

- ▶ Pepper Research Interview  
*Dr. Elena Volpi*
- ▶ Spotlight on Volunteer  
Registry
- ▶ Medical Student Training in  
Aging Research program
- ▶ Awards & Achievements

## UTMB Claude Pepper Center Research: An interview with Elena Volpi, M.D., Ph.D.

Dr. Volpi is an associate professor with the Department of Internal Medicine/Division of Geriatrics, and the Daisy Emery Allen Distinguished Chair in Geriatric Medicine. She is currently one of the premier investigators with the UTMB Claude Pepper Older Americans Independence Center and is core leader for the Pilot/Exploratory Studies Core. Dr. Volpi is an Endocrinologist and Gerontologist. Her research on muscle metabolism and sarcopenia dates back to 1996. Her current research examines the mechanisms of muscle loss. Dr. Volpi is accompanied by three Post-doctoral Fellows, Satoshi Fujita, Ph.D., Jersen Cadenas, M.D., and Hans Dreyer, Ph.D. The following is an interview which describes Dr. Volpi's medical background, her research interests, and the major significance of her research on the health of older adults.



**Editor: Tell us about your medical background.**

**Dr. Volpi:** I graduated with my medical degree from the University of Perugia in Italy where I also did a residency in endocrinology. I actually became involved in research during medical school. My research interest was in protein metabolism and health particularly among Type 2 diabetics.

**How did your interest in this research evolve?**

**Dr. Volpi:** The medical program I was in encouraged research for dissertation work. During the residency

program I also pursued a Ph.D. for four years because I was extremely interested in the research I had begun during that time. The main emphasis of the research was actually on the effects of alcohol on liver proteins. This was among all age groups with no emphasis on aging research. I then completed the residency program and decided to continue research in tissue protein metabolism as a whole-body approach.

I came to UTMB to do a post-doctoral fellowship under Dr. Bob Wolfe at the Shriners Burns Hospital. He suggested applying what I had done previously to include experiments in aging which was also a new area of study for him. It was actually a very casual encounter with aging that began my research career to look at the effects of aging on protein metabolism in muscle. I wanted to learn the methodology to study muscle and apply it to older populations. The first paper came out in 1998

in JCI (Volpi E, Ferrando AA, Yeckel CW, Tipton KD, Wolfe RR: Exogenous amino acids stimulate net muscle protein synthesis in the elderly. *Journal of Clinical Investigation* 101:2000–2007, 1998) and became an important landmark paper because it asked the question “what happens to protein metabolism in muscle in older people?” The paper reported that during eating, muscle does not respond to the metabolism of amino acids, the building blocks of protein, in the presence of other materials, i.e. carbohydrates due to

*continued on page 2*

the presence of insulin among diabetics as well as non-diabetics. I then met Dr. James Goodwin, who was medical director in Geriatrics at UTMB and he offered me a faculty position in the Department of Internal Medicine/Geriatrics. I then obtained an NIH R01 grant to continue my research in muscle metabolism.

During this time there was an excellent group of researchers at UTMB—muscle physiologists, endocrinologists, experts in the field of basic biomedical research in aging and researchers in rehabilitation, all of whom were familiar with some aspect of muscle

*“We need to be doing clinical trials to draw the kinds of conclusions which will have an impact on how muscle metabolism affects health of older adults. We want to continue and complete the translation of our basic knowledge into clinical practice.”*

research. Dr. Goodwin applied for a Claude Pepper Center grant to bring all these researchers together and concentrate on doing studies on aging muscle, including metabolism and function. We obtained the Pepper Center right before I left for USC. I went to USC with my husband who obtained a good position there and I was able to continue my research with my R01. However, there was not much research on aging muscle there. After four years, my husband and I decided to come back to UTMB to continue our work in an area that has great support and funding.

**Editor: What is your current role within Geriatrics and the UTMB Pepper Center?**

**Dr. Volpi:** When I returned, I received an endowed chair, the Daisy Emery Allen Distinguished Chair in Geriatric Medicine. Dr. Goodwin also appointed me as the Pilot/Exploratory Core leader of the Pepper Center. This core helps to promote innovative and methodologically rigorous research that enhances the understanding of muscle loss in aging. It also is designed to incorporate new technologies into

aging research and to stimulate translational research. Translational research is very important because it allows us to find ways of applying clinical research in community settings.

