

## Novel Program

Known as Preventing Loss of Independence through Exercise (PLIÉ), the program "combines the best elements of eastern and western exercise traditions including yoga, tai chi, Feldenkrais, physical therapy, occupational therapy, mindfulness, and dance movement therapy," said Dr. Barnes.

She added that in developing the program, the team consulted practitioners from these various traditions to determine the elements that would work best in individuals with dementia.

The resulting regimen, she said, focuses on performing basic functional movements, increasing body awareness, and encouraging social engagement.

In the 18-week study, the researchers tested the efficacy of the PLIÉ program in 6 patients with mild to moderate dementia who were attending an adult day care program and compared the outcomes with those of 5 patients who received UC in the same center. Participants in the active treatment group attended 45-minute sessions 3 days a week for 18 weeks.

Dr. Barnes noted that a key component of PLIÉ focused on promoting procedural memory through repetition of the same sequence of simple functional movements and increasing the complexity of these movements over time.

"We know that memory for events in people with dementia is very impaired but procedural memory is actually maintained pretty well. We found that even though patients didn't remember being in the class they did remember the sequence of movements. So we were building procedural memory," said Dr. Barnes.

She added that movements were functional and noted that because the day care staff was concerned about patients' falling, patients were discouraged from standing.

"Patients were being deconditioned [to stand] during the day but our program actually got them to stand and sit

safely," said Dr. Barnes.

### **Improved Social Interaction**

To foster learning and consolidation, the pace of the program was slow, said Dr. Barnes.

PLIÉ instructors also had patients sit in a circle, which Dr. Barnes reported "really promoted group movement and social interaction. We found that patients began conversing with each other and that over the weeks conversations would build and become more complex."

She added that the program allowed for a lot of rest and used mindful breathing focusing on awareness of physical sensations and emotions. Dr. Barnes said she believes that the increased awareness that came with "being in the moment physically helped patients become more aware cognitively."

Finally, she said, the program focused on creating a "loving, nonjudgmental environment to promote positive feelings and joy" and used music to enhance this effect.

Pre- and postintervention data were collected by blinded assessors, and measures included Alzheimer's Disease Assessment Scale-cognitive subscale (ADAS-Cog), Quality of Life in Alzheimer's Disease (QoL-AD), and the Short Physical Performance Battery (SPPB).

Caregiver outcomes were also measured and included their assessment of participant function, quality of life, and behaviors using the Alzheimer's Disease Cooperative Study-Activities of Daily Living (ADCS-ADL), QoL-AD, and Neuropsychiatric Inventory (NPI), respectively.

In addition, caregiver burden outcomes using the caregiver burden inventory (CBI) were evaluated.

### **Clinically Meaningful**

Baseline characteristics of patients and caregivers were similar in both groups, and the majority were women. Baseline caregiver characteristics were also similar. Most were the patients' daughters who were in their mid-50s and had been caring for their parent for an average of 3 to 4 years.

At baseline, the average Modified Mini-Mental State (3MS) score was 62 for the PLIÉ group vs 60 for those receiving UC, indicating mild to moderate dementia for both groups.

At the study conclusion, researchers observed an improvement in ADAS-Cog scores (-4.6) in the intervention group vs a worsening for the UC group (2.4), for an effect size of 0.76.

"This is substantially higher than what is usually seen with dementia medications, which is usually on the order of around 0.2 standard deviations," said Dr. Barnes, adding that a standard deviation above 0.25 is considered clinically meaningful.

The QoL-AD improved 6.0 points in the PLIÉ group vs 2.6 in the UC group and an effect size of 0.83. SPPB also improved in the PLIÉ group compared with the UC group: 1.0 vs 0.2, for an effect size of 0.34.

Dr. Barnes noted that all of these measures for PLIÉ, although not statistically significant because of the small sample size, were well within the clinically meaningful range.

The investigators also reported meaningful improvements in caregiver burden and caregiver distress.

On the basis of these findings, Dr. Barnes said she is hopeful the National Institutes of Health will fund a larger trial.

### **Exercise Under Active Investigation**

Commenting on the study for *Medscape Medical News*, David Knopman, MD, a neurologist at the Mayo Clinic in Rochester, Minnesota, and a member of the American Academy of Neurology, said the findings indicate that this is a potentially "interesting and useful approach" for patients with dementia.

Dr. Knopman added that exercise is being studied as an adjunctive therapy in Alzheimer's disease and that the methods used by various research groups probably vary widely.

He said that although the intervention developed by the investigators is potentially useful as a way to improve cognition, the small study sample is a significant limitation.

"One needs to be very careful in interpreting [the improvement in cognition] given the very small numbers of subjects. Most likely, in my opinion, the improved cognition represented a combination of improved mood, enhanced socialization, and maybe some direct benefits from the exercise."

Dr. Knopman added that he didn't have enough detail to be able to refute or verify this theory but noted that there "could be big differences between usual care and participation in this interesting program."

*Dr. Barnes and Dr. Knopman have disclosed no relevant financial relationships.*

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