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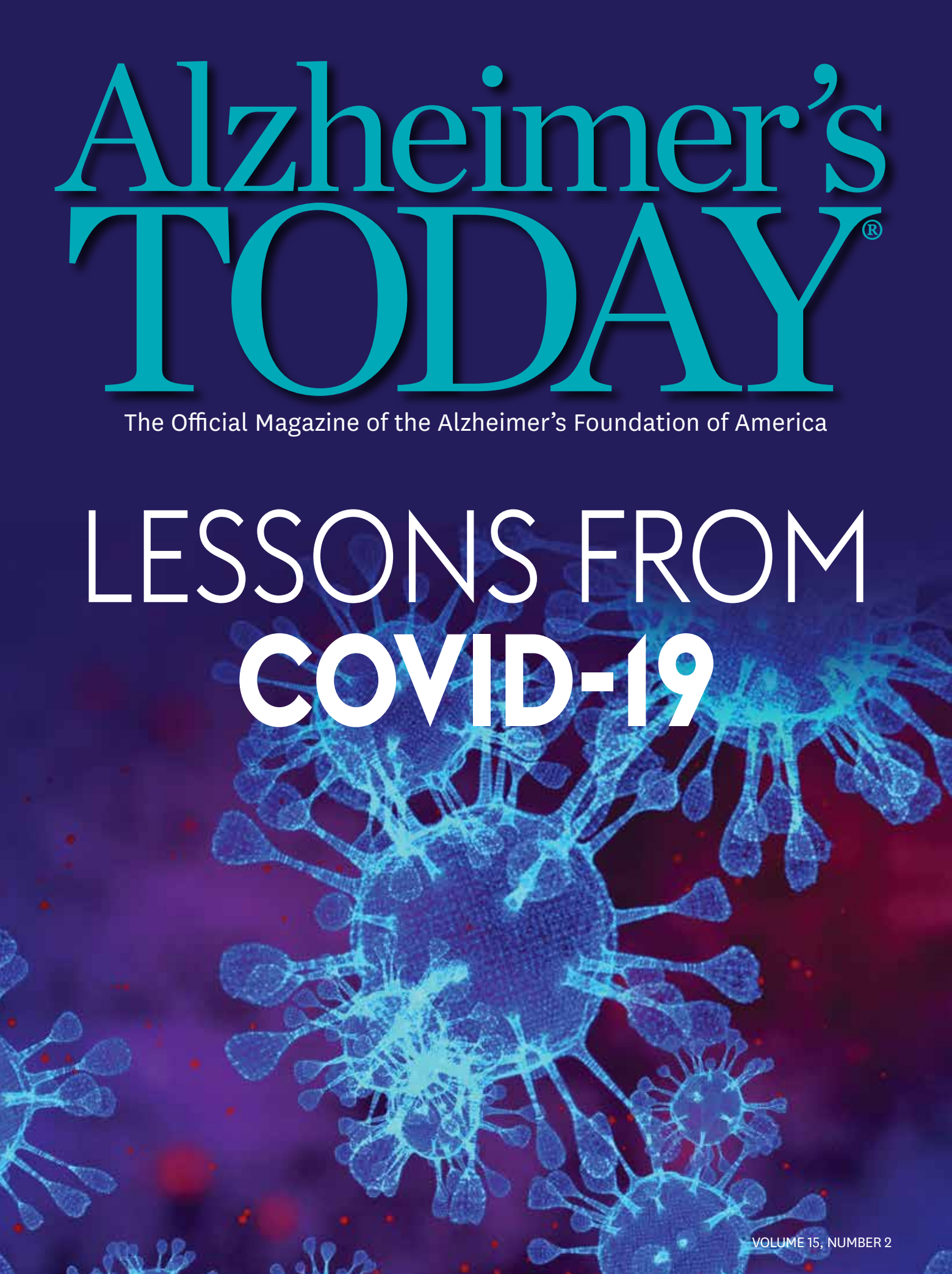

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Alzheimer's and Exercise: The Connection

By Dr. Richard Seibert

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"Grandpa really needs to exercise."