**Editor: What research studies are you involved in currently?**

**Dr. Volpi:** My R01 grant was renewed and I am now doing experiments to examine the role of insulin resistance in the mechanism of muscle growth and loss; also looking at data that examines potential differences in skin to explain the protein metabolism breakdown of skin with aging and the development of pressure sores during extended bedrest. I am collaborating with experiments on the role of muscle perfusion response to exercise and feeding. I am also collaborating with my husband on experiments to examine the mechanisms of muscle growth. I have three wonderful post-doctoral fellows who are involved with this research.

**Editor: And what are their areas of research?**

**Dr. Volpi:** Dr. Satoshi Fujita is involved in the studies of insulin resistance, Dr. Jersen Cadenas is involved in the skin studies, and Dr. Hans Dreyer is mostly working with my husband, Dr. Blake Rasmussen, on the muscle growth experiments. They are also beginning to work together and become familiar with each other's research to provide them with a broader background in working with muscle.

**Editor: How can this research be applied to the health needs of older adults?**

**Dr. Volpi:** The research I am doing is the research that connects the bench to the bedside. I am doing experiments that study individual's muscle going beyond the standard animal models. We are doing the “human experiments” to draw the kinds of conclusions which will help us understand how muscle metabolism affects the health of older adults. We want to continue and complete the translation of our basic knowledge into clinical practice.

We already have some experiments on-going. For example, Dr. Betty Protas, chair of the Department of Physical Therapy, is looking at the effects of amino acid on muscle growth supplementation over a long term period in terms of muscle mass and strength. We are hoping to enlarge the program to include more involved studies.

*continued on page 3*

## But does this fit within the Pilot/Exploratory Core objectives of the Pepper Center?

**Dr. Volpi:** Oh, definitely. We have pilot studies using long term data. Dr. Protas' study is just one of them. The idea is that we are building a case for exercise to be essential to maintaining vigorous muscle strength and discovering ways in which amino acids are important in building muscle. We still cannot tell exactly how much exercise and amino acid is necessary to build and maintain muscle mass and strength in old age. Even regarding insulin resistance, we do know that exercise unlocks the effects of insulin resistance and therefore makes the muscle more susceptible to insulin to promote muscle fiber growth regardless of the blood sugars. Insulin is normally a growth factor. And not only does it lower blood sugar, but it also induces growth at the level of muscle. When you have too much insulin it also grows endothelial tissue which is not good because it contributes to artery blockage. The trick is to monitor the correct balance of insulin to make it beneficial to the body for building muscle without resulting in negative health outcomes, such as heart disease. And exercise seems to help strike a balance in insulin production. And I'm doing experiments looking at aerobic exercise, not weight training, where more walking seems to improve the response to the older muscle.

*"The idea is that we are building a case for exercise to be essential to maintaining vigorous muscle strength and discovering ways in which amino acids are important in building muscle."*

## What is the major significance of this research?

**Dr. Volpi:** Our goal is to prevent and treat muscle loss and physical frailty in aging. What we want older people to do, generally, is to slow down their physical decline. The problem with muscle is that with a certain level of decline, a person will become more

dependent due to loss of function. We want to reduce the risk of disability and not get to the point where muscle loss leads to muscle weakness. We want to find ways to help older adults maintain their level of function. The goal for us is not so much to prolong life, but to prolong the number of functional years with good quality of life. It doesn't help anyone to increase the life span if you spend more time in a declining functional state. What we're aiming for is a rapid functional decline curve to look more rectangular with fewer years of physical decline instead of a long, slow steady rate of decline before death. We want to reduce the number of years an older person will be disabled and dependent on others.



**Editor:** There also seems to be an additional, almost hidden benefit, to maintaining your muscle strength and function by reducing possible risks for other chronic illnesses.

**Dr. Volpi:** Yes. If you keep your muscle strength you have more metabolically active tissue which is tissue you use to burn sugars and fats. So the risk of diabetes is lower. With bigger, stronger muscles, you can be more active and lower the risk for diabetes and other metabolic diseases, such as high blood pressure and high cholesterol. The more you move, the better it is for everything within the whole body. Staying active also reduces the risk for coronary artery disease. If you can get around, do your walking, anything you may want to do, stronger muscles help you maintain your independence. Maintaining good size and strong muscle also helps with balance, therefore reducing the risk of falls. You can respond better to loss of balance. So it can have an extremely important impact on people—their life and health.

