

RESEARCH SUMMARY

Tai Chi Can Reduce Falls and May Help Maintain Strength for Older People

Tai Chi, a martial arts form that enhances balance and body awareness through slow, graceful, and precise body movements, can significantly cut the risk of falls among older people and may be beneficial in maintaining gains made by people age 70 and older who undergo other types of balance and strength training. The news comes in two reports appearing in the May 1996 issue of the Journal of the American Geriatrics Society. The two studies are the first involving Tai Chi to be reported by scientists in a special frailty reduction program sponsored by the National Institute on Aging (NIA).

In the first study, Steven L. Wolf, Ph.D., and colleagues at the Emory University School of Medicine, Atlanta, found that older people taking part in a 15-week Tai Chi program reduced their risk of falling by 47.5 percent. The second study, by Leslie Wolfson, M.D., and colleagues at the University of Connecticut Health Centre, Farmington, found that several interventions to improve balance and strength among older people were effective. These improvements, particularly in strength, were preserved over a 6-month period while participants did Tai Chi exercises.

The projects are among several in the NIA's Frailty and Injuries: Cooperative Studies of Intervention Techniques, or FICSIT, initiative, launched in 1990 to improve physical function in old age. Research from these and other FICSIT trials has demonstrated the benefits of strength training for older people and the value and cost-effectiveness of targeted, fall prevention programs for the elderly. It is estimated that each year falls are responsible for costs of over \$12 billion in the U.S., and the costs due to physical frailty are much higher.

The news on Tai Chi is a reminder that relatively "low tech" approaches should not be overlooked in the search for ways to prevent disability and maintain physical performance in late life. "The FICSIT studies have shown that a range of techniques, from the most sophisticated medical interventions to more 'low tech' methods, can help older people avoid frailty and falling," says Chanda Dutta, Ph.D., Director of Musculoskeletal Research in the NIA's Geriatrics Program. "We must make sure that we look at every approach, especially relatively inexpensive ones like Tai Chi", says Dutta. "People can do this at home and with friends once they have had the proper training".

The Wolf study included 200 participants age 70 and older. The participants were divided into groups for Tai Chi, computerized balance training, and education. In addition to 15 weekly sessions in which they progressed to more complex forms of Tai Chi, the participants were asked to practice at home for at least 15 minutes, twice daily.



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Another group received balance training using a computer-operated balance platform in which participants tried to improve control of their body sway under increasingly difficult conditions. The education group was asked to not change any of its current exercise regimens, and took part in weekly meetings on a variety of topics with a nurse gerontologist.

Wolf's group compared several factors before and after the interventions, and found improvements in certain key areas. The most notable change involved the reduction in the rate of falling for the Tai Chi group. The groups receiving computerized balance platform training did not have significantly lower rates of falling. The Tai Chi participants also took more deliberate steps and decreased their walking speed slightly compared to the other groups. Fear of falling also was reduced for the Tai Chi group. After the intervention, only 8 percent of the Tai Chi group said they feared falling, compared with 23 percent before they had the training.

"The Tai Chi group seemed to have more confidence," says Wolf, noting that "they had an increased sense of being able to do all that they would like to do." Wolf notes that almost half of the Tai Chi participants chose to continue meeting informally after the study was finished.

The Connecticut FICSIT site used sophisticated techniques for balance and strength training. Some 110 participants, averaging age 80, received training for 3 months. They were divided into four groups: one group received balance training in 45-minute sessions three times per week, including a computerized balance platform (of a different type than the one used in the Wolf study) as well as low-tech balance exercises; another took part in resistance training and weight lifting three times a week to improve strength; a third group did both balance and strength training, and a fourth "education" group participated in sessions on fall prevention and stress management. Everyone in the study took part in weekly Tai Chi classes for 6 months following the intensive training period.

The people in the study were evaluated before undergoing any training, immediately after the training, and after a 6-month follow-up Tai Chi program. The interventions of major focus in the study -- intensive balance and strength training -- produced marked effects. Participants had a 25 to 50 percent improvement in three different measures of balance after completing balance training, while strength training resulted in a 17 percent improvement in strength. Some of the gains immediately following the balance and strength training were lost after 6 months of the Tai Chi follow-up program. However, the participants tested significantly higher than they had before the interventions began.

Without a comparable group who did not receive Tai Chi training after exercise training, it is difficult to know for certain whether the Tai Chi contributed to maintaining gains in strength and balance. Wolfson noted that study participants might have done even better at the end of the maintenance phase had they continued the more intensive balance and strength training, but he also suggested that Tai Chi might be further studied as a less intensive way to hold onto the benefits of prior strength and balance training.



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