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KLRI RELEASES 3rd ANNUAL REPORT ON YEAR'S TOP LONGEVITY RESEARCH FINDINGS

Vitamin D Deficiency Particularly Concerning in Older Americans

Washington, D.C., Tuesday, May 12, 2009 --- Today the Kronos Longevity Research Institute (KLRI) released its third annual report on top longevity research findings over the last year.

Director S. Mitchell Harman, Ph.D. was joined by Carey Gleason, PhD, Associate Scientist/Geriatric Neuropsychologist from the University of Wisconsin and Arthur Weltman, PhD, Professor for the Department of Human Services and Department of Medicine, University of Virginia to discuss the findings. Leading aging research institutes and advocacy groups attended the event.

"KLRI continues its mission to bring top longevity research from the laboratory to patient care with the release of our annual report," said Harman. "We have seen many advances in our understanding of the aging process this year. This research is the cornerstone of our ability as scientists and doctors to help people live longer, healthier lives."

The state of the science report "Grey is the New Gold 2009: Optimism in Longevity Science" explored the following issues.

Vitamin D. Vitamin D is turning out to be a critically important vitamin for all aspects of health, particularly those related to aging. Low levels have been linked to urinary incontinence, problems swallowing (dysphagia), breathing ability (increasing the risk of pneumonia), age-related macular degeneration, dementia, influenza and several cancers, including colon, breast and prostate. Yet 40 to 100 percent of elderly men and women living in the community, and more than half of postmenopausal women taking osteoporosis medication, have clinically low levels of vitamin D.

Oxidation, inflammation and insulin resistance. These are the "three horseman of aging," believed to underlie nearly all age-related diseases and processes. Current work at KLRI includes a study to see if insulin sensitizers can reduce inflammation and oxidative stress. Elsewhere in the country, researchers are investigating the role of nutrition in stemming oxidation, inflammation and insulin resistance, finding that powerful plant-based antioxidants called polyphenols can prevent and reverse the effects of aging on memory brain cells and function.

Telomeres and insulin resistance. Telomeres are caps on the end of a cell's chromosomes that help keep chromosomes stable, just as the cap on a pen prevents ink from leaking. With time, however, the telomere shrinks. The shorter the telomere, the worse the cell functions and the closer it is to death. New research suggests that in addition to age, being overweight or obese can wreak havoc on telomere length even in your twenties, thanks to insulin resistance.

Physical fitness and exercise training. To learn more about the benefits of exercise in preventing age-related declines, KLRI researchers have begun a study to measure the response of fit and unfit older men and women to two acute stressors: a blood pressure test, which increases oxidative stress, and a psychological test, which increases neuroendocrine stress, releasing inflammatory chemicals. Researchers will also look for any link between oxidative stress and neuroendocrine responses.

Calorie restriction. Numerous studies have found that restricting an animal's calories by 25 to 30 percent can extend their lifespan. A five-year trial called CALERIE (Comprehensive Assessment of Long-term Effects of Restricted Intake of Energy), which involves 250 healthy volunteers ages 25 to 45 assigned to either restrict their calories by 25 percent or be part of a control group, has already produced some interesting data. For instance, calorie restriction reduces insulin levels, core body temperature, energy expenditure and DNA damage. It can also increase cellular resistance to stress proteins.

Hormones and aging. While the Kronos Early Estrogen Prevention Study (KEEPS), designed to evaluate the effect of estrogen on heart disease in younger, postmenopausal women, continues, ancillary studies underway could provide interesting data on other topics. These include menopause and age-related skin changes and the effects of estrogen on blood cell function and the formation of blood clots. Meanwhile, KLRI's TEAAM (Testosterone Effects on Atherosclerosis in Aging Men) completed recruitment and is engaged in the research necessary to track the effect of supplemental testosterone on a variety of age-related markers. While both trials will examine the role of hormones in cognitive function, research published this year from other studies found no effects from either a low dose of estrogen or supplemental testosterone on cognition.

The Longevity Dividend. The Longevity Dividend is based on the theory that if we can intervene scientifically to slow the aging process and delay the onset of age-related diseases, trillions of dollars now spent on health care could be redirected to schools, energy, jobs, infrastructure—the "dividend." A group of leading scientists hopes to convince the federal government to change medical research funding from its focus on individual diseases to a focus that recognizes the importance of research into the underlying biology of aging. Only then, they contend, can the Longevity Dividend become a reality.

KLRI Research in 2008/2009. In addition to KLRI's longer-range studies on the possible cardio-protective effects hormone replacement therapy in women close to the menopausal transition (KEEPS) and the impact of testosterone on aging men (TEAMM), KLRI conducted a number of other studies, including research published in the *Journal of the American Aging Association* showing that statin use in older adults does not negatively affect aerobic exercise or high-intensity weight training; a March 2008 report published in the *Hormonal and Metabolic Research* which demonstrated that after 10 weeks on a high omega-3 fatty acid diet participants demonstrated significantly greater insulin sensitivity and lower levels of some circulating inflammatory markers, as well as releasing fewer fat molecules; and a small pilot study that investigated the effects of vinegar on hunger, fullness and glucose absorption over a three-hour period.

About the Kronos Longevity Research Institute (KLRI) -- KLRI, a not-for-profit 501(c) (3) organization, is a leader in developing new modes of prevention and treatment to enhance human longevity. KLRI is the only independent research institute devoted exclusively to translating basic discoveries in the process of aging into useful tools, improved medical care and healthier lives. KLRI's research is conducted by its own highly regarded scientists and through collaborations with some of the nation's leading medical research centers. Because KLRI conducts pioneering research in an area of science that is poorly understood, KLRI offers the potential to make seminal contributions that benefit not only the growing population of older Americans, but people everywhere and generations to follow.

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