**Editor:** What do you feel are the future implications and needs for this research? That is, where do you go from here?

*continued on page 4*

**Dr. Volpi:** We need larger trials. We need to dissect the mechanisms for muscle loss which are multifactorial and complex. That will allow us to devise interventions and then test the intervention in large scale clinical trials. It is possible that even simple interventions—exercise programs, changes in nutritional patterns, intake or supplementation—can have a positive impact on health. We need to find the best lifestyle regimen that not only is effective but also the most successful and appealing for older persons. This is especially important due to problems with compliance. In any intervention, we know we can tell older people that changing diet or starting an exercise program will result in improving their health. However, it is extremely difficult to get an older person, say someone who is 85, to get started on an exercise program. Most older adults either have never been involved in an exercise program or have stopped exercising with age because it becomes more difficult, or they don't have the time or motivation or they don't feel well—just numerous reasons. If we can design activity programs, such as walking or water exercises, that are appealing, this would be very good for older people. We want to find out what is the minimum dose that will allow them to regenerate muscle if they lost it or maintain their muscle strength. But it also must be enjoyable and motivating enough to allow them to keep doing it. There is no pill that can do all this. It may help to find lifestyle changes that will not dramatically force an older adult to maintain an adequate level of fitness. Then we will have achieved our main goal.

*“...find the best lifestyle regimen that not only is effective but also the most successful and appealing for older persons.”*

**Editor:** That is a hard message to get to those who probably need it the most.

**Dr. Volpi:** I know. I have a half-day clinic and I see many older diabetic patients. Since one of the staples of diabetes treatment is exercise, one of the first questions I ask my patients is “Do you do any activity at all?” because any level of activity can help. Activity improves sugar metabolism. I do encourage my patients to engage in at least 30 minutes of physical activity everyday. Just walk, do something active. If they have other problems with joints for example, I send them to a physical therapist to find things that are helpful not painful, and that fit their needs to keep them going. For those with heart trouble, it is important to consult with a cardiologist to find exercises that are safe for them to do as well as fun and enjoyable. I tell them to take the treadmill or stationary bike out of the garage, place it in front of the TV and use it! Or go to the mall and start walking. Or join exercise programs designed for seniors. These are low cost remedies. It doesn't cost much to walk around. Just find comfortable shoes and dress properly. It is a very doable thing for older adults that will have tremendous long term health benefits. It is my recommendation to any older person to move as much as they can and eat right. Increase your protein intake. But we still need long-term, larger clinical trials to perfect exactly what is needed for each individual older person.

### PEPPER CENTER RECRUITMENT

To answer questions about why muscle function deteriorates with age, researchers with the Pepper Center are looking for volunteers 60 years-old or older, and in good general health. For information contact: Susan Minello (409) 772-8350, Roxana Hirst (409) 772-3588 or use our toll-free number (800) 298-7015.

### THE SEALY CENTER ON AGING VOLUNTEER REGISTRY

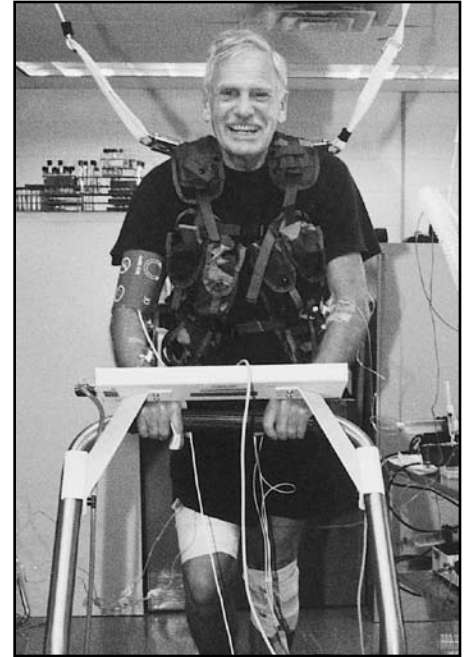
More than 800 volunteers have joined the UTMB Sealy Center on Aging Volunteer Registry to participate in a variety of UTMB research projects. If you are 55 or older and would like information on becoming a volunteer, please call Roxana Hirst or Susan Minello, registry coordinators, (409) 772-3588 or (800) 298-7015.



