Obesity is a problem affecting both men and women, but women may face more serious obesity-related consequences, especially as they age.

How to find an exercise that helps older women fight obesity and its associated risks has been the goal of Matthew Delmonico, University of Rhode Island (URI) assistant professor of kinesiology, who is focusing on the ancient martial art of Tai Chi as a potential solution.

Working with assistant professor Furong Xu, a colleague in URI’s department of kinesiology, and a Tai Chi expert, Delmonico recently received a $120,000 CELS CARES (College of the Environment and Life Sciences Community Access to Research and Extension Services) grant from the U.S. Department of Agriculture (USDA) to continue studying the effects of Tai Chi and a balanced diet for weight loss in older women.

Ingrid Lofgren, assistant professor of nutrition and food sciences at URI, is also an investigator on the study.

“It’s a very integrated, interdisciplinary project,” said Delmonico, adding that he couldn’t do it without the contributions of Lofgren and Xu.

Delmonico’s interest in Tai Chi began a few years ago, after discovering that Xu had taught the martial art in China, before coming to URI. More than 400 years old, Tai Chi is characterized by slow, graceful movements that emphasize balance and strength. Like yoga, it has become more popular in recent years, making it a fresh topic for exercise study, Delmonico said.

With a small grant from the Rhode Island Foundation, Delmonico and his colleagues devised a pilot program to determine whether a regular Tai Chi practice can help older, overweight women lose weight, change their body composition, increase their strength and improve their flexibility and mobility.

The term for losing muscle mass with age is sarcopenia, a condition that can lead to decreased mobility and other bodily functions. Because women live longer than men, and have more fat and less muscle in their body composition, they are most apt to end up disabled as a result of sarcopenia, Delmonico said.

The pilot program involved 11 women between the ages of 60 and 79, who met three times a week for 12 weeks in a gleaming new exercise laboratory on the first floor of URI’s kinesiology building. They took a one-hour Tai Chi class taught by Xu and received diet and nutrition counseling supervised by Lofgren. Testing before and after the study showed that Tai Chi did, indeed, make the women more limber, though it didn’t lead to significant weight loss.
“There were improvements in flexibility and a little weight loss,” said Delmonico.

These results were encouraging enough to make the researchers want to continue their inquiry, a goal made possible by the CELS CARES grant, which will finance a new study involving 30 older women. All of them will be placed on a balanced diet for weight loss, and half of them will also practice Tai Chi three times a week for 16 weeks.

“We want to give people more time for weight loss,” Delmonico said.

Fulfilling the community access portion of the grant, the researchers will take the combined weight loss/Tai Chi program to senior centers in North and South Kingstown, RI in 2012. In the following year, they will expand the program to senior centers in a more urbanized setting, such as Warwick, RI.

Training students in research procedures is one goal of the project, Delmonico said. The grant will fund three part-time graduate student internship positions for three years. In addition, the researchers hope to publish their results so others can learn from their study and they can hopefully qualify for a larger grant for more research into the benefits of Tai Chi.

“Alternative exercise” programs, such as Tai Chi and yoga, are popular with older people because they can be modified to address an individual’s physical condition and they are low-cost, said Delmonico. Tai Chi, in particular, suits the older population because it emphasizes strength and balance, which often diminish in the aged, he said.

Keeping older people fit has been the focus of Delmonico’s previous research projects at URI, all of which have also been interdisciplinary in nature. In 2008, he received another USDA-financed CELS CARES grant – this one for $99,990 – to test the hypothesis that a regimen of resistance training can help older men and women to lose weight.

Phase one of that study involved 30 men and women between the ages of 60 and 75, half of whom worked out with weights three times a week for 10 weeks, while the other half didn’t. All of the study’s participants were placed on a balanced diet for weight loss supervised by Lofgren. The study showed that the people who combined resistance training with diet lost more fat and less muscle than those who didn’t, Delmonico said.

“Those who did resistance training had better body composition,” he said.

In the fall of 2009, the researchers took their weight training-weight loss program to the North Kingstown, South Kingstown, Cranston, and Warwick, RI senior centers, enrolling 95 participants for a nine-week study. There was no control group for this phase of the study; all of the seniors worked out with weights twice a week and received counseling from a dietitian. The results were encouraging, Delmonico said, “They did great.”

Not only did their physical conditions improve when resistance training was added to their exercise routines, the seniors improved their dietary quality and really seemed to enjoy the program and stuck with it for its duration, he said.