"I know, but he can't....He has Alzheimer's!"

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Alzheimer's patients need to exercise and do so regularly. Aside from the rather obvious and well documented benefits of exercise, including cardiovascular health, muscular strength, bone density and flexibility, we need to take a look at exercise for the benefit of the Alzheimer's condition itself.

This would include increased oxygenation of the blood, increased secretion of chemical messengers that transmit signals from one neuron to another, and increased endorphins and beta enkephalins that promote feelings of well-being and a positive attitude. A *Scientific American* article also reported growing evidence that physical exercise can "clean up" the hostile environments in the brains of mice with Alzheimer's, allowing new nerve cells to develop in the hippocampus, the brain structure involved in memory and learning.

As with any individual starting on an exercise regimen, clearance should be obtained from each person's neurologist and/or primary care physician. Exercise should then be guided by a professional, either a physical therapist, chiropractor or certified personal trainer who is comfortable working with special conditions. The movements chosen should be based on the individual's strength, mobility, and ability to receive instruction and perform the movements without risk of injury.

Common short-term goals could include increased muscular strength, or at least the maintenance of increased flexibility and balance. Goals can also be long-term, such as increased bone density and positive body composition changes. For persons with poor balance, modifications in the exercise routine should include exercises that may be completed while seated.

For cardiovascular and circulatory concerns, a recumbent bike or UBE (upper body ergometer), essentially a seated bicycle for the upper extremity, are excellent choices. If you haven't tried this, it is indeed a tough workout!

With regard to resistance training, movements that provide for muscular strength and challenge dexterity and balance are very important for maintaining lean body mass and stressing normal muscular coordination and motor pathways that may have been challenged due to the progression of the Alzheimer's condition. These could include squatting movements with dumbbells, lunges, and/or deadlifts. Special consideration should be taken to ensure the person is using proper technique to avoid injury.

Practicing balance by standing on a Bosu ball or BAPS board (a Biomechanical Ankle Platform System) are also considerations, if appropriate for your person. Care must be taken to make sure the person understands what is being asked of them. They may have difficulty retaining instructions and may need to have them repeated for each movement/exercise.

In terms of cardiovascular exercise, a basic formula of 220 minus the person's age is the maximum heartrate. The person should be in a zone of approximately 60 to 80 percent of maximum heartrate for approximately 12 minutes minimally, at least three times weekly, to get a positive cardiovascular effect. This is in consideration of any cardiac medication that your person may be on and, of course, with clearance from their cardiologist/internist.

In terms of weight maintenance and lean body mass while keeping body fat to a minimum, a *slower* heartrate is desired. Somewhere in the range of 55 to 70 percent maximum heartrate for a longer period of time (at least 20 minutes.) This ensures oxidation of fatty acids and a reduction in total fat mass producing a leaner, healthier body.

As it is human nature to do things that we enjoy, consideration should be given to movements and exercises that your person will like or relate to. Activities such as dancing, cycling or pool exercises (aquacise/aqua therapy) should be considered so that the exercise is not viewed as monotonous or drudgery.

Flexibility work should include stretching on a mat for a minimum of 10 to 15 minutes, with a focus on key areas, including lumbar spine (low back), quadriceps, hamstrings and calves, as well as shoulder girdle and neck stretching. Stretches should be held for 45 seconds to a minute without ballistic or bouncing movements. Stretches should be long, steady and easy with comfortable breathing.

While more research needs to be done to demonstrate the exact mechanisms that result in positive changes in the person living with Alzheimer's, the efficacy and need for exercise on a regular basis is obvious. Clearly, a varied routine based on an individual's *ability* that includes resistance/strength training, flexibility and balance exercises are a must in complete care.

Dr. Richard Seibert (www.seibertdc.com) is a chiropractor specializing in sports injuries and nutrition. He has a private practice in Merrick, NY.