## SPOTLIGHT ON VOLUNTEER REGISTRY

### A chance to contribute to the scientific knowledge of aging (Excerpts from *IMPACT* article by John Koloen)

The UTMB Sealy Center on Aging (SCOA) Volunteer Registry maintains a list of people aged 55 and over that are interested in participating in research studies. Self-reported socio-demographic and health information obtained by questionnaire (and interviews with Pepper Center's Recruitment Coordinators) is stored in a database managed and analyzed by the Sealy Center on Aging. The registry is available to any researcher at UTMB. There is no charge to use the registry nor do volunteers require compensation. It facilitates research on aging by helping to recruit subjects and by disseminating information about research projects through mailing lists, newsletters, and presentations. There are now over 800 volunteers listed in the SCOA Volunteer Registry.



### Volunteering and Aging

There is a common misconception about retirement, particularly among the young, that it represents the end of a productive life. For many older Americans, the prospect of retirement represents the start of a new way of defining productivity. Results of a study by Peter D. Hart Research in 2002 found that more than half of older Americans surveyed plan to make volunteering a part of their post-work lives.

The list of organizations and type of work performed are as varied as the volunteers are themselves. Some choose to serve particular causes. Others volunteer to help favorite organizations. Some people even volunteer as subjects in scientific research. The desire to help knows no bounds and, of course, neither does the need. For example:



#### Meet Faye Woodworth...

Instead of a night on the town, Faye Woodworth celebrated her 77th birthday in bed at the University of Texas Medical Branch at Galveston.

She wasn't ill and in fact was in excellent health and spirits. It just so happened that her birthday came and

went while she participated in research on muscle function in older persons. Woodworth, of Galveston, volunteered for a bed rest study conducted in UTMB's General Clinical Research Center that lasted three weeks. Hospital staff held a party for her, though without cake.

The bed rest study, conducted by UTMB's Claude D. Pepper Older Americans Independence Center, is one of several aimed at preventing disability in older Americans. To do its work, the center relies on volunteers 60 and older. Because of the ongoing nature of the research, the need for volunteers is constant.

Pepper Center volunteers not only contribute to the advancement of scientific knowledge, they also receive information about their own health, free extensive lab work-up, free screenings for heart disease and some types of cancer, monetary reimbursement for time and travel, study-related meals and a free newsletter and health information.

"It doesn't matter where people live," said Susan L. Minello, recruitment coordinator. "They come from all over Texas and even other states."

*continued on page 6*

## RESEARCH GRANT

### Summer Research Training in Aging for Medical Students—Grant # 1 T35 AG026778-01

The Sealy Center on Aging has successfully recruited and registered four first-year medical students for the 2006 Medical Student Training in Aging Research Program (T35-MSTAR).

**Lynsey Proctor**—Research topic: Breast cancer and dementia. Mentor: Dr. Mukaila Raji, Co-mentor: Dr. Jean Freeman.

**Ike Ilochonwu**—Research topic: Stroke rehabilitation. Mentor: Dr. Kenneth Ottenbacher, Co-mentor: Dr. Glenn Ostir.

**Anthony Ehidiamen Anetor**—Research topic: Oxidative stress. Mentor: Dr. John Papaconstantinou.

**Salvador Medina**—Research topic: Muscle metabolism—Pepper research. Mentor: Dr. Elena Volpi.

The MSTAR is a collaborative effort between the University of Pittsburgh and the University of Texas Medical Branch that offers an 8–12 week intensive experience in aging research for first-year medical students. The program is sponsored by the American Federation for Aging Research (AFAR) and the National Institute on Aging (NIA) and supports four students/year with a stipend of \$1,731 per month for 2.5 months. The goals are to: 1) include trainees from diverse backgrounds; 2) offer individualized, structured training that includes a mentor, a research project,

didactics and supplementary experiences that result, at minimum, in an abstract presentation at AGS or at a National Student Research Forum; 3) promote a sense of identity and membership with the field of aging research; and 4) incorporate responsible conduct of research into the experience. The program exposes students early in their careers to exciting opportunities and engaging mentors, and offers support to remain engaged after the experience.

