

In Harmony For Health

Graceful Tai Chi Appears To Boost Immunity, Including Helping Elderly Fend Off Shingles

April 24, 2007

By MELISSA HEALY, Los Angeles Times

In 12th-century China, a Taoist monk known as Chang San-Feng is said to have studied the physical movements of five animals and concluded that two - the snake and the crane - were best suited to overpower opponents who were fierce and tenacious. From that ancient observation, the slow, graceful movements of tai chi were born.

Today, with the art and exercise of tai chi growing in popularity, scientists have found that older adults who practice this martial art strengthen themselves against an opponent as stubborn as any - the tiny chickenpox virus, which can cause a painful and often persistent nerve inflammation called shingles.

The new study, published in the Journal of the American Geriatric Society, is the first - and most rigorous - of a welter of rigorous new studies designed to investigate the health effects of tai chi. Also in the works are five federally funded studies examining whether regular practice can help patients contending with heart disease, osteoarthritis and cancer fight off threats such as depression, infection and the pain of joint inflammation. Other studies are looking into whether tai chi can improve balance and reduce falls among elderly people, and improve the well-being of patients with HIV.

"Tai chi is clearly an exercise program, but it has something more," said Andrew Monjan, chief of the National Institute on Aging's neurobiology of aging branch. "It seems to be somewhat more effective than simple exercise and more effective than simple stress reduction." And older adults enjoy it, he said, making it a therapy patients will stick to.

For healthy older adults, the study demonstrated a striking immunity-boosting effect. After 16 weeks of tai chi classes - even before they received chickenpox vaccine - subjects practicing tai chi showed immunity levels to chickenpox (and hence to shingles) that were comparable to those of 30- and 40-year-olds who got the vaccine. After the tai chi practitioners received the dose, their immune response surged by 40 percent.

Compared with a similar group of older adults who did not practice tai chi but received a shot of vaccine and a 16-week health-education program, those who

practiced tai chi built stronger immunity to chickenpox and to shingles. They also showed significant improvements in measures of physical functioning, vitality and mental health.

"It looks like a strong phenomenon, a fairly robust effect," Monjan said. Tai chi's combination of slow, steady movements, rhythmic breathing and meditation appear to offer a unique mix of benefits, Monjan said. It builds aerobic conditioning. It relaxes the body's response to stress, which tends to intensify as people age. And it increases the flow of blood and oxygen to the brain.

But which of those effects produces the powerful immunity-building responses seen in the most recent study - or whether that effect is the product of some synergy among those effects - remains a mystery, he said. Future studies may seek to answer that question, Monjan said.

Dr. Michael R. Irwin, of the Norman Cousins Center for Psychoneuroimmunology at the University of California, Los Angeles, directed the study, recruiting 112 healthy adults in Los Angeles and San Diego counties, with an average age of 70. All had had chickenpox at an earlier age and so had some immunity to a recurrence. But as people age, they become more vulnerable to the virus that is left behind by chickenpox - the varicella virus, which causes shingles in 1 of 5 adults who have had chickenpox. The virus lies dormant in its host until a flagging immune system allows it to reawaken and inflame nerves.

Generally, a dose of chickenpox vaccine will boost immunity to shingles, but in older adults, that boost can be less robust than in younger patients. To test whether the practice of tai chi had an effect on immunity to varicella (and hence, to herpes zoster), Irwin divided the healthy adults into two groups. Although all received a dose of varicella vaccine, half also received 120 minutes a week of tai chi for 16 weeks, while the other half got 120 minutes per week of class time on a variety of health-related topics.

Even before the vaccine was administered after 16 weeks, the stronger immune response of the tai chi group, as compared with that of the group receiving general health instruction, was striking, Irwin said.

The tai chi group showed an effect similar to already having had the vaccine. After members of both groups got a dose of vaccine, the tai chi group's immune response picked up more steam and was almost twice as strong as that of the group that did not practice tai chi by the end of the study.

"There's a huge number of people who are not being adequately treated with the vaccine, because older adults often do not show a full response to vaccine," Irwin said. "That's what's kind of nice," he added, "that when you add a behavioral intervention, it boosts the effects of the vaccine. ... The benefit was really found in the combination."

That powerful combination of medicine and behavior, Monjan said, underscored the important link between physical and psychological health and pointed to a new way - in this case, a pleasant and accessible form of exercise - to help combat the many chronic conditions that accelerate with age.

Perhaps most encouraging, Irwin and Monjan said, is how readily accepted tai chi is by older adults who try it. The slow, dance-like movements require intense concentration and body awareness - both of which appear to contribute to its meditative, stress-reducing effects. Trying tai chi does not require a high level of conditioning or special skill, Irwin said. It is gentle on stiff joints and muscles and is accessible even to people with physical limitations such as chronic obstructive pulmonary disorder.

For 78-year-old Robert L. Smith and 74-year-old Genevieve Marcus of Los Angeles, both participants in Irwin's trial, tai chi was a new form of exercise. But it became one that the married couple adopted as a daily morning ritual. Smith, who has had knee and hip replacement and says he's "fast at everything," said he found that tai chi calmed and energized him. Marcus said it helped her hone and maintain her balance and had become a welcome, meditative part of her day.

"We feel in harmony" after conducting the slow-steady dawn sessions, Smith said. "We've just made it part of our routine."