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The Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University (HNRCA) is the largest research center in the world dedicated to the study of nutrition, physical activity, and healthy & active aging. In 2011-2012, our scientists in 19 individual laboratories made groundbreaking discoveries impacting nutritional research and clinical practice, and influencing guidelines for adult nutrition around the world.

MyPlate for Older Adults

MyPlate for Older Adults is a new tool to guide seniors in meeting their daily nutrient, fluid and physical activity needs. Created by Dr. Alice Lichtenstein, Director of the Cardiovascular Nutrition Lab, with support from her team, the symbol is an excellent guide for healthy, older adults who are living independently and looking for examples of good food choices and guidance in terms of fluid intake and physical activities.

Strength Training Prevents and Reverses Muscle Loss in Seniors

HNRCA researchers led by Dr. Roger Fielding in the Nutrition, Exercise, Physiology and Sarcopenia Laboratory confirm that middle age adults should lift weights at least twice a week to retain muscle and consume protein to manufacture the lean tissue. The loss of muscle, known as sarcopenia, a term coined at the HNRCA by Dr. Irwin Rosenberg, slows the body’s resting metabolic rate, causing weight gain as well as difficulty in performing basic tasks like carrying groceries. Weight training that targets specific muscle groups can slow and even reverse this loss of function. Related findings were published in the Journal of the American Medical Directors Association in 2011.

New Research Clusters

Four new Research Clusters were established in 2012 for the purpose of enhancing collaboration within the HNRCA, throughout the University, and eventually, across institutions. The Clusters address: Cancer; Cardiovascular Disease; Inflammation, Immunity and Infectious Diseases; and Obesity. The Clusters are advancing their scientific agendas and building multi-lab teams. Their work is leading to new research ideas, plans for pilot studies, cross-disciplinary collaboration, and key milestones.
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**HNRCA'S TOP STORIES OF 2011-2012**

**Lower Glycemic Index Diet Delays Macular Degeneration**

Dr. Allen Taylor, Director of the Nutrition and Vision Research Laboratory, and colleagues, found that feeding older mice a low glycemic index (GI) diet delays the onset of age-related, sight-threatening retinal lesions. More than a higher GI diet demonstrably delayed accumulations of debris known as advanced glycation end-products (AGEs) in the whole retina, particularly in the cells of the retinal pigment epithelium (RPE). The RPE plays a crucial role in maintaining vision and its degenerative effects cause visual loss that is the hallmark of Age-Related Macular Degeneration (AMD). Results were published in Aging Cell in 2012.

**World Health Day 2012**

In collaboration with the World Health Organization (WHO), the Pan-American Health Organization (PAHO), MIT AgeLab, Harvard Graduate School of Design, and the Massachusetts Office of Elder Affairs, the HNRCA hosted World Health Day 2012: Population Aging and Urbanization. The event brought together world experts on aging and urban planning, and resulted in a working group with WHO and PAHO to raise awareness regarding the importance of nutrition and physical activity for healthy and active aging around the world.

**Fat Hormone Increases Risk for Dementia in Women**

An increased presence of the hormone adiponectin can increase the risk for loss of brain function and Alzheimer’s disease. New findings from HNRCA Dr. Ernst Schaefer, Director of the Lipid Metabolism Laboratory, and colleagues. Adiponectin levels are a strong predictor of risk for Alzheimer’s disease, according to research. They found that older women who had developed dementia also had higher levels of the hormone. HNRCA researchers tracked data from 841 participants of the Framingham Heart Study for the findings, which were published in a January 2012 issue of Archives of Neurology.

**Vitamin D Improves Glucose Tolerance in Adults at Risk for Type 2 Diabetes**

Adults with lower blood levels of vitamin D are thought to be at increased risk of developing type 2 diabetes. HNRCA researchers in the Bone Metabolism Laboratory, in collaboration with scientists at Tufts Medical Center, conducted a study to examine the effect of 2000 IU of vitamin D per day compared with placebo on insulin secretion in adults at high risk for developing type 2 diabetes. Supplementation significantly improved glucose tolerance, mainly by increasing insulin secretion. This study suggests a favorable effect of vitamin D on glucose handling, and results were published in the American Journal of Clinical Nutrition in 2011.

**Focus on Functional Genomics**

The HNRCA is a world leader in the study of gene-diet interaction. The Center’s Nutritional Genomics Laboratory, led by Dr. Jose Ordovas, utilizes both genetic epidemiology and controlled dietary intervention studies. In 2012, the HNRCA established a Functional Genomics Core Scientific Service, to enable more researchers to incorporate this growing area of study into their investigations. Dr. Ordovas received the 2012 Francisco Grande Corvina award and was 2011 winner of the Grand Prix de la Science de l’Alimentation of L’Academie Internationale de la Gastronomie for his pioneering work.

**Restaurant Calorie Counts Misleading**

Dr. Lorien Urban, Postdoctoral Associate, and Dr. Susan Roberts, Director of the Energy Metabolism Lab, and author of The I Diet, published in 2011, reported on research showing that restaurant stated calories have variable accuracy. In particular, “lower in calories” (less than 500) menu selections were found to contain significantly more than stated. This presents a challenge to dieters who rely on self-reported calories to monitor intake. The findings were featured in hundreds of popular media accounts including CNN and the Associated Press. Results were published in the Journal of the American Medical Association in July, 2012.

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