For more information, please contact Tony DiNuzzo, Ph.D., UTMB MSTAR program director, at (409) 772-5367 or e-mail: [adinuzzo@utmb.edu](mailto:adinuzzo@utmb.edu).

#### *Reflections on Aging*

**You don't stop  
laughing  
because you  
grow old.  
You grow old  
because you  
stop laughing.**

—Michael Pritchard



Used by permission: [www.words4ever.com](http://www.words4ever.com)

*continued from page 5*

#### **...and Andrew Watson**

Andrew Watson of Fresno, in Fort Bend County, has participated in several studies over the past year and, as a minority, is a rarity among research subjects.

Watson, 73, became a volunteer after seeing an ad in a Houston publication. “I guess there were several

things that got me involved,” he said. “One was that it was something for people over the age of 65. Another thing I felt it was a good chance to get a good physical examination. And, of course, I can't ignore the fact that the money was also an influence.”

Volunteers are under no obligation to participate in any research study. The decision is entirely within their control. “Our volunteers are given VIP treatment,” Minello said. “We know our seniors enjoy taking part in research studies because they return to participate in other studies.”

Woodworth said the bed rest research held special appeal for her. “The fact that it was a bed rest thing and I have a sister and a very good friend who have osteoporosis,” she said. “I thought, ‘Oh wow, if I could do anything to help people who have to stay in bed for a long time and I can do something to help prolong the lives of people I love and even people I don't [know] would be a worthwhile thing to do.’”

Both Woodworth and Watson say they derive personal satisfaction from participating in the studies. “My personal satisfaction is the fact that I may be able to help somebody,” Woodworth said. “I am very lucky to be a very healthy person. A lot of my friends are not. Whatever I can do to help them have a better life or to help prevent some of the things to start with is good.”

For more information on the Volunteer Registry or to volunteer to be a research subject for Pepper Center studies in Galveston, Texas, contact our recruitment coordinators through the volunteer web site, <http://www.utmb.edu/aging/volunteer/pepper.asp>, by e-mail, [Geriatric.services@utmb.edu](mailto:Geriatric.services@utmb.edu), or call toll free (800) 298-7015.



## IN THE NEWS

### AWARDS AND ACHIEVEMENTS:

► **Congratulations** to three geriatric division members who passed the American Board of Hospice and Palliative Medicine:

**Felipe Amador, M.D.**, assistant professor, Geriatrics

**Anil Garyali, M.D.**, geriatric fellow

**Lee Grumbles, M.D.**, assistant professor, Geriatrics

► **Dr. Lee Grumbles** won a Citation Award for her poster titled, "Delivery of Bad News: Using Student Performance Data to Shape the Curriculum," authors Lee Grumbles, M.D. and Karen Szauter, M.D. at the American Academy of Hospice and Palliative Medicine conference in Nashville, Tenn. on Feb. 8, 2006.

► **Junji Ueda, Ph.D.**, a post-doctoral research fellow, who works with Dr. Hiroshi Saito, assistant professor with Biochemistry & Molecular Biology, received the Emerging Scholar and Professional Organization (ESPO) award at last year's Gerontological Society of America (GSA) meeting for their poster "Age-Associated Decrease in EC-sod (sod3) Expression during Systemic Inflammation: Therapeutic Effects of a Small SOD-Mimetic Molecule" by Junji Ueda, Shoji Yamamoto, Akio Mizutani, Jie Du, B. Mark Evers, and Hiroshi Saito.

The abstract of this poster is available in Gerontologist 45 Special Issue II: p 67. You can also see an article about the awarding in the January issue of *Gerontology News* (from GSA).

► **Congratulations: (From Dr. Kenneth Ottenbacher, Associate Director, SCoA)**

We recently completed another very successful *LeFeber Winter Series on Aging*.

The Winter Series just gets bigger and better each year. This was the most successful series in terms of attendance with over 500 people attending the six lecture series.

We would like to formally thank all the Sealy Center on Aging staff who contribute to the Winter Series. Particularly **Rhonda Bailes**—who did an outstanding job of making a very complex process go smoothly.

**Great job everyone!**

► **Sealy Center on Aging Display**

The Sealy Center on Aging and the Geriatric Nursing Education Program (School of Nursing) are being featured in a display case in the hospital first floor main hallway next to Starbucks. We've already received several impressive comments, especially about the backdrop Sealy Center on Aging poster. Thanks to

Marilyn Brodwick for allowing us to display her renowned "Faces of Aging" book, and to Bert Martin (publications production manager, School of Nursing), Dr. Linda Rounds, (associate professor, School of Nursing) and Clara Coats (School of Nursing) for including us. Please take a look when you're in the area.



### Recent Publications

**Camacho M.E., Reyes-Ortiz C.A. 2005.** "Sexual dysfunction in the elderly: age or disease?" *International Journal of Impotence Research*, 17, s52—57.

**Davis M., Toombs Smith S., Tyler S. 2005.** "Improving transition and communication between acute care and long-term care: A system for better continuity of care." *Annals of Long-Term Care: Clinical Care and Aging*, 13(5), 25-32.

**Davis M., Brumfield V., Toombs Smith S., Tyler S., Nitschman J. 2005.** "A one-page nursing home to emergency room transfer form: what a difference it can make during an emergency!" *Annals of Long-Term Care: Clinical Care and Aging*, 13(11), 34-38.

**Meyler D., Stimpson J.P., Peek M.K. 2006.** "Acculturation and self-esteem among older Mexican Americans." *Aging & Mental Health*, 10(2), 182-186.

**Paddon-Jones, D., Sheffield-Moore, M., Zhang X.J, Katsanos, C.S., Wolfe, R.R. 2005.** "Differential stimulation of muscle protein synthesis in elderly humans following isocaloric ingestion of amino acids or whey protein." *Experimental Gerontology*, Nov. 22, 2005.

**Raji M.A. 2006.** "On depression, antidepressant medications and resuscitation preferences in COPD patients." *Chest*, 129 Jan (1), 211.

**Raji M.A., Goodwin J.S. 2006.** "Biology of Aging." In: *Geriatric Otolaryngology*. Calhoun K.H., Eibling D.E., editors. ISBN: 0824728505. Taylor & Francis, New York, NY, pp 17-23.

**Invited Reviews:**

**Paddon-Jones, D.** "Inactivity and muscle loss: nutritional countermeasures. Recent Advances in Nutritional Sciences." *Journal of Nutrition*.

**Paddon-Jones, D., Sheffield-Moore M.** "Anabolic agents and muscle protein synthesis." *European Journal of Sports Science*.



Sealy Center on Aging  
Volunteer Registry  
301 University Boulevard  
Galveston, TX 77555-0460

Non-profit Organization  
U.S. Postage  
PAID  
Galveston, TX  
Permit No. 5

## Information

Contact Tony DiNuzzo, Ph.D., at (409) 772-5367, or the Sealy Center on Aging, (409) 747-0008, for information regarding items in this issue.

**THE SEALY CENTER ON AGING** at UTMB has openings for postdoctoral positions for Fall of 2006. Funded by a training grant from the National Institute on Aging, these research positions focus on the health of older minorities, with a particular emphasis on older Hispanics. Fellows will collaborate with any of more than 15 Center faculty with over \$42 million in aging research in the areas of medical outcomes, health service utilization, social epidemiology, psychosocial stress, and health promotion as they pertain to older minorities. The salary stipend for postdoctoral positions ranges from \$37,000–\$51,036 depending on experience level. Applicants must be U.S. citizens or permanent residents. Applicants should send a letter stating research interests, relevant prior training, and curriculum vitae to: Karl Eschbach, Ph.D., Sealy Center on Aging, The University of Texas Medical Branch, 301 University Blvd., Galveston, TX, 77555-0460. Email: kaeschba@utmb.edu.

UTMB is an equal opportunity, affirmative action institution which proudly values diversity. Candidates of all backgrounds are encouraged to apply.

**Donations and Bequests** UTMB's Sealy Center on Aging welcomes contributions to further geriatric research, education and training. You can help by contributing to the Fund for the Study of Aging, or contact us for information on how to select a particular program to support. Donations can be made to honor an individual and are deductible for income tax purposes to the extent allowed by law. Donations and bequests may be sent to:

The Fund for the Study of Aging  
The Sealy Center on Aging  
UTMB Office of University Advancement  
301 University Blvd.  
Galveston, TX 77555-0842

Please direct inquiries to: (409) 772-3950.

For more information on the Sealy Center on Aging, please go to our web site: <http://www.utmb.edu/aging/>